AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

12-20-85
Vol. 50 No. 245
Pages 51835-52206

# Federal Register

Friday
December 20, 1985

**Briefings on How To Use the Federal Register—**
For information on briefings in Washington, DC, see announcement on the inside cover of this issue.

## Selected Subjects

**Air Pollution Control**
Environmental Protection Agency

**Air Traffic Control**
Federal Aviation Administration

**Animal Diseases**
Animal and Plant Health Inspection Service

**Aviation Safety**
Federal Aviation Administration

**Communications Equipment**
Federal Communications Commission

**Endangered and Threatened Species**
Fish and Wildlife Service

**Environmental Protection**
Interior Department

**Fisheries**
National Oceanic and Atmospheric Administration

**Food Additives**
Food and Drug Administration

**Government Contracts**
Immigration and Naturalization Service

**Hazardous Substances**
Environmental Protection Agency

**Income Taxes**
Internal Revenue Service

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# Selected Subjects

**FEDERAL REGISTER** Published daily, Monday through Friday, (not published on Saturdays, Sundays, or on official holidays), by the Office of the Federal Register, National Archives and Records Administration, Washington, DC 20408, under the Federal Register Act (49 Stat. 500, as amended; 44 U.S.C. Ch. 15) and the regulations of the Administrative Committee of the Federal Register (1 CFR Ch. I). Distribution is made only by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

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Questions and requests for specific information may be directed to the telephone numbers listed under INFORMATION AND ASSISTANCE in the READER AIDS section of this issue.

**How To Cite This Publication:** Use the volume number and the page number. Example: 50 FR 12345.

**Labeling**
Alcohol, Tobacco and Firearms Bureau

**Marketing Orders**
Agricultural Marketing Service

**Mortgage Insurance**
Housing and Urban Development Department

**National Parks**
National Park Service

**Occupational Safety and Health**
Occupational Safety and Health Administration

**Pesticides and Pests**
Environmental Protection Agency

**Radiation Protection**
Nuclear Regulatory Commission

**Savings and Loan Associations**
Federal Home Loan Bank Board

**Surface Mining**
Surface Mining Reclamation and Enforcement Office

## THE FEDERAL REGISTER: WHAT IT IS AND HOW TO USE IT

**FOR:** Any person who uses the Federal Register and Code of Federal Regulations.

**WHO:** The Office of the Federal Register.

**WHAT:** Free public briefings (approximately 2 1/2 hours) to present:

1. The regulatory process, with a focus on the Federal Register system and the public's role in the development of regulations.
2. The relationship between the Federal Register and Code of Federal Regulations.
3. The important elements of typical Federal Register documents.
4. An introduction to the finding aids of the FR/CFR system.

**WHY:** To provide the public with access to information necessary to research Federal agency regulations which directly affect them. There will be no discussion of specific agency regulations.

### WASHINGTON, DC

**WHEN:** January 17; at 9 am.

**WHERE:** Office of the Federal Register, First Floor Conference Room, 1100 L Street NW., Washington, DC.

**RESERVATIONS:** Howard Landon 202-523-5227 (Voice)
Melanie Williams 202-523-5229 (TDD)

**FUTURE WORKSHOPS:** Additional workshops are scheduled bimonthly in Washington and on an annual basis in Federal regional cities. Dates and locations will be announced later.

**NOTE: There will be a sign language interpreter for hearing impaired persons at this briefing.**

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# Rules and Regulations

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This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.
The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

## DEPARTMENT OF JUSTICE

### Immigration and Naturalization Service

### 8 CFR Part 238

### Contracts With Transportation Lines; Addition of Continental Airlines

**AGENCY:** Immigration and Naturalization Service, Justice.

**ACTION:** Final rule.

**SUMMARY:** This rule amends the listing of transportation lines which have entered into agreements with the Service for the preinspection of their passengers and crew at locations outside the United States by adding the name of Continental Airlines.

**EFFECTIVE DATE:** December 11, 1985.

**FOR FURTHER INFORMATION CONTACT:** Loretta J. Shogren, Director, Policy Directive and Instructions, Immigration and Naturalization Service, 425 I Street NW., Washington, DC 20536. Telephone: (202) 633-3048.

**SUPPLEMENTARY INFORMATION:** The Commissioner of Immigration and Naturalization entered into an agreement with Continental Airlines to provide for the preinspection of their passengers and crew as provided by section 238(b) of the Immigration and Nationality Act, as amended (8 U.S.C. 1228(b)). Preinspection outside the United States facilitates processing passengers and crew upon arrival at a U.S. port of entry and is a convenience to the travelling public.

Compliance with 5 U.S.C. 553 as to notice of proposed rulemaking and delayed effective date is unnecessary because the amendment merely adds transportation lines' names to the present listing and is editorial in nature.

This order constitutes a notice to the public under 5 U.S.C. 552 and is not a rule within the definition of section 1(a) of E.O. 12291.

**List of Subjects in 8 CFR 238**

Aliens, Common carriers, Government contracts, Inspections, Transportation lines.

Accordingly, Chapter I of Title 8 of the Code of Federal Regulations is amended as follows:

### PART 238—CONTRACTS WITH TRANSPORTATION LINES

1. The authority citation for Part 238 continues to read as follows:

Authority: Secs. 103 and 238 of the Immigration and Nationality Act, as amended (8 U.S.C. 1103 and 1228).

**§ 238.4 [Amended]**

In § 238.4 Preinspection outside the United States, the listing of transportation lines is amended by adding the name Continental Airlines under "At Vancouver".

* * * * *

Dated: December 12, 1985.

**Marvin J. Gibson,**

*Acting Associate Commissioner, Examinations, Immigration and Naturalization Service.*

[FR Doc. 85-30177 Filed 12-19-85; 8:45 am]

BILLING CODE 4410-10-M

## DEPARTMENT OF AGRICULTURE

### Animal and Plant Health Inspection Service

### 9 CFR Part 77

**[Docket No. 85-126]**

### Tuberculosis in Cattle; State Designations

**AGENCY:** Animal and Plant Health Inspection Service, USDA.

**ACTION:** Final rule.

**SUMMARY:** This document amends the regulations governing the interstate movement of cattle because of tuberculosis by lowering the designation of New Mexico from an accredited-free State to a modified accredited area. It has been determined that New Mexico no longer meets the criteria for designation as an accredited-free State but meets the criteria for designation as a modified accredited area.

The regulations do not impose restrictions on the interstate movement of cattle not known to be affected with or exposed to tuberculosis from either accredited-free States or modified accredited areas. However, the designation for any given jurisdiction can affect the marketability of cattle from that jurisdiction, since some prospective cattle buyers prefer to buy cattle from accredited-free States.

**EFFECTIVE DATE:** January 21, 1986.

**FOR FURTHER INFORMATION CONTACT:** Dr. Ralph L. Hosker, Cattle Diseases Staff, VS, APHIS, USDA, Room 818, Federal Building, 6505 Belcrest Road, Hyattsville, MD 20782, 301-436-8715.

**SUPPLEMENTARY INFORMATION:**

**Background**

The "Tuberculosis in Cattle" regulations (contained in 9 CFR Part 77 and referred to below as the regulations) regulate the interstate movement of cattle because of tuberculosis. The requirements of the regulations concerning the interstate movement of cattle not known to be affected with or exposed to tuberculosis are based on whether the cattle are moved from jurisdictions designated as accredited-free States, modified accredited areas, or nonmodified accredited areas. The criteria for determining the status of States (the term State is defined to mean any State, territory, the District of Columbia, or Puerto Rico) or portions of States is contained in the document captioned "Uniform Methods and Rules—Bovine Tuberculosis Eradication," which has been made part of the regulations by incorporation by reference. Generally the status of States or portions of States is determined based on the rate of tuberculosis infection present and the effectiveness of a tuberculosis control and eradication program.

A document published in the Federal Register on September 30, 1985 (50 FR 39711-39712), proposed to amend the regulations by lowering the designation of New Mexico from an accredited-free State to a modified accredited area.

Comments were solicited concerning the proposal for a 30-day period ending November 29, 1985. No comments were received. Based on the rationale set forth in the proposal, the regulations are amended as proposed.

**Executive Order and Regulatory Flexibility Act**

This action is issued in conformance with Executive Order 12291 and has been determined to be not a major rule. Based on information compiled by the Department, it has been determined that this action will not have a significant effect on the economy; will not cause a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions; and will not have any significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

For this action, the Office of Management and Budget has waived its review process required by Executive Order 12291.

Cattle moved interstate are moved for slaughter, for use as breeding stock, or for feeding. It has been determined that this action will not have a significant effect on marketing patterns and will not have a significant economic impact on those persons affected by this document.

Under these circumstances, the Administrator of the Animal and Plant Health Inspection Service has determined that this action will not have a significant impact on a substantial number of small entities.

**Executive Order 12372**

This program/activity is listed in the Catalog of Federal Domestic Assistance under No. 10.025 and is subject to the provisions of Executive Order 12372 which requires intergovernmental consultation with State and local officials. (See 7 CFR Part 3015, Subpart V.)

**List of Subjects in 9 CFR Part 77**

Animal diseases, Cattle, Transportation, Tuberculosis.

## PART 77—TUBERCULOSIS IN CATTLE

Accordingly, 9 CFR 77 is amended as follows:

1. The authority citation for Part 77 continues to read as set forth below:

**Authority:** 21 U.S.C. 111, 114, 114a, 115–117, 120, 121, 134b, 134f; 7 CFR 2.17, 2.51, and 371.2(d).

2. In § 77.4, paragraph (b) is revised to read as follows:

**§ 77.4 Accredited-free States.**

(a) * * *

(b) The following States are hereby designated accredited-free States: Arizona, Colorado, Connecticut, Delaware, Indiana, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Dakota, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Utah, Vermont, Wyoming, and the Virgin Islands of the United States.

Done at Washington, DC, this 17th day of December, 1985.

**G.J. Fichtner,**

*Acting Deputy Administrator, Veterinary Services.*

[FR Doc. 85-30174 Filed 12-19-85; 8:45 am]

BILLING CODE 3410-34-M

## FEDERAL RESERVE SYSTEM

**12 CFR Part 265**

**[Docket No. R-0564]**

### Delegation of Authority to Reserve Banks To Act on Certain Applications Requiring Prior Approval of the Federal Reserve Board and To Furnish Certain Competitive Factor Reports

**AGENCY:** Board of Governors of the Federal Reserve System.

**ACTION:** Final rule.

**SUMMARY:** The Board is amending 12 CFR Part 265, its Rules Regarding Delegation of Authority, to delegate to the Federal Reserve Banks authority to act on certain applications requiring prior approval of the Federal Reserve Board and to furnish certain competitive factor reports. It is expected that this delegation of authority would aid in the expeditious processing of certain applications requiring the Board's prior approval and furnishing of certain competitive factor reports.

**EFFECTIVE DATE:** December 16, 1985.

**FOR FURTHER INFORMATION CONTACT:** Stephen A. Rhoades, Chief, Financial Structure Section, (202/452-3906) or Jim Burke, Economist and Coordinator of Casework, Financial Structure Section, Division of Research and Statistics (202/452-2612), Board of Governors of the Federal Reserve System, Washington, DC 20551.

**SUPPLEMENTARY INFORMATION:** The Board has considered and approved a number of applications where the only aspect of the applications that precluded delegation was the inability to meet one or both of two delegation criteria. Thus, the cases were only considered by the Board because both of the banking organizations involved were among a state's 10 largest banking organizations; or each of the banking organizations had over $100 million of total deposits in banking offices in the same banking market that, after consummation of the proposal, would control over 10 percent of total deposits in that market. Many of these cases could have been processed under delegated authority had this amendment to the Board's Rules been in place, while those cases requiring closer scrutiny and consideration by the Board would still have been retained for the Board's review.

In light of this experience, the Board believes the Reserve Banks should be delegated the authority to approve applications unless both of the banking organizations involved are among the five largest banking organizations in any of their respective states, or among the 50 largest banking organizations in the United States; or if the banking organizations have a combined market share (on a banks-only basis) of over 30 percent, or consummation of the proposal would result in an increase of at least 200 points in the Herfindahl-Hirschman Index ("HHI") in a highly concentrated market (a market with a post-merger HHI of at least 1800).

In addition, in line with the policies of the Board and the Department of Justice, the Reserve Banks should be delegated the authority to approve applications involving divestitures designed to address any substantial anticompetitive effects, unless such divestitures are not to be effected on or before consummation of the proposed transaction.

The amendment to the Board's Delegation Rules would expedite applications processing and would decrease the number of Board cases that do not present significant issues.

**Regulatory Flexibility Act Analysis**

Pursuant to section 605(b) of the Regulatory Flexibility Act (Pub. L 96-354, 5 U.S.C. 601 et seq.), the Board certifies that the proposed amendment, if adopted, will not have a significant economic impact on a substantial number of small entities. The proposed amendment would ease the application of the existing regulations and does not have particular effect on small entities.

**Public Comment**

The provisions of section 553 of Title 5, United States Code, relating to notice, public participation, and deferred effective date have not been followed in connection with the adoption of this amendment because the change to be effected is procedural in nature and does not constitute a substantive rule subject to the requirements of that section. The Board's expanded rulemaking procedures have not been

followed because the amendment is a technical one and because it relieves a burden that could obstruct necessary and prompt action that would be in the public interest.

**List of Subjects in 12 CFR Part 265**

Authority, delegations (Government agencies), Banks, banking, Federal Reserve System.

Pursuant to its authority under section 18(c) of the Federal Deposit Insurance Act (12 U.S.C. 1828(c)), sections 3(a) and 4(c)(8) of the Bank Holding Company Act (12 U.S.C. 1842(a) and 1843(c)(8), sections 5(a), 5(b) and 7(d) of the Bank Service Corporation Act (12 U.S.C. 1865(a), 1865(b) and 1867(d)), and §§ 225.14 and 225.23 of Regulation Y (12 CFR 225.14 and 225.23), to approve applications requiring prior approval of the Board, and under the provisions of section 18(c)(4) of the Federal Deposit Insurance Act (12 U.S.C. 1828(d)(4)) to furnish to the Comptroller of the Currency and the Federal Deposit Insurance Corporation reports on competitive factors involved in a bank merger required to be approved by one of those agencies, the Board of Governors amends its Rules Regarding Delegation of Authority (12 CFR Part 265) by revising § 265.2.

**PART 265—[AMENDED]**

1. The authority citation for Part 265 continues to read as follows.

Authority: Sec. 11, 38 Stat. 261; 12 U.S.C. 248)

2. Section 265.2 is amended by revising paragraph (f)(22)(v) to read as follows:

**§ 265.2 Specific functions delegated to Board Employees and to Federal Reserve Banks.**

* * * * *

(f) * * *

(22) * * *

(v) With respect to bank holding company formations, bank acquisitions or mergers, the proposed transaction involves two or more banking organizations:

(A) That rank among a State's five largest banking organizations, or among the 50 largest banking organizations in the United States (as measured by total domestic deposits within the relevant area); or

(B) That, upon consummation of the proposal, would control over 30 percent of total deposits in banking offices in the relevant geographic market, or would result in an increase of at least 200 points in the Herfindahl-Hirschman Index ("HHI") in a highly concentrated market (a market with a post-merger HHI of at least 1800); or

(C) Where divestitures designed to address any substantial anticompetitive effects are not effected on or before consummation of the proposed transaction; or

* * * * *

By order of the Board of Governors of the Federal Reserve System, December 16, 1985.

**William W. Wiles,**

*Secretary of the Board.*

[FR Doc. 85-30103 Filed 12-19-85; 8:45 am]

BILLING CODE 6210-01-M

## FEDERAL HOME LOAN BANK BOARD

**12 CFR Part 563**

**[No. 85-1094]**

### FSLIC Insurance Premiums

Dated: December 2, 1985.

**AGENCY:** Federal Home Loan Bank Board.

**ACTION:** Final rule.

**SUMMARY:** The Federal Home Loan Bank Board ("Board"), as operating head of the Federal Savings and Loan Insurance Corporation ("FSLIC" or "Corporation"), is amending its regulations to provide a procedure for the payment of premiums for insurance on a semiannual basis.

**EFFECTIVE DATE:** January 20, 1986.

**FOR FURTHER INFORMATION CONTACT:** Lawrence W. Hayes, Deputy General Counsel for FSLIC, Office of General Counsel, (202) 377-6428; Terrill Rupp, Attorney, Office of the General Counsel; (202) 377-6773 or William Boyer, Deputy Director, Office of Administration, (202) 377-6666, Federal Home Loan Bank Board, at 1700 G Street, NW., Washington, DC 20552.

**SUPPLEMENTARY INFORMATION:** On August 23, 1985, the Board proposed amendments to § 563.15 of its Insurance Regulations (12 CFR 563.15) that would provide for the semiannual payment of the standard premium for insurance of accounts required by section 404(b)(1) of the National Housing Act, as amended ("NHA"), 12 U.S.C. 1727(b)(1). As proposed, the amendments contemplate payment of regular premiums for insurance on a semiannual basis as follows. Each insured institution would be billed on the anniversary of the issuance of its certificate of insurance for an amount equal to one-twelfth of one percent of the total amount of all accounts of the insured members of such institution, determined on the basis of the most recent monthly or quarterly report filed by such institution with the Board as of the anniversary date. Six months after its anniversary date, each institution would either be billed for an adjusted premium payment in an amount equal to one-twelfth of one percent of the increase in the reported total amount of all accounts of the insured members of such institution, or given a credit for such institution's next anniversary billing in an amount equal to one-twelfth of one percent of the decrease in the reported total amount of all accounts of the insured members of such institution. Both the semiannual payment and credit would be determined on the basis of the most recent monthly or quarterly report filed by such institution with the Board as of such semiannual date.

After considering the public comments received and other available information, the Board has determined to adopt the amendments substantially as proposed.

**Discussion of Comment Letters**

The Board received nineteen public comment letters on the proposed rule: eighteen from insured institutions, and one from the United States League of Savings Institutions. Four letters supported the proposal without serious qualification. Of the remaining letters, five were on the whole in favor of the proposed rule and ten against; but some of the same questions were raised by supporters that were raised by those objecting to the proposal.

Several commenters took the position that a semiannual payment should be an amount equal to one half of 1/12 of one percent of a semiannual increase in accounts (or 1/24 of one percent of the increase). The reason voiced for this position by those seeking a modification of the proposal was that the semiannual payment was a half-year's premium for a half-year period of insurance; one commenter asserted that "the semiannual payment will create a shortened period of coverage for the same annual rate charged in the past." Some commenters questioned the legality of the proposal on the ground that, under the language of section 404(b)(1) of the NHA, the Corporation may collect a semiannual premium only in installments each equal to 1/24 of one percent of the accounts. One commenter argued that the "assessment base" could only be an institution's insurance anniversary date. Another argued that assessing a premium on growth within six months appeared to violate the spirit or intent of the "premium year" referred to in section 404. Some commenters asserted that the proposal would change the amount of the

standard premium to an amount greater than that authorized by statute.

Several comment letters suggested alternative methods for assessing or collecting premiums: "risk related" premiums; monthly adjustments; quarterly billing and paying; and even a "customer option" under which a customer engaging in a large transaction would obtain insurance for "any and all" of its accounts by payment of a special premium that would be collected by the institution and forwarded to the FSLIC. It was also suggested that average growth over a six-month period be used as a basis for the semiannual payment, in order to avoid circumvention of the proposed rule.

Several letters complained of the financial burden that would be placed upon insured institutions by semiannual payment in the proposed form; and some commenters declared that it was unfair to place additional charges on well-run institutions to provide for the continued existence of poorly run institutions.

Several comment letters, including some in support of as well as some in opposition to the proposal, argued that a cash semiannual payment for growth in accounts should be complemented by a cash refund for a decline rather than a credit toward the next anniversary payment.

### Authority

Section 404(b)(1) of the NHA provides as follows:

> Each institution whose application for insurance is approved by the Corporation shall pay to the Corporation, in such manner as it shall prescribe, a premium for such insurance equal to one-twelfth of 1 per centum of the total amount of all accounts of the insured members of such institution. Such premium shall be paid at the time the certificate is issued by the Corporation under section 403, and thereafter annually, except that under regulations prescribed by the Corporation such premium may be paid semiannually.

The implementing authority granted to the Corporation is broad and the legislative history of this provision neither states nor implies limitations upon the discretionary authority conferred by the terms of the statute.

It is clear under the provisions of section 404(b)(2) that the "premium year" of each insured institution begins on the anniversary of the issuance of a certificate of insurance. The statute allows the Corporation to prescribe semiannual payment and places a limitation of $\frac{1}{12}$ of one percent of accounts of insured members upon the amount of the premium, but it does not specify any particular point or points in time as the basis or bases of assessing payment. The term "all accounts of insured members" includes uninsured portions of insured members' accounts. The proposed regulation is deliberately designed to take account of growth in accounts during a premium year, and the consequent growth in the insurance risk of the Corporation (and decline in account and risks), but clearly maintains the absolute annual statutory limitation of $\frac{1}{12}$ of one percent of the accounts of insured members.

The following examples of anniversary and semiannual payments under the proposal illustrate these principles. An institution's accounts grow at the following rate over semiannual periods, triggering the following payments:

| Premium Year | 0 | ½ | 1 | 1½ | 2 | 2½ |
|---|---|---|---|---|---|---|
| Accounts | $12,000 | $12,120 | $12,240 | $12,360 | $12,480 | $12,600 |
| Payments | $10 | $.10 | $10.20 | $.10 | $10.40 | $.10 |

As of year ½, the total payments made to the Corporation for the premium year, including the first payment and the semiannual payment, would equal and not exceed $\frac{1}{12}$ of one percent of the accounts of the institution as reported prior to the year ½ payment. As of year 1½, the total payments made to the Corporation for the premium year, including both the anniversary payment at year 1 and the semiannual payment at year 1½, would equal and not exceed $\frac{1}{12}$ of one percent of the accounts of the institution at year 1½. This result will hold with respect to payments and credits under conditions of continuing decline or alternating growth and decline. It is true that the total amount of the premium for a premium year is finally determined as of the report prior to the semiannual payment rather than as of the report prior to the anniversary payment. The statutory limitation upon the total annual premium, however, does not specify any point or points in time at which the limiting amount is to be determined, but leaves this to the discretion of the Corporation. In no sense is there a "double" premium in or for any premium year. The statutory authority granted to the Corporation to provide by regulation for semiannual payment of the insurance premium does not permit the Corporation to increase the amount of that premium above the statutory limit; but it authorizes the Corporation to determine the manner in which the payments are to be assessed and paid. The amendment to § 563.15 provides for an initial anniversary payment and for a semiannual premium adjustment; and this amendment is clearly within the Corporation's statutory authority. Nothing in the statute requires the Corporation, if it decides to provide for semiannual payments, to specify two equal payments of $\frac{1}{24}$ of one percent of accounts, nor does the statute hinder adjustment of the basis for the total assessment during the premium year.

The Boafd regards the new rule as essentially fairer and more equitable than either the existing regulation, which provides for a single anniversary payment, or a regulation that would divide the annual premium into two equal parts. The amendment does not exceed the statutory limitation for any premium year, but it does adjust for the increased risk to the insurance reserves of the Corporation resulting from industry growth, a matter that ought to be of concern to the thrift industry as a whole and to the public.

### Administration

The regulation promulgated by this resolution provides for a credit, not a refund, to institutions the accounts of which decline between the determination date for the anniversary payment and the determination date for a semiannual payment. The credit would be applied to the next anniversary payment.

There are two reasons for providing a credit rather than a refund. First, it is administratively simpler and less costly to the Corporation as a matter of the general administration of premium payments. Second, it is a necessary measure to deal with possible payment avoidance techniques by some institutions. At or near the date of a report that is expected to be used to determine an annual premium, an institution or institutions may engage in transactions that distort or mask the amount and growth of accounts of insured members. Accordingly, the Board has added a provision to the new rule, which permits the Corporation to take an average of reported accounts as the basis for a premium payment if information of the Board or the Corporation indicates that a filed report on the basis of which a premium payment would usually be made does not accurately reflect the growth or decline of an institution's accounts.

The use of semiannual credits, rather than refunds, will allow the Corporation

to administer the payment of semiannual premiums more effectively and to deal with techniques designed to avoid appropriate semiannual premium adjustments.

**Other Possibilities**

The Board will continue to review the assessment and collection of insurance premiums in the interests of greater economy and efficiency and lessening the risk to the Corporation. Many of the suggestions in the comment letters, however, such as quarterly payments, are not clearly within the statutory authority of the Corporation.

The Board fully appreciates the fact that the rule will probably increase the actual amounts paid by insured institutions as annual premiums. In considering and balancing the interests of all insured institutions, however, the Board has determined that, under existing statutory authority, the new rule represents a fairer method of sharing the cost of increased risk to the Corporation arising from growth in accounts than the old rule or than other suggested alternatives that could be implemented.

**Final Regulatory Flexibility Analysis**

Pursuant to section 3 of the Regulatory Flexibility Act, Pub. L. No. 96-354, 94 Stat. 1164, 1167 (1980), the Board is providing the following regulatory flexibility analysis:

1. *Need for and objectives of the rule.* These elements are incorporated above in the supplementary information regarding the rule.

2. *Issues raised by comments and agency assessment and response.* These elements are incorporated above in the supplementary information regarding the rule.

3. *Significant alternatives minimizing small-entity impact and agency response.* There are no alternatives that would have less impact on small institutions, consistent with the intended result and existing statutory requirements concerning the assessment of premiums. The rule will not have a disproportionate impact on small institutions, since the cost of premiums assessed and credits given pursuant to the rule will continue to be a function of the amount of an institution's accounts. Further, the rule will not involve any significant new reporting or compliance costs that could impose a disproportionate burden on small institutions.

**List of Subjects in 12 CFR Part 563**

Bank deposit insurance, Investments, Reporting and recordkeeping requirements, Savings and loan associations; Operations.

Accordingly, the Board hereby amends Part 563, Subchapter D, Chapter V of Title 12, *Code of Federal Regulations*, as set forth below.

## SUBCHAPTER D—FEDERAL SAVINGS AND LOAN INSURANCE CORPORATION

## PART 563—OPERATIONS

1. The authority for 12 CFR Part 563 continues to read as follows:

Authority: Secs. 401–405, 48 Stat. 1255–1260, as amended (12 U.S.C. 1724–1728); Reorg. Plan No. 3 of 1947, 3 CFR 1943–1948 Comp., p. 1071, unless otherwise noted.

2. Amend § 563.15 by redesignating existing paragraphs (a), (b), and (c) as (b), (c), and (d), respectively; adding a new paragraph (a); and revising redesignated paragraph (b) as follows:

**§ 563.15 Insurance premiums.**

(a) *Definitions.* For purposes of this section:

(1) "Annual payment date" means the date on which a certificate of insurance is issued by the Corporation to an institution, and each anniversary of the issuance of such certificate.

(2) "Semiannual payment date" means a date six months after an insured institution's annual payment date.

(b) *General provisions.* (1) Pursuant to section 404(b) of the National Housing Act, except as provided in paragraph (c) of this section, each institution whose application for insurance is approved by the Corporation shall pay to the Corporation as follows:

(i) On each annual payment date, each insured institution shall pay an amount equal to one-twelfth of one percent or the total amount of all accounts (except note accounts) of the insured members of such institution.

(ii) On each semiannual payment date, each insured institution shall pay, or receive credit against its next annual payment for, an amount equal to one-twelfth of one percent of the amount by which the total amount of all accounts (except note accounts) of the insured members of such institution is more or less than the total amount of all accounts (except note accounts) of the insured members of such institution as determined for assessment of the immediately preceding annual payment.

(2) The amount of the premium to be paid by each insured institution on each annual payment date, and the amount of the premium to be paid by, or the credit to be provided for, each insured institution on each semiannual payment date, shall be determined on the basis of the most recent report filed by such institution with the Corporation as of each such payment date; but any insured institution that has not filed such a report within 60 days of any annual payment date or semiannual payment date shall provide more recent information if requested to do so by the Corporation. Any amount contained in any such report covering accrued, but not due and payable, or dividends declared, but not due and distributable, as of any annual payment date or semiannual payment date will not be included by the Corporation in the computation of either premiums due on such annual payment date or semiannual payment date, or credits given on such semiannual payment date. For purposes of this section, the amount of a tax and loan account, a United States Treasury General Account, or a United States Treasury Time Deposit—Open Account shall be the average daily balance in such account since the institution's last annual or semiannual payment date, whichever is more recent, unless the account has been established after such date, in which case the average shall be calculated from the date of establishment of such account.

(3)(i) Notwithstanding the provisions of paragraph (b)(2) of this section, if the Corporation determines, on the basis of reports filed with the Corporation by an institution or other information of the Board or the Corporation, that a filed report on the basis of which a premium payment would be made or credit received by the institution does not accurately reflect the growth or decline in the accounts of insured members of such institution, the Corporation may determine that an annual or semiannual payment or credit shall be made on the basis of the average of such accounts as reported over a period determined by the Corporation, but not to exceed six months, and not including any report filed to show the condition of the institution as of a date more than three calendar months before or after the date of the report on the basis of which the amount of a premium payment would be determined under paragraph (b)(2).

(ii) The Director of the Board's Administration Office is authorized to make determinations for the Corporation pursuant to paragraph (b)(3)(i) of this section.

* * * * *

By the Federal Home Loan Bank Board.

**Jeff Sconyers,**

*Secretary.*

[FR Doc. 85-30176 Filed 12-19-85; 8:45 am]

BILLING CODE 6720-01-M

## NATIONAL CREDIT UNION ADMINISTRATION

**12 CFR Ch. VII**

### Assumption of Real Estate Loans by Nonmembers; Interpretive Ruling and Policy Statement Number 85-3

**AGENCY:** National Credit Union Administration (NCUA).

**ACTION:** Interpretive Ruling and Policy Statement Number 85-3.

**SUMMARY:** Section 107(5)(A)(i) of the Federal Credit Union Act (12 U.S.C. 1757(5)(A)(i)) authorizes Federal credit unions to make long-term residential real estate loans to members on certain stated conditions and subject to rules and regulations of the NCUA Board. The NCUA Board has determined that, in the case of loans made pursuant to this authority, Federal credit unions may authorize a nonmember to assume the outstanding balance and maturity of the loan in conjunction with a purchase of the member's principal residence.

**EFFECTIVE DATE:** December 12, 1985.

**FOR FURTHER INFORMATION CONTACT:** Steven Bisker, Assistant General Counsel, at the above address, or telephone (202) 357-1030.

**SUPPLEMENTARY INFORMATION:** Since 1977, FCU's have been empowered, pursuant to section 107(5)(A)(i) of the FCU Act (12 U.S.C. 1757(5)A)(i)), to offer long-term real estate loans to finance a member's principal residence. NCUA's implementing regulation for this authority is set forth at 12 CFR 701.21.

Staff opinions have previously stated that a long-term real estate loan made to a member could not be assumed by a nonmember unless the member remained personally liable for repayment of the loan. This position has, in the view of the Board, placed an unwarranted burden on credit union members and, in most cases, precluded the assumability of FCU mortgage loans.

The policy has also placed Federal credit unions at a disadvantage vis-a-vis other mortgage lenders. Historically, lenders other than FCU's have had greater flexibility to either allow assumption of real estate loans on their existing terms and conditions or to use "due-on-sale" clauses or similar devices to either require payment of the loan or negotiate an adjustment of the interest rate to reflect current market rates on the remaining outstanding balance for the remaining maturity of the loan . The provisions of Title IV of the Garn-St Germain Act (Public Law 97-320) recognize these practices as an integral part of mortgage lending.

NCUA has recently had an opportunity to review this policy in response to an inquiry from a private attorney representing Federal credit unions. As a result of that review, the Board has determined that, as a matter that is incidental to the authority of FCU's in section 107(5)(A)(i) of the Act and § 701.21 of the Rules and Regulations to *make* long-term real estate loans to members, FCU's may permit assumptions, by either members *or nonmembers*, under the terms and conditions specified in the loan agreement and consistent with the Act and Rules and Regulations. This includes the authority to permit a nonmember to assume the mortgage loan without the member remaining primarily liable on the loan. In the case of a nonmember assumption, there must be no new money extended to the borrower and no extension of the original maturity date beyond that specified in the loan agreement with the member.

This Interpretative Ruling is *not* intended to authorize refinancings by nonmembers. Further, it is not intended to provide the legal justification for an FCU to engage in what the Board would consider a "sham transaction," whereby a member would be involved as the borrower simply to legally support the making of the initial mortgage loan but with the underlying intent of having a nonmember immediately, or soon thereafter, assume the loan. FCU's engaging in such practices will be dealt with through NCUA's administrative enforcement process.

This Interpretive Ruling does not in any way require an FCU to permit nonmember assumption of real estate loans. As provided in § 701.21(g)(6) (incorporating regulations issued by the Federal Home Loan Bank Board implementing section 341 of Pub. L. 97-320), an FCU may, pursuant to the loan agreement, declare the loan immediately due and payable if the member's residence securing the loan is sold. Further, the loan agreement may provide for adjustment of the interest rate on the remaining balance of the loan as a condition of approving the assumption. Lastly, FCU's permitting assumptions should not disregard their customary credit standards in evaluating whether the nonmember is creditworthy.

When a long-term real estate loan is assumed by a nonmember FCU's are advised to make appropriate accounting entries to reflect that the loan is no longer a loan to a member. FCU's are recommended to record such loans in ledger account 711—Notes and Contracts Receivable, as described in the *Accounting Manual for Federal Credit Unions.*

**Interpretative Ruling and Policy Statement 85-3**

*Assumption of Real Estate Loans by Nonmembers*

Consistent with its authority to make long-term real estate (mortgage) loans pursuant to section 107(5)(A)(i) of the Federal Credit Union Act (12 U.S.C. 1757(5)(A)(i)) and Section 701.21(g) of the National Credit Union Administration Rules and Regulations (12 CFR 701.21(g)), a Federal credit union may permit a nonmember to assume a member's mortgage loan in conjunction with the purchasing of the member's principal residence, *Provided that:*

(1) The nonmember assumes *only* the remaining unpaid balance of the loan (no new money or refinancing);

(2) There is no extension of the original maturity date beyond that specified in the loan agreement with the member;

(3) The original loan was not made to the member with the underlying intent of having a nonmember immediately, or soon thereafter, assume the loan;

(4) The terms of the assumption are consistent with the loan agreement and in compliance with the FCU Act, NCUA Rules and Regulations, and other applicable law.

By the National Credit Union Administration Board on December 12, 1985.

**Rosemary Brady,**

*Secretary of the Board.*

[FR Doc. 85-30152 Filed 12-19-85; 8:45 am]

BILLING CODE 7535-01-M

## DEPARTMENT OF TRANSPORTATION

**Federal Aviation Administration**

**14 CFR Part 71**

**[Airspace Docket No. 84-AEA-8]**

### Designation of Transition Area; South Hill, VA

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** This amendment designates a transition area at South Hill, VA. A new NDB Runway 36 instrument approach procedure has been developed to the Mecklenburg-Brunswick Regional Airport. The transition area is to provide protected airspace for aircraft departing/arriving under instrument flight rules (IFR).

**EFFECTIVE DATE:** 0901 G.M.T. March 13, 1986.

**FOR FURTHER INFORMATION CONTACT:** Joseph Kelley, Airspace and Procedures Branch, AEA-530, Air Traffic Division, Federal Aviation Administration, Fitzgerald Federal Building, J.F.K. International Airport, Jamaica, New York 11430; Telephone: (718) 917-1228.

**SUPPLEMENTARY INFORMATION:**

History

On September 13, 1985, the FAA proposed to amend Part 71 of the Federal Aviation Regulations (14 CFR Part 71) to establish a transition area at Mecklenburg-Brunswick Regional Airport, NJ, to provide controlled airpsace from 700 feet above the surface for IFR arrival/departure aircraft at Mecklenburg-Brunswick Regional Airport (49 FR 41526). A new NDB Runway 36 instrument approach procedure has been developed to the Mecklenburg-Brunswick Regional Airport. Interested parties were invited to participate in this proposed rulemaking proceeding by submitting written comments on the proposal to the FAA. No comments objecting to the proposal were received. Except for editorial changes, this amendment is the same as that proposed in the notice. Section 71.181 of Part 71 of the Federal Aviation Regulations was republished in Handbook 7460.6 dated January 3, 1984.

The Rule

This amendment to Part 71 of the Federal Aviation Regulations designates a new transition area at Mecklenburg-Brunswick Regional Airport, NJ. A new NDB Runway 36 approach procedure has been developed ot the Mecklenburg-Brunswick Regional Airport. This action provides protected airspace for aircraft arriving/departing under instrument flight rules.

The FAA has determined that this amendment only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep them operationally current. It, therefore: (1) Is not a "major rule" under Executive Order 12291; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) does not warrant preparation of a regulatory evaluation as the anticipated impact is so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, it is certified that this rule will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 71

Transition areas, Aviation safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me, Part 71 of the Federal Aviation Regulations (14 CFR Part 71) is amended, as follows:

**PART 71—[AMENDED]**

"1. The authority citation for Part 71 continues to read as follows:

**Authority:** 49 U.S.C. 1348(a), 1354(a), 1510; E.O. 10854; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983); 14 CFR 11.69.

**§ 71.81 [Amended]**

2. Section 71.181 is amended as follows:

**South Hill, VA [New]**

That airpsace extending upward from 700 feet above the surface within a five statute mile radius of the Mecklenburg-Brunswick Airport (lat. 36°41'17" N.,long. 78°03'17" W.); and within 3.5 miles each side of the 182° bearing from the Mecklenburg NDB extending from the five mile radius to ten miles south of the NDB.

Issued in Jamaica, New York, on December 6, 1985.

**Timothy L. Hartnett,**

*Acting Director, Eastern Region.*

[FR Doc. 85-30097 Filed 12-19-85; 8:45 am]

BILLING CODE 4910-13-M

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## DEPARTMENT OF ENERGY

## Federal Energy Regulatory Commission

## 18 CFR Part 284

**[Docket No. RM85-1-000 (Parts A-D)]**

## Regulation of Natural Gas Pipelines After Partial Decontrol

Issued November 15, 1985.

**AGENCY:** Federal Energy Regulatory Commission.

**ACTION:** Order granting request for clarification.

**SUMMARY:** On October 9, 1985, the Commission issued Order No. 436, a Final Rule amending its regulations in, among others, Part 284, 50 FR 42408 (Oct. 18, 1985). In amending its regulations in this Part, the Commission adopted a simplified transportation program, including blanket certificates under section 7 of the Natural Gas Act, and transportation programs under section 311 of the Natural Gas Policy Act of 1978. In response to a petition filed by Hadson Gas Systems, Inc., the Commission issues this order clarifying Order No. 436.

**EFFECTIVE DATE:** The amendments to Part 284 were effective October 9, 1985.

**FOR FURTHER INFORMATION CONTACT:** Paul Biancardi, Federal Energy Regulatory Commission, 825 North Capitol Street, NE., Washington, DC 20426, (202) 357-5418.

**SUPPLEMENTARY INFORMATION:**

Order Granting Request for Clarification

Before Commissioners: Raymond J. O'Connor, Chairman; A. G. Sousa, Charles G. Stalon, Charles A. Trabandt and C. M. Naeve.

In the matter of Regulation of Natural Gas Pipelines After Partial Wellhead Decontrol (Hadson Gas Systems, Inc.), Docket No. RM85-1-000.

Issued November 15, 1985.

On November 7, 1985, Hadson Gas Systems Inc., (Hadson) requested clarification of § 284.105(a) as promulgated under Order No. 436.[1] Specifically, Hadson inquires whether a pipeline would meet the non-discriminatory termination[2] provision under that section if, before December 15, 1985, it terminated all NGPA section 311 transactions initiated on or after November 1, 1985 but continued those NGPA section 311 transactions which meet the transition provisions of § 284.105(a).

Section 284.105 is intended to provide continued service under the same terms and conditions (except for §§ 284.7 and 284.106) for transportation commenced under NGPA section 311 prior to the issuance of Order No. 436 on October 9, 1985 without prejudice to a pipeline's option to begin "new" section 311 transportation after November 1, 1985, under § 284.102.[3] Accordingly, the "new" section 311 transportation may be terminated prior to December 15, 1985 to avoid the requirements of § 284.10, without affecting a pipeline's authority to continue, beyond December 15, 1985, transportation that qualifies for transition under § 284.105(a).

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[1] 33 FERC ¶ 61,007, 50 FR 42408 (October 18, 1985)

[2] Hadson cites our conclusion in another clarifying order that a new § 284.102 transportation may be initiated and terminated before December 15, 1985 without ever attaching the contract demand reduction and conversion rights of § 284.10 so long as the termination of NGPA section 311 transportation is not unduly discriminatory. Regulation of Natural Gas Pipelines After Partial Wellhead Decontrol (Columbia Gas Transmission Corp.), Order Granting Request for Clarification, issued October 31, 1985.

[3] *See, e.g.* §284.102.

By the Commission.

**Kenneth F. Plumb,**

*Secretary.*

[FR Doc. 85-30127 Filed 12-19-85; 8:45 am]

BILLING CODE 6717-01-M

## 18 CFR Part 284

**[Docket No. RM85-1-000 (Parts A-D)]**

## Regulation of Natural Gas Pipelines After Partial Decontrol

Issued November 22, 1985.

**AGENCY:** Federal Energy Regulatory Commission, DOE.

**ACTION:** Order addressing request for emergency clarification.

**SUMMARY:** On October 9, 1985, the Commission issued Order No. 436, a Final Rule amending its regulations in, among others, Part 284, 50 FR 42408 (Oct. 18, 1985). In amending its regulations in this Part, the Commission adopted a simplified transportation program, including blanket certificates under section 7 of the Natural Gas Act, and transportation programs under section 311 of the Natural Gas Policy Act of 1978. In response to a petition filed by Hadson Gas Systems, Inc., the Commission issues this order clarifying Order No. 436.

**EFFECTIVE DATE:** The amendments to Part 284 were effective October 9, 1985.

**FOR FURTHER INFORMATION CONTACT:** Paul Biancardi, Federal Energy Regulatory Commission, 825 North Capitol Street, NE., Washington, DC 20426, (202) 357-5418.

**SUPPLEMENTARY INFORMATION:**

### Order Addressing Request for Emergency Clarification

Before Commissioners: Raymond J. O'Connor, Chairman; A. G. Sousa, Charles G. Stalon, Charles A. Trabandt and C. M. Naeve.

In the matter of regulation of natural gas pipelines after partial wellhead decontrol (Hadson Gas Systems, Inc.), Docket No. RM85-1-000 (Parts A-D).

Issued November 22, 1985.

On November 15, 1985, Hadson Gas Systems, Inc. (Hadson) filed a request for emergency clarification of Order No. 436.[1] Hadson recites that ANR Pipeline Company (ANR) notified Hadson on November 14, 1985, that it would not transport federal offshore gas to low priority end-users during the period November 1 through December 14, 1985. Hadson requests the Commission to clarify that ANR has the authority as well as the obligation to transport federal offshore gas to end-users.

The gist of the question appears to be whether ANR has authority under the new rules to transport *federal offshore* gas to certain end-users during an interim period November 1 through December 14, 1985.

With regard to § 284.223(g) of the new rules, we repeat that that section in effect allows for an extension through December 14, 1985 of a pipeline's preexisting authority under a blanket transportation certificate to transport gas for certain end-users.[2]

However, the extension, while subject to the non-discriminatory access condition of §§ 284.8 and 284.9, did not modify the pipeline's authority in other ways, for example, by expanding the sources of gas that qualify. Since ANR's blanket certificate did not, prior to November 1, 1985, authorize transportation of federal offshore gas for end-users, the extension pursuant to § 284.223(g) similarly confers no such authority.

Accordingly, we conclude that ANR does not have authority, *by reason of § 284.223(g)*, to transport natural gas supplies from the federal offshore. To this extent Hadson's request is denied.

This analysis does not end the matter, however, for after November 1, 1985, all interstate pipelines are authorized to transport gas from any source, including the federal offshore, under the self-implementing authority of § 284.102. Moreover, with the elimination of the "system supply" requirement previously contained in the relevant regulations, supplies of gas—including supplies from the federal offshore—can be sold directly to end-users so long as transportation is "on behalf of" a local distribution company or intrastate pipeline.

As the Commission said in Order No. 436:

> With regard to the meaning of the "on behalf of" requirement, we reiterate what was said in the NOPR:
>
> However, as we discussed in Order No. 46, which implemented section 311, this test is a legal test, not a physical test, and only requires some nexus between the transporter and the intrastate pipeline or local distribution company. Thus, the intrastate pipeline or local distribution company need not physically receive the gas, but need only have the gas transported for its account.
>
> (NOPR, mimeo, at pp. 57-58) (footnote omitted).
>
> (Mimeo at IV.A.169.)

In other words, the "on behalf of" requirement can be met even where title to the gas passes directly from the seller to the end-user.

Thus, while ANR may not have authority to transport federal offshore gas for end-users under § 284.233(g), it *does* have the authority to transport the same supplies to the same end-users on behalf of a local distribution company or intrastate pipeline. Moreover, while all authority under § 284.223(g) expires after December 14, 1985, authorization of § 284.102 is available at all times.

By the Commission.

**Kenneth F. Plumb,**

*Secretary.*

[FR Doc. 85-30128 Filed 12-19-85; 8:45 am]

BILLING CODE 6717-01-M

## 18 CFR Part 284

**[Docket No. RM85-1-000 (Parts A-D)]**

## Regulation of Natural Gas Pipelines After Partial Decontrol

Issued November 22, 1985.

**AGENCY:** Federal Energy Regulatory Commission, DOE.

**ACTION:** Order denying request for clarification and waiver of regulations.

**SUMMARY:** On October 9, 1985, the Commission issued Order No. 436, a Final Rule amending its regulations in, among others, Part 284, 50 FR 42408 (Oct. 18, 1985). In amending its regulations in this Part, the Commission adopted a simplified transportation program, including blanket certificates under section 7 of the Natural Gas Act, and transportation programs under section 311 of the Natural Gas Policy Act of 1978. In response to a petition filed by Energy Marketing Exchange, Inc., the Commission issues this order clarifying Order No. 436.

**EFFECTIVE DATE:** The amendments to Part 284 were effective October 9, 1985.

**FOR FURTHER INFORMATION CONTACT:** Paul Biancardi, Federal Energy Regulatory Commission, 825 North Capitol Streeet, NE., Washington, DC 20426, (202) 357-5418.

**SUPPLEMENTARY INFORMATION:**

### Order Denying Request for Clarification and Waiver of Regulations

Before Commissioners: Raymond J. O'Connor, Chairman; A. G. Sousa and

[1] 50 FR 42408 (October 18, 1985).

[2] Regulation of Natural Pipelines After Partial Wellhead Decontrol (ANR Pipeline Company), 33 FERC ¶ 61,181 (November 7, 1985).

Charles G. Stalon, Charles A. Trabandt and C. M. Naeve.

In the matter of regulation of natural gas pipelines after partial wellhead decontrol (Energy Marketing Exchange, Inc.), Docket No. RM85-1-000 (Parts A-D).

Issued November 22, 1985.

On November 1, 1985, Energy Marketing Exchange, Inc., (EME) filed pursuant to rule 207 of the Commission's Rules of Practice and Procedure, a petition to waive or, in the alternative, clarify § 284.223(g) of the Final Rule in Order No. 436.[1] EME states that it is a high priority end-user which has been receiving transportation of gas under the authority of former §157.209(e) of the Commission's Regulations, which at the time provided for transportation for any category of end use, because the transporting pipelines preferred to use that authority rather than the authority for high-priority transportation contained in Order No. 319 and former § 157.209(a)(1). EME has transportation contracts that were extended prior to October 9, 1985, for terms extending into 1986 or beyond. EME requests either waiver or clarification allowing these transactions to be eligible for transition under § 284.223(g)(1), because they could have qualified as Order No. 319 transactions.

Under these facts, the ability to continue receiving transportation for these Order No. 234-B transactions depends upon the election by the transporting pipelines to continue under the transitional rule set forth in § 284.223(g)(2).

This issue was addressed in an order dated October 31, 1985, denying a similar request by Midwest Solvents Company.[2] For the reasons stated therein, these transactions do not qualify under §284.223(g)(1). That transition provision explicitly requires that the transaction be both authorized and commenced, as an Order No. 319 transaction, prior to October 9, 1985. The facts presented by EME do not justify granting of a waiver.

By the Commission.

**Kenneth F. Plumb,**

*Secretary*

[FR Doc. 85-30129 Filed 12-19-85; 8:45 am]

BILLING CODE 6717-01-M

[1] 33 FERC ¶ 61,007, 50 FR 42408 (October 18, 1985).

[2] Regulation of Natural Gas After Partial Wellhead Decontrol (Midwest Solvents Company), Order Denying Request for Clarification, 33 FERC ¶ 61,157.

**18 CFR Part 284**

**[Docket No. RM85-1-000 (Parts A-D)]**

## Regulation of Natural Gas Pipelines After Partial Decontrol

Issued November 22, 1985.

**AGENCY:** Federal Energy Regulatory Commission, DOE.

**ACTION:** Order denying request for clarification.

**SUMMARY:** On October 9, 1985, the Commission issued Order No. 436, a Final Rule amending its regulations in, among others, Part 284, 50 FR 42408 (Oct. 18, 1985). In amending its regulations in this Part, the Commission adopted a simplified transportation program, including blanket certificates under section 7 of the Natural Gas Act, and transportation programs under section 311 of the Natural Gas Policy Act of 1978. In response to a joint petition filed by Teepak, Inc. and Consolidated Fuel Supply, Inc., the Commission issues this order clarifying Order No. 436.

**EFFECTIVE DATE:** The amendments to Part 284 were effective October 9, 1985.

**FOR FURTHER INFORMATION CONTACT:** Joel K. Arneson, Federal Energy Regulatory Commission, 825 North Capitol Street, NE., Washington, DC 20426, (202) 357-8570.

**SUPPLEMENTARY INFORMATION:**

### Order Denying Request for Clarification

Before Commissioners: Raymond J. O'Connor, Chairman; A.G. Sousa, Charles G. Stalon, Charles A. Trabandt and C.M. Naeve.

Regulation of Natural Gas Pipelines After Partial Wellhead DeControl (Teepak, Inc., and Consolidated Fuel Supply, Inc.), Docket No. RM85-1-000.

Issued November 22, 1985.

On November 6, 1985, Teepak, Inc. (Teepak), and Consolidated Fuel Supply, Inc. (Consolidated) (jointly referred to as petitioners), filed a request for clarification of Order No. 436.[1] The petitioners' request clarification that Panhandle Eastern Pipe Line Company (Panhandle) may transport gas under § 284.223(g)(1) as promulgated by Order No. 436. We will deny the petitioners' request.

On September 21, 1984, Panhandle entered into an agreement with Teepak and Illinois Power Company whereby Panhandle agreed to transport gas to Illinois Power's facilities for ultimate delivery to Teepak. The gas Panhandle agreed to transport was purchased by Teepak from Consolidated.

[1] 33 FERC ¶ 61,007 (1985), 50 FR 42408 (October 18, 1985).

Transportation commenced on October 5, 1984. Panhandle filed a notice of its intent to continue transporting gas in Docket No. CP85-92-000 under its blanket certificate issued on January 10, 1983, in Docket No. CP83-83-000, 22 FERC ¶ 62,043. In Docket No. CP85-92-000, Panhandle stated that it was transporting gas for the petitioners under § 157.209(e) of our regulations, which at that time provided for transportation for any end use.

On June 13, 1985, Teepak advised Panhandle that the transportation service qualified for a high-priority end use under § 157.209(a). Teepak states that it orally advised Panhandle of this fact again on September 20 and 23, 1985. Panhandle did not advise the Commission that the transportation was for a high-priority end use until October 31, 1985, when it filed an initial report. Panhandle ceased transporting for the petitioners on October 31, 1985.

The petitioners' argue that Panhandle filed an initial report with the Commission under § 157.209(g) on October 31, 1985. An initial report is not required until thirty days after a transportation service is commenced under § 157.209(a), according to the petitioners. Therefore, the petitioners claim that the transportation service was authorized and commenced on October 1, 1985, due to the filing of the initial report, and so within the provisions of § 284.223(g)(1). The petitioners' contend that the transportation is authorized and commenced on or before October 9, 1985, under § 157.209(a) and is therefore eligible to continue under § 284.223(g)(1).

We reject the petitioners' arguments. In its reports prior to October 9, 1985, Panhandle indicated that it was transporting gas for the petitioners under § 157.209(e). The petitioners' gas could have been transported under either that section or § 157.209(a). Only after October 9, 1985, did Panhandle attempt to convert the transportation service from § 157.209(e) to § 157.209(a). The transition provision of § 284.223(g)(1) explicitly requires that the transaction be authorized and commenced under § 157.209(a)(1) before October 9, 1985. We find that the transportation service was not authorized and commenced before that date. Accordingly, the transaction does not qualify under § 284.223(g)(1).[2]

[2] Regulation of Natural Gas Pipelines After Partial Wellhead Decontrol (*Midwest Solvents Company*), Order Denying Request for Clarification, 33 FERC ¶ 61,157 (October 31, 1985).

By the Commission.

Kenneth F. Plumb,

*Secretary.*

[FR Doc. 85-30130 Filed 12-19-85; 8:45 am]

BILLING CODE 6717-01-M

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**18 CFR Part 284**

**[Docket No. RM85-1-000 (Parts A-D)]**

## Regulation of Natural Gas Pipelines After Partial Decontrol

Issued: November 22, 1985.

**AGENCY:** Federal Energy Regulatory Commission, DOE.

**ACTION:** Order denying request for clarification.

**SUMMARY:** On October 9, 1985, the Commission issued Order No. 436, a Final Rule amending its regulations in, among others, Part 284, 50 FR 42408 (Oct. 18, 1985). In amending its regulations in this Part, the Commission adopted a simplified transportation program, including blanket certificates under section 7 of the Natural Gas Act, and transportation programs under section 311 of the Natural Gas Policy Act of 1978. In response to a petition filed by Frito-Lay, Inc., the Commission issues this order clarifying Order No. 436.

**EFFECTIVE DATE:** The amendments to Part 284 were effective October 9, 1985.

**FOR FURTHER INFORMATION CONTACT:** Paul Biancardi, Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington, DC 20426 (202) 357-5418.

**SUPPLEMENTARY INFORMATION:**

### Order Denying Request for Clarification

Before Commissioners: Raymond J. O'Connor, Chairman; A.G. Sousa, Charles G. Stalon, Charles A. Trabandt and C.M. Naeve.

In the matter of regulation of natural gas pipelines after partial wellhead decontrol (Frito-Lay, Inc.), Docket No. RM85-1-000, (Parts A-D).

Issued: November 22, 1985.

On November 1, 1985, Frito-Lay, Inc., pursuant to Rule 212 of the Commission's Rules of Practice and Procedure, 18 CFR 385.212, requested clarification as to whether new transportation for high priority end-users can be rendered by an interstate pipeline which has filed a statement of notification under Order No. 436.[1]

Frito-Lay states that it is a high priority end-user of natural gas which, in the past, has obtained transportation pursuant to either a special marketing program (SMP) or former § 157.209(a) of the Commission's Rules, which was promulgated by Order No. 319. Prior to November 1, 1985, but after October 9, 1985, Frito-Lay contracted for transportation under Order No. 319 with a pipeline that filed a statement of notification to continue its low priority (i.e., Order 234-B) transportation through December 15, 1985.[2]

Because the proposed transportation was not authorized and had not commenced prior to October 9, 1985, the gas is not eligible for transportation under the transitional rule of § 284.223(g)(1). Frito-Lay asks how transportation can be accomplished between November 1 and December 15, 1985. As we understand Frito-Lay's dilemma, it had not yet received transportation from the pipeline as of October 9, 1985. Accordingly, any self-implementing transportation commenced after November 1, 1985, whether by NGPA section 311 or NGA section 7 blanket certificate authorization, is subject to the amendments to the regulations that were adopted in Order No. 436.

According to Frito-Lay, the interstate pipeline has qualified for, and elected to proceed under, the transitional rule, § 284.223(g)(2), for end-user transportation under Order No. 234-B. As a result, Frito-Lay's transporter must provide service on a nondiscriminatory basis to any other customers who may wish to have gas transported.[3] Thus, Frito-Lay may obtain transportation service from such pipeline, at least until December 15, 1985. Regulation of Natural Gas Pipelines After Partial Wellhead Decontrol (ANR Pipeline Company), Order Accepting in Part and Rejecting in Part Statement of Notification, 33 FERC ¶ 61,180 (Issued November 7, 1985). However, the pipeline is not required to offer nondiscriminatory access to transportation after December 15, 1985, unless it files for a blanket certificate under § 284.221.

[1] 33 FERC ¶ 61,007, 50 FR 42406 (October 18, 1985); Technical Corrections issued October 24, 1985.

[2] A statement of notification is required for low-priority end-user transportation (Order No. 234-B) under § 284.223(g)(2) but not for high priority transportation (Order No. 319) under § 284.223(g)(1).

[3] Because the new rules under Order No. 436 do not distinguish between high priority and low priority end-users, the distinction between Order Nos. 319 and 234-B has been eliminated.

By the Commission.

Kenneth F. Plumb,

*Secretary.*

[FR Doc. 85-30131 Filed 12-19-85; 8:45 am]

BILLING CODE 6717-01-M

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**18 CFR Part 284**

**[Docket No. RM85-1-000 (Parts A-D)]**

## Regulation of Natural Gas Pipelines After Partial Decontrol

Issued: November 27, 1985.

**AGENCY:** Federal Energy Regulatory Commission, DOE.

**ACTION:** Order granting request for clarification.

**SUMMARY:** On October 9, 1985, the Commission issued Order No. 436, a Final Rule amending its regulations in, among others, Part 284, 50 FR 42408 (Oct. 18, 1985). In amending its regulations in this Part, the Commission adopted a simplified transportation program, including blanket certificates under section 7 of the Natural Gas Act, and transportation programs under section 311 of the Natural Gas Policy Act of 1978. In response to a petition filed by Valley Gas Company, the Commission issues this order clarifying Order No. 436.

**EFFECTIVE DATE:** The amendments to Part 284 were effective October 9, 1985.

**FOR FURTHER INFORMATION CONTACT:** Kevin Rees, Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington, DC 20426, (202) 357-9221.

**SUPPLEMENTARY INFORMATION:**

Before Commissioners: Raymond J. O'Connor, Chairman; A.G. Sousa, Charles G. Stalon, Charles A. Trabandt and C.M. Naeve.

In the matter of regulation of natural gas pipeline after partial wellhead decontrol (Valley Gas Company), Docket No. RM-85-1-000 (Parts A-D).

### Order Granting Request for Clarification

Issued: November 27, 1985.

On November 20, 1985, Valley Gas Company filed a request for clarification concerning whether Tennessee Gas Pipeline Company may transport certain gas on behalf of Valley under a storage transportation agreement without becoming subject to the non-discriminatory access provisions of Order No. 436.[1]

[1] 33 FERC ¶ 61,007 (1985), 50 FR 42408 (October 18, 1985).

Valley entered into a storage service agreement with Consolidated Gas Transmission Corporation on July 3, 1985, for a one-year period beginning April 1, 1985 and conditionally renewable for an additional year. Valley's sole supplier is Tennessee. Valley had a verbal agreement with Tennessee whereby Tennessee would transport gas to Consolidated's storage facility and would then transport gas from Consolidated's storage facility on Valley's behalf pursuant to section 311(a) during the 1985-1986 winter season. Pursuant to section 311 of the Natural Gas Policy Act, Tennessee delivered natural gas for injection into Consolidated's facility as early as July, 1985. Valley states that although Tennessee transported gas to Consolidated for storage injections, it will not complete service under its transportation arrangement with Valley by transporting Valley's gas from Consolidated's storage facility unless it receives clarification that the performance of such service will not subject Tennessee to the non-discriminatory access provisions of Order No. 436.

The Commission has recently clarified that § 284.105 of the regulations adopted in Order No. 436 is applicable to service which commenced pursuant to a verbal agreement prior to October 9, 1985, as long as the parties have complied with all applicable reporting requirements.[2] We find that because service commenced as of July, 1985, under Valley's agreement with Tennessee, Tennessee may continue performance under the agreement pursuant to the transitional provisions of § 284.105.

By the Commission.

Lois D. Cashell,

*Acting Secretary.*

[FR Doc. 85-30132 Filed 12-19-85; 8:45 am]

BILLING CODE 6717-01-M

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## 18 CFR Part 284

[Docket No. RM85-1-000 (Parts A-D)]

## Regulation of Natural Gas Pipelines After Partial Decontrol

Issued: November 28, 1985.

**AGENCY:** Federal Energy Regulatory Commission, DOE.

**ACTION:** Order amending and clarifying order.

**SUMMARY:** On October 9, 1985, the Commission issued Order No. 436, a Final Rule amending its regulations in, among others, Part 284, 50 FR 42,408 (Oct. 18, 1985). In amending its regulations in this Part, the Commission adopted a simplified transportation program, including blanket certificates under section 7 of the Natural Gas Act, and transportation programs under section 311 of the Natural Gas Policy Act of 1978. In response to a petition filed by Michigan Consolidated Gas Company, the Commission issues this order clarifying Order No. 436.

**EFFECTIVE DATE:** The amendments to Part 284 were effective October 9, 1985.

**FOR FURTHER INFORMATION CONTACT:** Stanley Harris, Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington, DC 20426, (202) 357-8451.

**SUPPLEMENTARY INFORMATION:**

Before Commissioners: Raymond J. O'Connor, Chairman; A.G. Sousa, Charles G. Stalon, Charles A. Trabandt and C.M. Naeve.

In the matter of Michigan Consolidated Gas Company, Docket Nos. CP84-15-000 and CP84-15-001; regulation of natural gas pipelines after partial wellhead decontrol, Docket No. RM85-1-000(Parts A-D).

### Order Amending and Clarifying Order

(Issued: November 29, 1985).

On October 31, 1985, the Commission issued an order in Docket Nos. CP84-15-000 and CP84-15-001, 33 FERC ¶ 61,131, authorizing Michigan Consolidated Gas Company (MichCon)[1] through its utility division, to provide through August 31, 1992, a long-term transportation service for ANR Pipeline Company (ANR) under MichCon's blanket certificate issued pursuant to former § 284.222 of the Commission's Regulations. The October 31 order provides as follows:

(D) The authorization granted in paragraph (C) is conditioned upon compliance with the terms, conditions, rates and charges and reporting requirements of Subpart C of Part 284 of the Commission's Regulations.

On November 8, 1985, MichCon filed a request, in accordance with Rule 212 of the Commission's Rules of Practice and Procedure, for clarification of the order issued October 31, 1985.

MichCon requests clarification on the following two points:

1. The first full paragraph on page I-13 of Order No. 436 (slip) states:

> The final rule also grandfathers any transportation arrangement authorized under § 284.127, again except with regard to the rate conditions (for interstate pipelines) and the reporting conditions (for both interstate and intrastate pipelines).

In light of this paragraph, would the transportation service by MichCon's utility division for ANR under the October 31 order be grandfathered for its full term under Order No. 436?

2. Does ordering paragraph (D) of the October 31 order subject MichCon's utility division to the regulations promulgated in Order No. 436 or only to the regulations in Subpart C of Part 284 as they existed prior to Order No. 436?

As promulgated by Order No. 436, § 284.125 of the Regulations provides that self-implementing transportation service authorized and commenced under section 311 of the Natural Gas Policy Act of 1978 on or before October 9, 1985, may be continued after that date until the earlier of the expiration of the original or extended term of the authorized transportation arrangement as it was in effect on the date of issuance of the final rule on October 9, 1987. The transportation service rendered by MichCon commenced in January 1983, and was extended to January 17, 1987, as authorized under MichCon's blanket certificate issued pursuant to § 284.222 of the Regulations.[2] In light of this provisions of Order No. 436, the October 31, 1985 order should have extended the term of the transportation service only from January 17, 1987, to October 9, 1987. Accordingly, we find that the public convenience and necessity require that the October 31, 1985 order should be amended and clarified so as to extend the term of the transportation service authorized therein to October 9, 1987.

With respect to MichCon's second request for clarification, § 284.125 provides that any existing transportation service which is permitted to continue under that section may be continued under the terms and conditions that applied prior to November 1, 1985, with the exception of reporting requirements prescribed by § 284.126. Accordingly, with the exception of the reporting requirements of § 284.126, MichCon's transportation service for ANR may continue until October 9, 1987, under the terms and conditions that applied prior to November 1, 1985.

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[1] Regulation of Natural Gas After Partial Wellhead Decontrol (Pacific Gas and Electric Company), 33 FERC ¶ 61,007 (Issued October 31, 1985).

[1] MichCon is a public utility subject to the jurisdiction of the Michigan Public Service Commission and is engaged, through its Utility Division, in the distribution and sale of gas at retail to consumers in the Upper and Lower Peninsulas of Michigan. By order of February 3, 1955, 14 F.P.C. 535, MichCon was found to be a "Hinshaw" pipeline under section 1(c) of the Natural Gas Act and therefore exempted from the provisions of the Natural Gas Act and the orders, rules, and regulations of the Commission issued thereunder.

[2] Reports of this self-implementing transaction were assigned Docket Nos. ST83-217-000 and ST83-217-001.

**The Commission orders**

The October 31, 1985 order is amended to extend the term of MichCon's transportation service for ANR through October 9, 1987. In all other respects said order shall remain in full force and effect.

By the Commission.

**Lois D. Cashell,**

*Acting Secretary.*

[FR Doc. 85-30133 Filed 12-19-85; 8:45 am]

BILLING CODE 6717-01-M

## DEPARTMENT OF HEALTH AND HUMAN SERVICES

### Food and Drug Administration

### 21 CFR Part 175

**[Docket No. 85F-0478]**

### Indirect Food Additives; Adhesives and Components of Coatings

**AGENCY:** Food and Drug Administration.

**ACTION:** Final rule.

**SUMMARY:** The Food and Drug Administration (FDA) is amending the food additive regulations to provide for the safe use of polyamides consisting of the homopolymer of Nylon 12 derived from *omega*-aminododecanoic acid as side seam cements that may contact food. This action responds to a petition filed by Springborn Regulatory Services, Inc., on behalf of UBE Industries, Ltd.

**DATES:** Effective December 20, 1985; objections by January 21, 1986.

**ADDRESS:** Written objections to the Dockets Management Branch (HFA-305), Food and Drug Administration, Rm. 4-62, 5600 Fishers Lane, Rockville, MD 20857.

**FOR FURTHER INFORMATION CONTACT:** Edward Machuga, Center for Food Safety and Applied Nutrition (HFF-335), Food and Drug Administration, 200 C St. SW., Washington, DC 20204, 202-472-5690.

**SUPPLEMENTARY INFORMATION:** In a notice published in the **Federal Register** of March 8, 1985 (50 FR 9521), FDA announced that a petition (FAP 4B3796) had been filed by Springborn Regulatory Services, Inc., Enfield, CT 06082, on behalf of UBE Industries, Ltd., proposing that the food additive regulations be amended to provide for the safe use of polyamides consisting of the homopolymer of Nylon 12 derived from *omega*-aminododecanoic acid as side seam cements that may contact food.

FDA has evaluated the data in the petition and other relevant material. The agency concludes that the proposed food additive use is safe, and that the regulations should be amended as set forth below.

In accordance with § 171.1(h) (21 CFR 171.1(h)), the petition and the documents that FDA considered and relied upon in reaching its decision to approve the petition are available for inspection at the Center for Food Safety and Applied Nutrition (address above) by appointment with the information contact person listed above. As provided in 21 CFR 171.1(h), the agency will delete from the documents any materials that are not available for public disclosure before making the documents available for inspection.

The agency has carefully considered the potential environmental effects of this action and has concluded that the action will not have a significant impact on the human environment and that an environmental impact statement is not required. The agency's finding of no significant impact and the evidence supporting that finding may be seen in the Dockets Management Branch (address above) between 9 a.m. and 4 p.m., Monday through Friday. FDA's regulations implementing the National Environmental Policy Act (21 CFR Part 25) have been replaced by a rule published in the **Federal Register** of April 26, 1985 (50 FR 16636, effective July 25, 1985). Under the new rule, an action of this type would require an abbreviated environmental assessment under 21 CFR 25.31a(b)(1).

Any person who will be adversely affected by this regulation may at any time on or before January 21, 1986, submit to the Dockets Management Branch (HFA-305), Food and Drug Administration, Rm. 4-62, 5600 Fishers Lane, Rockville, MD 20857, written objections thereto and may make a written request for a public hearing on the stated objections. Each objection shall be separately numbered and each numbered objection shall specify with particularity the provision of the regulation to which objection is made. Each numbered objection on which a hearing is requested shall specifically so state; failure to request a hearing for any particular objection shall constitute a waiver of the right to a hearing on that objection. Each numbered objection for which a hearing is requested shall include a detailed description and analysis of the specific factual information intended to be presented in support of the objection in the event that a hearing is held; failure to include such a description and analysis for any particular objection shall constitute a waiver of the right to a hearing on the objection. Three copies of all documents shall be submitted and shall be identified with the docket number found in brackets in the heading of this regulation. Received objections may be seen in the office above between 9 a.m. and 4 p.m., Monday through Friday.

**List of Subjects in 21 CFR Part 175**

Adhesives, Food additives, Food packaging.

Therefore, under the Federal Food, Drug, and Cosmetic Act and under authority delegated to the Commissioner of Food and Drugs and redelegated to the Director, Center for Food Safety and Applied Nutrition, Part 175 is amended as follows:

### PART 175—INDIRECT FOOD ADDITIVES: ADHESIVES AND COMPONENTS OF COATINGS

1. The authority citation for 21 CFR Part 175 continues to read as follows:

Authority: Secs. 201(s), 409, 72 Stat. 1784-1788 as amended (21 U.S.C. 321(s), 348); 21 CFR 5.10 and 5.61.

2. In § 175.300(b)(3) (xxxii) by alphabetically inserting a new item under "Polyamides consisting of the following" to read as follows:

**§ 175.300 Resinous and polymeric coatings.**

* * * * *

(b) * * *

(3) * * *

(xxxii) * * *

Polyamides consisting of the following:

Homopolymer of *omega*-aminododecanoic acid, CAS Reg. No. 24937-16-4.

* * * * *

Dated: December 10, 1985.

**Sanford A. Miller,**

*Director, Center for Food Safety and Applied Nutrition.*

[FR Doc. 85-30101 Filed 12-19-85; 8:45 am]

BILLING CODE 4160-01-M

### 21 CFR Part 177

**[Docket No. 85F-0374]**

### Indirect Food Additives; Polymers

**AGENCY:** Food and Drug Administration.

**ACTION:** Final rule.

**SUMMARY:** The Food and Drug Administration (FDA) is amending the food additive regulations to provide for the safe use of trimethyleneglycol di(*p*-aminobenzoate) as a curing agent in the manufacture of polyurethane resins intended for use in contact with dry food. This action responds to a petition filed by Polaroid Corp.

**DATES:** Effective December 20, 1985; objections by January 21, 1986.

**ADDRESS:** Written objections to the Dockets Management Branch (HFA-305), Food and Drug Administration, Rm. 4-62, 5600 Fishers Lane, Rockville, MD 20857.

**FOR FURTHER INFORMATION CONTACT:** Julius Smith, Center for Food Safety and Applied Nutrition (HFF-335), Food and Drug Administration, 200 C St. SW., Washington, DC 20204, 202-472-5690.

**SUPPLEMENTARY INFORMATION:** In a notice published in the **Federal Register** of September 19, 1985 (50 FR 38036), FDA announced that a petition (FAP 4B3765) had been filed by Polaroid Corp., 238 South Main St., Assonet, MA 02702, proposing that § 177.1680 (21 CFR 177.1680) be amended to provide for the safe use of trimethyleneglycol di(*p*-aminobenzoate) in the manufacture of polyurethane resins intended to contact dry food.

FDA has evaluated data in the petition and other relevant material. The agency concludes that the proposed food additive use is safe, and that the regulations should be amended as set forth below.

In accordance with § 171.1(h) (21 CFR 171.1(h)), the petition and the documents that FDA considered and relied upon in reaching its decision to approve the petition are available for inspection at the Center for Food Safety and Applied Nutrition (address above) by appointment with the information contact person listed above. As provided in 21 CFR 171.1(h)(2), the agency will delete from the documents any materials that are not available for public disclosure before making the documents available for inspection.

The agency has previously considered the environmental effects of this rule as announced in the notice of filing for FAP 4B3765 (September 19, 1985; 50 FR 38036). No new information or comments have been received that would affect the agency's previous determination that there is no sigificant impact on the human environment and that an environmental impact statement is not required.

Any person who will be adversely affected by this regulation may at any time on or before January 21, 1986, submit to the Dockets Management Branch (address above) written objections thereto and may make a written request for a public hearing on the stated objections. Each objection shall be separately numbered and each numbered objection shall specify with particularity the provision of the regulation to which ojection is made. Each numbered objection on which a hearing is requested shall specifically so state; failure to request a hearing for any particular objection shall constitute a waiver of the right to a hearing on that objection. Each numbered objection for which a hearing is requested shall include a detailed description and analysis of the specific factual information intended to be presented in support of the objection in the event that a hearing is held; failure to include such a description and analysis for any particular objection shall constitute a waiver of the right to a hearing on the objection. Three copies of all documents shall be submitted and shall be identified with the docket number found in brackets in the heading of this regulation. Received objections may be seen in the office above between 9 a.m. and 4 p.m., Monday through Friday.

**List of Subjects in 21 CFR Part 177**

Food additives, Polymeric food packaging.

Therefore, under the Federal Food, Drug, and Cosmetic Act and under authority delegated to the Commissioner of Food and Drugs, and redelegated to the Center for Food Safety and Applied Nutrition, Part 177 is amended as follows:

## PART 177—INDIRECT FOOD ADDITIVES: POLYMERS

1. The authority citation for 21 CFR Part 177 continues to read as follows:

**Authority:** Secs. 201(s), 409, 72 Stat. 1784-1788 as amended (21 U.S.C. 321(s), 348); 21 CFR 5.10 and 5.61.

2. Part 177 is amended in § 177.1680(b) by alphabetically inserting a new item in the list of substances to read as follows:

**§ 177.1680 Polyurethane resins.**

* * * * *

(b) * * *

| List of substances | Limitations |
|---|---|
| * * * * * | * |
| Trimethyleneglycol di (*p*-aminobenzoate) (CAS Reg. No. 57609-64-0) | As a curing agent |
| * * * * * | * |

* * * * *

Dated: December 10, 1985.

**Sanford A. Miller,**

*Director, Center for Food Safety and Applied Nutrition.*

[FR Doc. 85-30100 Filed 12-19-85; 8:45 am]

BILLING CODE 4160-01-M

**21 CFR Part 178**

**[Docket No. 84F-0427]**

## Indirect Food Additives: Adjuvants, Production Aids, and Sanitizers

**AGENCY:** Food and Drug Administration.

**ACTION:** Final rule.

**SUMMARY:** The Food and Drug Administration (FDA) is amending the food additive regulations to provide for the safe use of hydrogen peroxide for sterilizing food-contact surfaces prepared from polystyrene and rubber-modified polystyrene resins. This action responds to a petition filed by The Dow Chemical Co.

**DATES:** Effective December 20, 1985, objections by January 21, 1986.

**ADDRESS:** Written objections may be sent to the Dockets Management Branch (HFA-305), Food and Drug Administration, Rm. 4-62, 5600 Fishers Lane, Rockville, MD 20857.

**FOR FURTHER INFORMATION CONTACT:** Andrew D. Laumbach, Center for Food Safety and Applied Nutrition (HFF-335), Food and Drug Administration, 200 C St. SW., Washington, DC 20204, 202-472-5690.

**SUPPLEMENTARY INFORMATION:** In a notice published in the **Federal Register** of January 9, 1985 (50 FR 1132), FDA announced that a food additive petition (FAP 5B3841) had been filed by The Dow Chemical Co., 1803 Building, Door 7, Midland, MI 48640, proposing that the food additive regulations be amended in 21 CFR 178.1005 to provide for the safe use of hydrogen peroxide for sterilizing food-contact surfaces prepared from polystyrene and rubber-modified polystyrene resins complying with 21 CFR 177.1640.

FDA has evaluated the data in the petition and other relevant material. The agency concludes that the proposed use is safe, and that the regulations should be amended as set forth below.

In accordance with § 171.1(h) (21 CFR 171.1(h)), the petition and the documents that FDA considered and relied upon in reaching its decision to approve the petition are available for inspection at the Center for Food Safety and Applied Nutrition (address above) by appointment with the information contact person listed above. As provided in 21 CFR 171.1(h), the agency will delete from the documents any materials that are not available for public disclosure before making the documents available for inspection.

The agency has carefully considered the potential environmental effects of this action and has concluded that the

action will not have a significant impact on the human environment and that an environmental impact statement is not required. The agency's finding of no significant impact and the evidence supporting that finding may be seen in the Dockets Management Branch (address above) between 9 a.m. and 4 p.m., Monday through Friday. FDA's regulations implementing the National Environmental Policy Act (21 CFR Part 25) have been replaced by a rule published in the Federal Register of April 26, 1985 (50 FR 16636, effective July 25, 1985). Under the new rule, an action of this type would require an abbreviated environmental assessment under 21 CFR 25.31a(b)(5).

Any person who will be adversely affected by this regulation may at any time on or before January 21, 1986, file with the Dockets Management Branch (address above) written objections thereto. Each objection shall be separately numbered, and each numbered objection shall specify with particularity the provisions of the regulation to which objection is made and the grounds for the objection. Each numbered objection on which a hearing is requested shall specifically so state. Failure to request a hearing for any particular objection shall constitute a waiver of the right to a hearing on that objection. Each numbered objection for which a hearing is requested shall include a detailed description and analysis of the specific factual information intended to be presented in support of the objection in the event that a hearing is held. Failure to include such a description and analysis for any particular objection shall constitute a waiver of the right to a hearing on the objection.

Three copies of all documents shall be submitted and shall be identified with the docket number found in brackets in the heading of this document. Any objections received in response to the regulation may be seen in the Dockets Management Branch between 9 a.m. and 4 p.m., Monday through Friday.

**List of Subjects in 21 CFR Part 178**

Food Additives, Food packaging, Sanitizing solutions.

Therefore, under the Federal Food, Drug, and Cosmetic Act and under authority delegated to the Commissioner of Food and Drugs and redelegated to the Director, Center for Food Safety and Applied Nutrition, Part 178 is amended as follows:

## PART 178—INDIRECT FOOD ADDITIVES: ADJUVANTS, PRODUCTION AIDS, AND SANITIZERS

1. The authority citation for 21 CFR Part 178 continues to read as follows:

**Authority:** Secs. 201(s), 409, 72 Stat. 1784–1788 as amended (21 U.S.C. 321(s), 348); 21 CFR 5.10 and 5.61.

2. In § 178.1005 by revising paragraph (e)(1) to read as follows:

**§ 178.1005 Hydrogen peroxide solution.**

* * * * *

(e) *Conditions of use.* (1) Hydrogen peroxide solution identified in and complying with the specifications in this section may be used by itself or in combination with other processes to treat food-contact surfaces prepared from ionomeric resins complying with § 177.1330 of this chapter, ethylene-methyl acrylate copolymer resins complying with § 177.1340 of this chapter, ethylene-vinyl acetate copolymers complying with § 177.1350 of this chapter, olefin polymers complying with § 177.1520 of this chapter, polyethylene terephthalate polymers complying with § 177.1630 of this chapter (excluding polymers described in § 177.1630(c)), and polystyrene and rubbers-modified polystyrene polymers complying with § 177.1640 to attain commercial sterility at least equivalent to that attainable by thermal processing for metal containers as provided for in Part 113 of this chapter.

* * * * *

Dated: December 10, 1985.

Sanford A. Miller,

*Director, Center for Food Safety and Applied Nutrition.*

[FR Doc. 85-30102 Filed 12-19-85; 8:45 am]

BILLING CODE 4160-01-M

## DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

### Office of the Assistant Secretary for Housing—Federal Housing Commissioner

### 24 CFR Parts 232 and 235

**[Docket No. R-85-1269; FR-2195]**

### Mortgage Insurance—Changes in Interest Rates

**AGENCY:** Office of the Assistant Secretary for Housing—Federal Housing Commissioner, HUD.

**ACTION:** Final rule.

**SUMMARY:** This change in the regulations decreases the maximum allowable interest rate on section 232 (Mortgage Insurance for Nursing Homes) and on section 235 (Homeownership for Lower Income Familes) insured loans. This final rule is intended to bring the maximum permissible financing charges for these programs into line with competitive market rates.

**EFFECTIVE DATE:** December 13, 1985.

**FOR FURTHER INFORMATION CONTACT:** John N. Dickie, Chief Mortgage and Capital Market Analysis Branch, Office of Financial Management, Department of Housing and Urban Development, 451 Seventh Street, SW., Washington, DC 20410. Telephone (202) 755-7270. (This is not a toll-free number.)

**SUPPLEMENTARY INFORMATION:** The following amendments to 24 CFR Chapter II have been made to decrease the maximum interest rate which may be charged on loans insured by this Department under section 232 (fire safety equipment) and section 235 of the National Housing Act. The maximum interest rate on the HUD/FHA section 232 (fire safety equipment) and section 235 insurance programs has been lowered from 11.00 percent to 10.50 percent.

The Secretary has determined that this change is immediately necessary to meet the needs of the market and to prevent speculation in anticipation of a change.

As a matter of policy, the Department submits most of its rulemaking to public comment, either before or after effectiveness of the action. In this instance, however, the Secretary has determined that advance notice and public comment procedures are unnecessary and that good cause exists for making this final rule effective immediately.

HUD regulations published at 47 FR 56266 (1982), amending 24 CFR Part 50, which implement section 102(2)(C) of the National Environmental Policy Act of 1969, contain categorical exclusions from their requirements for the actions, activities and programs specified in § 50.20. Since the amendments made by this rule fall within the categorical exclusions set forth in paragraph (*l*) of § 50.20, the preparation of an Environmental Impact Statement or Finding of No Significant Impact is not required for this rule.

This rule does not constitute a "major

rule" as that term is defined in section 1(b) of Executive Order 12291 on Federal Regulation issued on February 17, 1981. Analysis of the rule indicates that it does not (1) have an annual effect on the economy of $100 million or more; (2) cause a major increase in costs or prices for consumers, individual industries, Federal, State or local governmental agencies, or geographic regions; or (3) have a significant adverse effect on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

In accordance with the provisions of 5 U.S.C. 605(b) (the Regulatory Flexibility Act), the undersigned hereby certifies that this rule does not have a significant economic impact on a substantial number of small entities. The rule provides for a small increase in the mortgage interest rate in programs of limited applicability, and thus of minimal effect on small entities.

This rule was not listed in the Department's Semiannual Agenda of Regulations published on October 29, 1985 (50 FR 4166) pursuant to Executive Order 12291 and the Regulatory Flexibility Act.

The Catalog of Federal Domestic Assistance program numbers are 14.108, 14.117, and 14.120.

**List of Subjects**

*24 CFR Part 232*

Fire prevention, Health facilities, Loan programs: Health, Loan programs: Housing and community development, Mortgage insurance, Nursing homes, Intermediate care facilities.

*24 CFR Part 235*

Condominiums, Cooperatives, Low and moderate income housing, Mortgage insurance, Homeownership, Grant programs: housing and community development.

Accordingly, the Department amends 24 CFR Parts 232 and 235 as follows:

## PART 232—NURSING HOMES AND INTERMEDIATE CARE FACILITIES MORTGAGE INSURANCE

1. The authority citation for 24 CFR Part 232 continues to read as follows:

**Authority:** Secs. 211, 232, National Housing Act, (12 U.S.C. 1715b, 1715w); sec. 7(d), Department of Housing and Urban Development, (42 U.S.C. 3535(d)).

2. In § 232.560, paragraph (a) is revised to read as follows:

**§ 232.560 Maximum interest rate.**

(a) The loan shall bear interest at the rate agreed upon by the lender and the borrower, which rate shall not exceed 10.50 percent per annum, except that where an application for commitment was received by the Secretary before December 13, 1985, the loan may bear interest at the maximum rate in effect at the time of application.

* * * * *

## PART 235—MORTGAGE INSURANCE AND ASSISTANCE PAYMENTS FOR HOME OWNERSHIP AND PROJECT REHABILITATION

3. The authority citation for 24 CFR Part 235 continues ot read as follows:

**Authority:** Sec. 211, 235, National Housing Act, (12 U.S.C. 1715b, 1715z); sec. 7(d), Department of Housing and Urban Development Act, (42 U.S.C. 3535(d)).

4. In § 235.9, paragraph (a) is revised to read as follows:

**§ 235.9 Maximum interest rate.**

(a) The mortgage shall bear interest at the rate agreed upon by the mortgage and the mortgagor, which rate shall not exceed 10.50 percent per annum, except that where an application for commitment was received by the Secretary before December 13, 1985, the loan may bear interest at the maximum rate in effect at the time of application.

* * * * *

5. In § 235.540, paragraph (a) is revised to read as follows:

**§ 235.540 Maximum interest rate.**

(a) On or after December 13, 1985, the loan shall bear interest at the rate agreed upon by the lender and the borrower, which rate shall not exceed 10.50 percent per annum, with the exception of applications submitted pursuant to feasibility letters, or outstanding conditional or firm commitments, issued prior to the effective date of the new rate. In these instances, applications will be processed at a rate not exceeding the applicable previous maximum rates, if the higher rate was previously agreed upon by the parties. Notwithstanding these exceptions, the application will be processed at the new lower rate if requested by the mortgagee.

* * * * *

Dated: December 12, 1985.

**Janet Hale,**

*General Deputy Assistant Secretary for Housing—Deputy Federal Housing Commissioner.*

[FR Doc. 85-30003 Filed 12-19-85; 8:45 am]

BILLING CODE 4210-27-M

## DEPARTMENT OF THE TREASURY

### Bureau of Alcohol, Tobacco and Firearms

### 27 CFR Part 4

**[Notice No. 576]**

### Appellations of Origin and Geographic Corporate and Trade Names

**AGENCY:** Bureau of Alcohol, Tobacco and Firearms (ATF), Treasury.

**ACTION:** General statement of policy.

**SUMMARY:** This document relates to regulations governing the use of appellations of origin and geographic corporate and trade names on labels for wine. It arises from the decision in *Wawszkiewicz v. Department of the Treasury*, 480 F.Supp. 739 (D.D.C. 1979), *aff'd in part, rev'd in part*, 670 F.2d 296 (D.C. Cir 1981). The Court of Appeals remanded the case to the lower court with instructions that these regulations (among others) be remanded to ATF for reconsideration and review. ATF has reconsidered and reviewed these regulations and concludes that they do not need to be amended. Definitions of various winemaking terms used on labels of wine, a separate issue involved in the litigation cited above, will be handled separately.

**DATE:** Policy statement issued on December 20, 1985.

**FOR FURTHER INFORMATION CONTACT:** John A. Linthicum or James P. Ficaretta, FAA, Wine and Beer Branch, Bureau of Alcohol, Tobacco and Firearms, (202) 566-7626.

**SUPPLEMENTARY INFORMATION:**

**Background**

On August 23, 1978, ATF issued a final rule, Treasury Decision ATF-53 (43 FR 37672, 54624), which revised various regulations governing the labeling of wine. T.D. ATF-53 provided, in part, that wine may be labeled with an appellation of origin if at least 75 percent of the wine is derived from fruit or other agricultural products grown in the appellation area indicated. In the same final rule, ATF also decided not to amend regulations governing the use of geographic corporate and trade names.

The plaintiffs in *Wawszkiewicz* challenged regulations governing the use of appellations of origin and geographic corporate and trade names, among other regulations. They argued that when the grapes used to make a wine are not 100 percent from the stated appellation of origin, the label is misleading unless the percentages from each appellation of origin are shown on the label. Additionally, they argued that the rules

governing the use of geographic corporate and trade names sanctioned misleading labeling.

**District Court**

The District Court decision dwelt primarily on the varietal labeling rule. In summarizing, the court held that similar shortcomings applied to the other contested rules: appellation of origin percentages, geographic brand names, geographic corporate and trade names, and the use of winemaking terminology on labels. The court held that the use of a grape variety name, or an appellation of origin, implied that 100 percent of the wine was derived from grapes known by that name (in the case of a wine named for a grape variety name), or from grapes grown in the named area (in the case of a wine claiming an appellation of origin). 480 F.Supp. at 743.

The court concluded that the same rationale requires that wine labels making representations as to geographic origin (*i.e.* geographic brand names and geographic corporate and trade names) should couple such representations with a more precise indication of what minimum percentages attach to the claims made. *id.* at 745.

The District Court ordered that the regulations be remanded to ATF for revision consistent with the conclusion described above.

**Court of Appeals**

The Court of Appeals disagreed with the District Court's rationale in that a court reviewing agency action is not empowered to substitute its judgment for that of the agency. The Court of Appeals held that an agency's decision should be upheld where there is a rational basis for the decision in the facts of the record. 670 F.2d at 301. Pursuant to this test, the court upheld the regulations governing varietal labeling but found that the regulations concerning statements as to geographic origin and winemaking terminology had not been adequately explained, "either by reference to the record or by a reasoned statement." *id.* at 304. The Court of Appeals remanded the case to the District Court with instructions that the regulations governing statements as to geographic origin [appellation of origin percentages, geographic brand names, geographic corporate and trade names] and winemaking terminology be remanded to ATF for review and reconsideration in light of the appellate court's decision. No specific instructions were provided by either court nor were any dates set in connection with the review or reconsideration.

**New Rulemaking Projects**

The issuance of this general statement of policy allows ATF to explain its decision on appellations of origin percentages and geographic corporate and trade names, by reference to the record and by reasoned statement.

In previously published notices of proposed rulemaking, ATF has proposed revisions of the geographic brand names regulation, Notice Nos. 522, 534, and 542 (49 FR 19330, 28417, and 34847).

Definitions of various winemaking terms which are indicative of specific processes used in the production of wine will be handled separately.

**Reconsideration and Review**

*Appellation of Origin.* One of the areas of contention in the *Wawszkiewicz* litigation was the qualifying requirement for use of an appellation of origin. In general, at least 75 percent of the wine must be derived from fruit or other agricultural products grown in the area indicated by the appellation of origin. (27 CFR 4.25a).

The 75 percent requirement was not, and is not, an arbitrary figure. In 1935, ATF's predecessor agency, the Federal Alcohol Administration, proposed regulations on the use of appellations of origin on wine labels. The proposed rule would have required that 100 percent of the volume of the wine be derived from grapes grown and fermented in the area indicated by the appellation of origin. Careful consideration was given to the concept of geographical descriptions of the origin of wines.

At the hearing in November 1935, testimony was presented indicating that the distinctive geographic characteristics of grapes would be preserved by permitting a wine to be labeled with an appellation of origin when 75 percent of the volume of the wine is derived from grapes grown in the area named. The 75 percent rule would also allow for necessary blending. Thus, the 75 percent requirement is basically unchanged since the repeal of Prohibition.

When the minimum qualifying percentage requirement is met for an appellation of origin, no percentages are required to appear on the label. However, when a multi-county or multi-state appellation of origin is used, all of the grapes used to produce the wine must come from the indicated areas. Since different viticultural characteristics may be associated with different areas when a multi-county or multi-state appellation of origin is used, the percentage of the volume of the wine from each area must be shown on the label. (27 CFR 4.25a (c) and (d)).

Having re-examined this question, ATF believes that the current regulations protect the geographic characteristics. ATF believes that the consumer is protected and adequately informed. No new facts or materials have been presented which would warrant a regulatory change.

*Geographic Corporate and Trade Names.* The name of the bottler or packer of the wine and the place where bottled or packed (city and State) must appear on labels of wine preceded by the legend "bottled (packed) by." (27 CFR 4.35). Although the corporate or trade name of the winemaker or bottler may be geographic in nature, it must be approved by ATF before it may appear on labels of wine. ATF does not approve names which are considered to be misleading.

The name of the bottler appears in direct conjunction with the city and State, *i.e.* no other information may appear between the corporate or trade name and the actual location of the bottling or packing. ATF believes that the appearance of the city and State in direct conjunction with a geographic corporate or trade name precludes any misleading impressions about the origin of the wine.

However, a geographic brand name does not appear in direct conjunction with the city and State where the wine was bottled or packed. Therefore, a different rule is necessary in the case of a geographic brand name. (27 CFR 4.39(i)). This regulation is under review in a separate rulemaking project, as discussed above.

The Court of Appeals states that the Bureau never explained why it chose to regulate misleading geographic brand names but not equally deceptive geographic corporate or trade names. 670 F.2d at 304. The reason is implicit in the regulation requiring that a geographic corporate or trade name appear in direct conjunction with the city and State where the wine was bottled or packed. Because the corporate or trade name appears in direct conjunction with the address of bottling or packing, a geographic corporate or trade name is not misleading in comparison to a geographic brand name. This point was never made clear during the litigation.

ATF believes that the usage of geographic corporate and trade names is sufficiently regulated to prevent the conveyance of any misleading impressions to consumers. The regulations governing geographic corporate and trade names have remained virtually unchanged since 1935. No facts or materials have been

submitted to ATF which would warrant amending the present regulation.

Summary

ATF believes that the existing regulations on appellations of origin and geographic corporate and trade names are valid because they were established in public rulemaking projects, with the proposed rules modified in response to public comments. Since these regulations adequately provide the consumer with sufficient information on the origin of wines, ATF does not intend to amend these regulations.

List of Subjects in 27 CFR Part 4

Advertising, Consumer protection, Customs duties and inspection, Imports, Labeling, Packaging and containers, Wine.

Drafting Information

The principal author of this document is John A. Linthicum of the FAA, Wine and Beer Branch, Bureau of Alcohol, Tobacco and Firearms.

Authority

This notice is issued under the authority contained in section 5 of the Federal Alcohol Administration Act, 49 Stat. 981, as amended, 27 U.S.C. 205.

Signed: November 12, 1985.

**Stephen E. Higgins,**

*Director.*

Approved: November 18, 1985.

**David D. Queen,**

*Acting Assistant Secretary (Enforcement and Operations).*

[FR Doc. 85-30017 Filed 12-19-85; 8:45 am]

BILLING CODE 4810-31-M

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## 27 CFR Parts 4, 5 and 7

[T.D. ATF 210]

## Disclosure of Saccharin in the Labeling of Wine, Distilled Spirits, and Malt Beverages

**AGENCY:** Bureau of Alcohol, Tobacco and Firearms. (ATF), Treasury.

**ACTION:** Treasury decision, final rule.

**SUMMARY:** This final rule amends the labeling regulations in 27 CFR Parts 4, 5 and 7, by requiring the following statement on labels of alcohol beverages continuing the artificial sweetener saccharin: "Use of this product may be harzadous to your health. This product contains saccharin which has been determined to cause cancer in laboratory animals."

**EFFECTIVE DATE:** The effective date of this final rule is December 20, 1985.

**FOR FURTHER INFORMATION CONTACT:** James P. Ficaretta, FAA, Wine and Beer Branch, Bureau of Alcohol, Tobacco and Firearms, 1200 Pennsylvania Avenue, NW, Washington, DC 20226, 202-566-7626.

**SUPPLEMENTARY INFORMATION:**

### Background

The Federal Alcohol Administration Act (FAA Act), 27 U.S.C. 205(e)(2), vests authority in the Director of the Bureau of Alcohol, Tobacco and Firearms, as a delegate of the Secretary of the Treasury, to prescribe regulations which will provide the consumer with "adequate information" as to the identity and quality of alcohol beverage products. Under this authority, labeling requirements are prescribed in Title 27, Code of Federal Regulations, Parts 4, 5, and 7 for wines, distilled spirits and malt beverages, respectively. The regulations requiring basic mandatory labeling information for alcohol beverage products have been in effect for over 50 years.

In recent years, the Bureau has considered numerous petitions for regulation changes with respect to the ingredient labeling of alcohol beverage products. Such requests have petitioned ATF to require full ingredient labeling, partial ingredient labeling, even health warning statements for specific ingredients found in alcohol beverages which were alleged to be a health hazard. In response to such requests, the Bureau has established a regulatory policy with respect to ingredient labeling and the need to disclose to consumers the presence of specific ingredients, found to be present in alcohol beverage products, which have been determined to pose health risks.

The Bureau, on October 6, 1983, published a final rule (T.D. ATF-150, 48 FR 45549), rescinding the ingredient labeling regulations for alcohol beverage products. However, mandatory label disclosure was required for alcohol beverages containing the color additive FD&C Yellow No. 5. The Bureau found, as a result of its rulemaking effort, that there was evidence establishing that consumers of the few alcohol beverage products containing that color additive may have adverse reactions to the ingredient. The Bureau also determined, at that time, that there was no clear evidence in the record that any other ingredient being used in the production of alcohol beverages posed a recognized health problem.

Pursuant to T.D. AF-150, the Bureau specifically stated it "will look at the necessity of mandatory labeling of other ingredients on a case-by-case basis through its own rulemaking initiative, or on the basis of petitons, or on the basis of petitions for rulemaking under 5 U.S.C. 553(e) and 27 CFR 71.41(c)."

Recently, ATF has been petitioned by members of the alcohol beverage industry to use the sugar substitute saccharin in the production of alcohol beverages.

Presently, Food and Drug Administration regulations, 21 CFR 180.37 (21 U.S.C. 348, 371), do not preclude the use of saccharin in the production of alcohol beverages. However, while use is not prohibited, the Saccharin Study and Labeling Act (21 U.S.C. 343) mandates that if saccharin is present in a food, then the following warning must also appear on the label of that product:

> Use of this product may be hazardous to your health. This product contains saccharin which has been determined to cause cancer in laboratory animals.

It is clear that Congress, after an exhaustive consideration of this issue, determined that all products containing saccharin shall display this health warning so that all consumers would be informed about the potential health risks associated with its use.

In recognition of this congressional mandate as expressed in the Saccharin Study and Labeling Act and pursuant to section 5(e)(2) of the Federal Alcohol Administration Act, which relates to providing the consumer with adequate information, the Bureau has determined that any alcohol beverage product which contains saccharin (including sodium saccharin, calcium saccharin and ammonium saccharin) must bear on its label a health warning statement identical to that set forth in the Saccharin Study and Labeling Act. This statement shall appear on a front or back label, separate and apart from other information, in the required size of type, and on a completely contrasting background.

### Administrative Procedure Act

Because this Treasury decision implements the national policy expressed in the Saccharin Study and Labeling Act with respect to the labeling of products containing saccharin, it is found that it is impractical and unnecessary to issue this Treasury decision with notice and public procedure under 5 U.S.C. 553(b) or subject to the effective date limitation in section 553(d).

### Executive Order 12291

In compliance with Executive Order 12291, ATF has determined that this

final rule is not a "major rule" since it will not result in:

(a) An annual effect on the economy of $100 million or more;

(b) A major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions; or

(c) Significant adverse effect on competition, employment, investment, productivity, innovation, or on the ability of United States based enterprises to compete with foreign-based enterprises in domestic or export markets.

**Regulatory Flexibility Act**

The provisions of the Regulatory Flexibility Act relating to an initial and final regulatory flexibility analysis (5 U.S.C. 603, 604) do not apply to this final rule because no notice of proposed rulemaking is required by 5 U.S.C. 553(b).

**Paperwork Reduction Act**

The provisions of the Paperwork Reduction Act of 1980, Pub. L. 96-511, 44 U.S.C. Chapter 35, and its implementing regulations, 5 CFR Part 1320, do not apply to this final rule because no requirement to collect information is imposed.

**Drafting Information**

The author of this document is Coordinator James P. Ficaretta, FAA, Wine and Beer Branch, Bureau of Alcohol, Tobacco and Firearms.

**List of Subjects**

*27 CFR Part 4*

Advertising, Consumer protection, Customs duties and inspection, Imports, Labeling, Packaging and containers, and Wine.

*27 CFR Part 5*

Advertising, Consumer protection, Customs duties and inspection, Imports, Labeling, Liquors, and Packaging and containers.

*27 CFR Part 7*

Advertising, Beer, Consumer protection, Customs duties and inspection, Imports, and Labeling.

**Authority and Issuance**

**PART 4—[AMENDED]**

27 CFR Part 4—Labeling and Advertising of Wine is amended as follows:

**Par. 1.** The authority citation for 27 CFR Part 4 is revised to read as follows, and the authority citations following §§ 4.23, 4.23a, 4.25, 4.25a, 4.26, 4.39 are removed:

**Authority:** 27 U.S.C. 205.

**Par. 2.** Section 4.32 is amended by adding a new paragraph (d) as follows:

**§ 4.32 Mandatory label information.**

* * * * *

(d) There shall be stated on a front or back label, separate and apart from all other information, the following statement when saccharin is present in the finished product: Use of this product may be hazardous to your health. This product contains saccharin which has been determined to cause cancer in laboratory animals.

**PART 5—[AMENDED]**

27 CFR Part 5—Labeling and Advertising of Distilled Spirits is amended as follows:

**Par. 3.** The authority citation for Part 5 is revised to read as follows:

**Authority:** 26 U.S.C. 5301, 7805; 27 U.S.C. 205.

**Par. 4.** Section 5.32 is amended to add a new paragraph (b)(6) and to redesignate paragraphs (b) (6), (7), and (8) as paragraphs (b) (7), (8), and (9), respectively, as follows:

**§ 5.32 Mandatory label information.**

* * * * *

(b) On the brand label or on a back label:

* * * * *

(6) The following statement when saccharin is present in the finished product: Use of this product may be hazardous to your health. This product contains saccharin which has been determined to cause cancer in laboratory animals.

* * * * *

**PART 7—[AMENDED]**

27 CFR Part 7—Labeling and Advertising of Malt Beverages is amended to read as follows:

**Par. 5.** The authority citation for 27 CFR Part 7 is revised to read as follows:

**Authority:** 27 U.S.C. 205.

**Par. 6.** Section 7.22 is amended by adding a new paragraph (b)(5) as follows:

**§ 7.22 Mandatory label information.**

* * * * *

(b) * * *

(5) The following statement, separate and apart from all other information, when saccharin is present in the finished product: Use of this product may be hazardous to your health. This product contains saccharin which has been determined to cause cancer in laboratory animals.

Signed: October 25, 1985.

**Stephen E. Higgins,**

*Director.*

Approved: December 9, 1985.

**David D. Green,**

*Acting Assistant Secretary (Enforcement and Operations).*

[FR Doc. 85-29707 Filed 12-19-85; 8:45 am]

BILLING CODE 4810-31-M

## DEPARTMENT OF LABOR

### Occupational Safety and Health Administration

### 29 CFR Part 1910

### Hazard Communication; Interpretation Regarding Lubricating Oils

**AGENCY:** Occupational Safety and Health Administration (OSHA); Labor.

**ACTION:** Notice of interpretation.

**SUMMARY:** OSHA has received a number of inquiries in recent months regarding the application of the Hazard Communication Standard (HCS) (29 CFR 1910.1200), to lubricating oils. This notice summarizes the Agency's position on this issue, and indicates further actions to be taken.

**DATE:** The interpretations described in this notice go into effect December 20, 1985.

**FOR FURTHER INFORMATION CONTACT:** Mr. James Foster, Office of Information and Consumer Affairs, Occupational Safety and Health Administration, 200 Constitution Avenue NW., Room N3637, Washington, DC 20210; (202) 523-8148.

**SUPPLEMENTARY INFORMATION:** On November 25, 1983, OSHA published a final standard in the **Federal Register** entitled "Hazard Communication", at 48 FR 53280, and which is codified at 29 CFR 1910.1200. The rule requires chemical manufacturers and importers to evaluate the hazards of the chemicals they produce or import, and all employers in the manufacturing sector to transmit such hazard information to their employees by means of labels on containers, material safety data sheets, and employee training programs.

The requirements for evaluation of the hazards of chemicals under the rule are primarily performance-oriented. OSHA has provided definitions of hazards, general criteria for evaluation, and possible reference sources, but allows employers considerable flexibility in applying professional judgment to the evaluation process. This performance-oriented approach is amply supported by the rulemaking record, and was

recently upheld by the U.S. Court of Appeals for the Third Circuit (*United Steelworkers of America* v. *Auchter*, 763 F.2d 728 (3d Cir. 1985)).

In order to ensure that employees of different employers receive pertinent and comparable information regarding the carcinogenicity of chemicals in the workplace, the HCS requires that employers report on material safety data sheets (MSDS) that a chemical is a carcinogen, or potential carcinogen, when (1) OSHA has regulated the substance as a carcinogen; (2) the National Toxicology Program lists the substance on its annual list of carcinogens; or (3) the International Agency for Research on Cancer (IARC) has evaluated the substance, and found sufficient or limited evidence of carcinogenicity, 29 CFR 1910.1200 (d)(4) and (g)(2) (vii). Employers are also required to include "appropriate hazard warnings" on labels on containers of chemicals for such hazards as carcinogenicity, 29 CFR 1910.1200 (f)(1)(ii) and (f)(4)(ii).

Subsequent to the publication of the rule, IARC published Volume 33 of its monograph series, entitled *IARC MONOGRAPHS ON THE EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO HUMANS: POLYNUCLEAR AROMATIC COMPOUNDS, PART 2, CARBON BLACKS, MINERAL OILS AND SOME NITROARENES* (April 1984) (hereinafter referred to as the IARC monograph). In this document, lubricant base oils and derived products are categorized by the refining processes they were subjected to and fall within the following eight classes:

Class 1. Vacuum distillates.

These may have undergone subsequent finishing steps, such as caustic neutralization, dewaxing, clay treatment and/or mild hydrotreatment. They have not been acid treated or solvent extracted.

Class 2. Acid-treated oils.

These may have undergone subsequent finishing steps such as caustic neutralization, dewaxing, clay treating and/or mild hydrotreatment. They have not been solvent extracted.

Class 3. Solvent-refined-oils (raffinates).

These may have undergone subsequent finishing steps, such as dewaxing, clay treating and/or mild hydrotreatment.

Class 4. Hydrotreated oils.

Class 5. White oils and petrolatums suitable for food and/or medicinal use.

Class 6. Aromatic oils:

6.1 Solvent extracts

6.2 Catalytically cracked oils

Class 7. Miscellaneous materials:

7.1 Formulated products

7.2 Used oils

Class 8. Petroleum-derived materials not otherwise classified (not sufficiently described to permit assignment to other classes).

IARC monograph at 90. "This classification is based on increasing severity of processing or refinement; within each class a range of treatment severities is also possible." *Id.* Class 7 oils are comprised of formulations of various base oils from the previous categories, together with chemical additives. *Id.* at 90–91.

The carcinogenicity of each type of product is related to the severity of refinement. IARC's conclusions included the following statements:

> There is *sufficient evidence* for the carcinogenicity in experimental animals of untreated vacuum distillates, acid-treated oils, and aromatic oils, including extracts from solvent treatment of distillates and the high-boiling fraction of catalytically cracked oils [classes 1, 2 and 6].
>
> There is *sufficient evidence* that mildly solvent refined oils [class 3] are carcinogenic to experimental animals. There is *no evidence* that severely solvent refined oils [class 3] are carcinogenic to experimental animals.
>
> There is *sufficient evidence* that mildly hydrotreated oils [class 4] are carcinogenic to experimental animals; the available data on severely hydrotreated oils [class 4] are *inadequate* to permit an evaluation of their carcinogenicity to experimental animals.

IARC mongraph at 150–151.

There are a number of variations in the actual processes used to produce the different types of petroleum streams. Variables include differences in base stock, equipment used, proprietary procedures, catalysts introduced, and temperature and pressure conditions. IARC categorized petroleum streams by process, and related their findings regarding carcinogenicity to the severity of refinement, but the monograph did not explicitly define the terms "mild" and "severe" when used to describe some types of processing.

The situation of immediate concern to OSHA involves the hydrotreatment of naphthenic oils. The purpose of this notice is to define "mild" hydrotreating, and to give OSHA's interpretation of the applicability of the IARC findings regarding naphthenic oils to the requirements of the HCS. No similar issue has been raised with respect to solvent refining.

OSHA has collected as much information as possible to evaluate this situation. OSHA representatives have met individually with various refiners, and conducted an informal meeting on November 7, 1985, where affected parties were given an opportunity to present their views on the issues involved. In addition, OSHA has obtained and evaluated relevant sources referenced in the IARC monograph.

Since IARC has stated that, with respect to hydrotreated oils, conclusive positive evidence of carcinogenicity is associated only with mild hydrotreatment, defining the process is sufficient to clarify the issue and ensure uniform interpretation of the findings in the IARC monograph and of the OSHA standard's applicability. To develop this definition, OSHA is relying primarily on the IARC monograph itself and papers cited by IARC as providing the rationale for their conclusions on this issue, as well as on information submitted at the November 7th meeting. It should be noted that the terms "mild hydrotreating" and "mild hydroprocessing" are used in the IARC monograph synonymously with the term "hydrofinishing." (*See* Table 17 of the monograph, and the discussion which accompanies it, at 124–125.) The task, therefore, is to establish criteria for "hydrofinishing" and/or "mild hydrotreatment" or "mild hydroprocessing."

Several references refer to process parameters for mild hydrotreating. In a paper by Halder *et al.*, entitled "Carcinogenicity of Petroleum Lubricating Oil Distillates: Effects of Solvent Refining, Hydroprocessing, and Blending" (American Journal of Industrial Medicine 5:265–274 (1984)), oils studied were "subjected to mild hydroprocessing, carried out at hydrogen pressures of about 800 psi [pounds per square inch], temperatures of 625–691°F and liquid hourly space velocities of 0.5 to 1.0 $hr^{-1}$." This study was one of the key papers used by the IARC working group to establish the carcinogenicity of mildly hydrotreated oils. Similarly, in a text entitled *The Chemistry and Technology of Petroleum* (Marcel Dekker, Inc., New York (1981)), James G. Speight of Exxon Research and Engineering Company stated that for hydrofinishing "[R]eactor operating conditions range from 400 to 800°F and from 50 to 800 psi, depending on the kind of feedstock and the degree of treating required." This text was referred to by participants in the November 7th meeting. OSHA has obtained further corroboration of the applicability of these criteria to IARC's conclusions through corrrespondence and oral communication with Dr. E.N. Ladov, a member of the IARC working group and co-author of one of the key papers upon

which IARC relied in its deliberations, "Toxicological Characteristics of Refinery Streams Used to Manufacture Lubricating Oils" (American Journal of Industrial Medicine 5:183–200 (1984)).

OSHA has determined that the references described clearly show that the studies used by IARC to arrive at its conclusions regarding the carcinogenicity of mildly hydrotreated oils involved products for which the degree of treatment was well described. Since the intent of the IARC monograph with regard to process definition is the issue in question, and since the mild hydrotreatment process parameters related to the IARC findings of carcinogenicity are well described, OSHA will use those process parameters to define mild hydrotreatment for purposes of compliance with the HCS. The critical factors for defining the process appear to be the pressure and temperature conditions. OSHA will therefore regard an oil as mildly hydrotreated if it has been processed at a pressure of 800 pounds per square inch (psi) or less, at temperatures up to 800° F, independent of other process parameters. IARC has not identified any conclusive evidence for oils which are hydrotreated using parameters outside the described ranges.

It should be noted, however, that apart from reporting the findings of IARC, for producers of hydrotreated oils "[t]he results of any studies which are designed and conducted according to established scientific principles, and which report statistically significant conclusions regarding the health effect of a chemical, shall be a sufficient basis for a hazard determination and reported on any material safety data sheet." 29 CFR 1910.1200, Appendix B, no. 4. Thus if any data are, or become, available which indicate carcinogenicity for oils produced using process parameters outside those defined as mild hydrotreatment, these data must also be used to determine potential carcinogenicity under the HCS.

As stated above, the IARC monograph concludes that there is sufficient evidence of carcinogenicity in experimental animals when the naphthenic oil is mildly hydrotreated or mildly solvent refined. Oils that are mildly hydrotreated or mildly solvent refined would thus have to be considered potentially carcinogenic under the provisions of the HCS. If the oil is severely hydrotreated, IARC has stated that the evidence is inadequate to determine carcinogenic potential. Thus severely hydrotreated oils do not have to be considered potentially carcinogenic under the HCS on the basis of IARC's findings. However, if one positive study regarding carcinogenicity of severely hydrotreated oils is identified, and it meets the criteria of the hazard determination procedures established in the HCS, then it will also be sufficient to establish potential carcinogenicity under the requirements of the rule. For severely solvent refined oils, IARC indicates that there is no evidence of carcinogenicity. Thus severely solvent refined oils do not have to be considered potentially carcinogenic under the HCS with regard to IARC's findings. There is also evidence cited in the IARC monograph that if sequential processing of mild hydrotreating and mild solvent refining is performed, the positive finding of carcinogenicity is eliminated. Thus, oil subject to this sequential processing does not have to be considered carcinogenic on the basis of the IARC monograph.

To reiterate the requirements of the HCS, there is a duty to report the positive findings of IARC. If a company has performed testing of its own product, and has found negative results, this information may be reported as well, but does not relieve the manufacturer or importer from the duty to report a positive IARC finding. "The chemical manufacturer, importer, or employer may also report the results of other scientifically valid studies which tend to refute the findings of hazard", but the positive data must always be reported. 29 CFR 1910.1200, Appendix B, no. 4. It will not be acceptable for purposes of compliance with the HCS to use negative bioassay results to justify or define severity of treatment.

To further clarify IARC's intent in categorizing the process streams, OSHA is writing to each of the members of the IARC working group that prepared the monograph in question to determine if there are any other considerations that relate to the process by which they categorized the streams and interpreted the data. Responses to these inquiries will determine if any further consideration by OSHA is necessary. If IARC relied on studies which have not been identified by OSHA and which show that positive carcinogenic results have been associated with higher parameter values, OSHA will modify its enforcement policy and compliance directive to include those higher values in its definition of mild hydrotreatment.

The requirements of the rule stand as promulgated—the hazard evaluation process must be accomplished within the constraints and guidance of the procedures outlined in the HCS. OSHA will incorporate the definition of mild hydrotreating described in this notice into its inspection procedures for the HCS (compliance directive CPL 2–2.38), and will use it to establish compliance with the rule with reviewing the hazard assessments of producers of naphthenic oils.

Some inquiries have been received from users of naphthenic oils, particularly those formulating these oils into other types of products, as to what information should be reported on their material safety data sheets. Formulators may use the information supplies by the producer of the base oils used, and may rely on the findings of the producer's hazard evalvation. The formulators must use the best information that they have regarding the base oils and the nature and concentration of additives. If the evaluation of their supplier changes as a result of the application of the interpretations described in this notice, and a new data sheet is provided to them, the formulators will have to update the data sheets for their products in accordance with the provisions of the rule.

Questions have also been received regarding the increased carcinogenicity of naphthenic oils used under high temperature conditions, and the re-refining of naphthenic oils. To OSHA's knowledge, these issues have not been specifically addressed by IARC. In the letter the Agency is sending to the IARC working group members, OSHA has asked for additional guidance in these areas to determine the applicability of the IARC monograph to these types of oils. When this information is received, OSHA will revise its enforcement policy as appropriate.

OSHA must ensure to the greatest extent possible that the evaluations of carcinogenic potential are accurately and consistently performed, and that information provided to employees and downstream employers is comparable among the various producers of a given type of oil. It was for this reason that OSHA has relied on findings of established authorities such as IARC. Actions not consistent with the provisions of the rule will be subject to OSHA review and possible citation.

**Authority and Signature**

This document was prepared under the direction of Patrick R. Tyson, Acting Assistant Secretary for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Avenue NW., Washington, DC 20210. It is issued pursuant to section 8 of the Occupational Safety and Health Act (29 U.S.C. 657).

Signed at Washington, DC this 17th day of December, 1985.

Patrick R. Tyson,

*Acting Assistant Secretary for Occupational Safety and Health.*

[FR Doc. 85-30153 Filed 12-18-85; 8:45 am]

BILLING CODE 4510-26-M

## DEPARTMENT OF THE INTERIOR

### National Park Service

### 36 CFR Part 7

### Ross Lake National Recreation Area, WA; Aircraft Use Regulations

**AGENCY:** National Park Service, Interior.

**ACTION:** Final rule.

**SUMMARY:** The regulation set forth below is necessary to designate locations within Ross Lake National Recreation Area where private and commercial aircraft may land on Ross Lake and Diablo Lake for the purpose of providing visitor access. Designation of location for the operation of aircraft within a park area is required by a National Park Service general regulation. The intent of this rulemaking is to provide for the preservation and enjoyment of the Ross Lake National Recreation Area in a way that is consistent with the aircraft operations policy of the National Park Service and the authority of the Federal Aviation Administration.

**EFFECTIVE DATE:** January 21, 1986.

**FOR FURTHER INFORMATION CONTACT:** John J. Reynolds, Superintendent, North Cascades National Park, Telephone: (206) 855-1331.

**SUPPLEMENTARY INFORMATION:**

#### Background

As stated in its enabling legislation, Pub. L. 90-544, one of the primary reasons for establishment of the recreation area was ". . . to provide for the public outdoor recreation use and enjoyment. . . ." The operation of aircraft on Diablo Lake and Ross Lake is an established outdoor recreational activity in the Ross Lake National Recreation Area. The legislation also specifically provides that the recreation area shall be administered to best provide for ". . . the continuation of such existing uses and developments as will promote or are compatible with, or do not significantly impair, public recreation and conservation of the scenic, historic, or other values contributing to the public enjoyment."

Aircraft use of lakes within the Ross Lake National Recreation Area was an established activity for nearly 20 years prior to the 1968 establishment act. Floatplanes served as one of the principal means of public access to Ross Lake other than via the long, unimproved road by automobile through British Columbia to reach the north end of Ross Lake at Hozomeen. Highway 20, the North Cascades Highway, was not completed until 1972 and does not provide for automobile access to Ross Lake.

On March 17, 1982, the National Park Service published an extensive revision of Title 36 Code of Federal Regulations as a proposed Rule. Following the review and adoption of suggestions received during the comment period, the Final Rule was published in the **Federal Register** on June 30, 1983. Section 2.17, Aircraft and Air Delivery states, in part, that the use of aircraft is prohibited except at locations designated by special regulation.

The National Park Service, in analyzing requirements for publishing Special Regulations, realized that a long established use of aircraft in the Ross Lake National Recreation Area had to be legitimatized by designating locations in the recreation area as authorized landing sites. The alternative would be to discontinue use.

Special regulations for Ross Lake National Recreation Area were published in the **Federal Register** as a proposed rule on December 27, 1983. Comments from the public were originally accepted through January 26, 1984, but, that comment period was extended until February 25, 1984.

The section-by-section analysis of the final rulemaking for 36 CFR 2.17, published in the **Federal Register** of April 30, 1984, page 18445, states: "In response to public comment on the operation of aircraft on the entire surface of Ross Lake, the Service decided to withdraw this section of the proposed special regulations and retain the provision opening Diablo Lake to aircraft use. The total recreational use of Ross Lake will be reviewed and special regulations considered at a later date." This proposal is based on the intent of that analysis.

Neither of the two locations proposed as designated landing sites are within North Cascades National Park. Only sites within Ross Lake National Recreation Area are proposed. Since this use existed for many years, it is not anticipated that the proposed special regulation will, in itself, be a cause for a rise in such use.

The Superintendent has determined that the designation of these locations is consistent with the purposes for which the recreation area was established, will not adversely affect park resources and that the design and operational procedures are in compliance with federal, state and local laws relating to aircraft use.

#### Summary of Comments

This rule was published in proposed form for public comment on May 9, 1985 (50 FR 19547). Notice of the proposed rule was also published in local news media in May. The National Park Service received 71 timely comments regarding the proposed regulation. Comments were received from 66 individuals, 4 organizations, and one agnency of State government.

All of the comments received were in support of the proposed regulation. One comment noted that the proposed regulation needed a minor correction regarding the operation of aircraft ". . . within 500 feet of boomlogs . . .", which would prevent aircraft from taxiing to the Ross Lake Resort. Accordingly this noted correction was made by changing the distance, "500 feet" to read "1,000 feet", and changing "boomlogs, buoys" to read, "Diablo dam or Ross dam".

#### Drafting Information

The following persons participated in writing of these proposed regulations: Gerry Tays, District Manager; Daniel Allen, Resource Management Specialist; James Rouse, Assistant Supertintendent.

#### Paperwork Reduction Act

This rulemaking contains no information collection requirements which require approval by the Office of Management and Budget under 44 U.S.C. 3501 *et seq.*

#### Compliance With Other Laws

The Service has determined that this document is not a "major rule" within the meaning of Excutive Order 12291 (February 19, 1981), 46 FR 13193, and does not require a regulatory analysis under the requirements of the Regulatory Flexibility Act (94 Stat. 1164, 5 U.S.C. 601 *et seq.*). Aircraft transportation to remote recreation sites is not an extensive activity in this area; the majority of use is expected from a regional base of past use, primarily to deliver people to resorts and campsites based on Ross and Diablo Lakes. A small segment of people would likely use the means for trail access into nearby wilderness areas.

This rulemaking will not have a significant economic effect on a substantial number of small entities, nor does it require the preparation of a regulatory analysis. The Service makes this finding because the proposed

regulations will impose no significant costs on any class or group of small entities.

Pursuant to the National Environmental Policy Act (42 U.S.C. 4332), the Service has prepared an Environmental Assessment and a Finding of No Significant Impact on these proposed regulations. Both are available at the address noted above.

**List of Subjects in 36 CFR Part 7**

National Parks.

In consideration of the foregoing, 36 CFR, Chapter 1 is amended, as follows:

## PART 7—SPECIAL REGULATIONS; AREAS OF THE NATIONAL PARK SYSTEM

1. The authority citation for Part 7 continues to read as follows:

**Authority:** 16 U.S.C. 1, 3, 9a, 462(k).

2. In § 7.69, by revising paragraph (b) to read as follows:

**§ 7.69 Ross Lake National Recreation Area.**

* * * * *

(b) *Aircraft.* The operation of aircraft is allowed on the entire water surface of Diablo Lake and Ross Lake, except that operating an aircraft under power on water surface areas within 1,000 feet of Diablo Dam or Ross Dam or on those posted as closed for fish spawning is prohibited.

Dated: November 18, 1985.

**P. Daniel Smith,**

*Deputy Assistant Secretary for Fish and Wildlife and Parks.*

[FR Doc. 85-30186 Filed 12-19-85; 8:45 am]

BILLING CODE 4310-70-M

## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Part 180

**[PP 5E3245/R803; FRL-2941-2]**

### Exemption From the Requirement of A Tolerance for Sodium Chlorite

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Final rule.

**SUMMARY:** This rule establishes an exemption from the requirement of a tolerance for residues of the disinfectant sodium chlorite when used as a seed-soak treatment on crop group *Brassica* (cole) leafy vegetables and radishes. This regulation, which eliminates the need to establish a maximum permissible level for residues of sodium chlorite in or on the commodities was requested in a petition submitted by the Interregional Research Project No. 4 (IR-4).

**EFFECTIVE DATE:** Effective on December 20, 1985.

**ADDRESS:** Written objections, identified by the document control number [PP 5E3245/R803], may be submitted to the: Hearing Clerk (A-110), Environmental Protection Agency, Rm. M-3708, 401 M Street, SW., Washington, DC 20460.

**FOR FURTHER INFORMATION CONTACT:** By mail: Donald Stubbs, Emergency Response and Minor Use Section (TS-767C), Registration Division, Environmental Protection Agency, 401 M Street SW., Washington, DC 20460. Office location and telephone number: Rm. 716B, CM#2, 1921 Jefferson Davis Highway, Arlington, VA 22202 (703-557-1806).

**SUPPLEMENTARY INFORMATION:** EPA issued a proposed rule, published in the **Federal Register** of November 6, 1985 (50 FR 46103), which announced that the Interregional Research Project No. 4 (IR-4), New Jersey Agricultural Experiment Station, P.O. Box 231, Rutgers University, New Brunswick, NJ 08903, submitted pesticide petition (PP) 5E3245 to EPA on behalf of Dr. Robert H. Kupelian, National Director, IR-4 Project and the Agricultural Experiment Station of New York proposing the establishment of an exemption from the requirement of a tolerance for sodium chlorite when used as a seed-soak treatment in the growing of the raw agricultural commodities crop group *Brassica* (cole) leafy vegetables and radishes. Member commodities of the crop group *Brassica* (cole) leafy vegetables listed in 40 CFR 180.34 include broccoli, Brussels sprouts, cabbage, cauliflower, collards, kale, kohlrabi, mustard greens and rape greens.

There were no comments or requests for referral to an advisory committee received in response to the proposed rule.

Based on the data and information considered, the Agency concludes that the proposed exemption would protect the public health. Therefore the exemption is established as set forth below.

Any person adversely affected by this regulation may, within 30 days after publication of this document in the **Federal Register**, file written objections with the Hearing Clerk, at the address given above. Such objections should specify the provisions of the regulation deemed objectionable and the grounds for the objections. If a hearing is requested, the objections must state the issues for the hearing and the grounds for the objections. A hearing will be granted if the objections are supported by grounds legally sufficient to justify the relief sought.

The Office of Management and Budget has exempted this rule from the requirements of section 3 of Executive Order 12291.

**List of Subjects in 40 CFR Part 180**

Administrative practice and procedure, Agricultural commodities, Pesticides and pests.

Dated: December 12, 1985.

**Steven Schatzow,**

*Director, Office of Pesticide Programs.*

Therefore, 40 CFR Part 180 is amended as follows:

1. The authority citation for Part 180 continues to read as follows:

**Authority:** 21 U.S.C. 346a.

2. Section 180.1070 is added to read as follows:

**§ 180.1070 Sodium chlorite; exemption from the requirements of a tolerance.**

Sodium chlorite is exempted from the requirement of a tolerance for residues when used in accordance with good agricultural practice as a seed-soak treatment in the growing of the raw agricultural commodities crop group *Brassica* (cole) leafy vegetables and radishes.

[FR Doc. 85-30134 Filed 12-19-85; 8:45 am]

BILLING CODE 6560-50-M

### 40 CFR Part 180

**[PP 3E2893/R809; FRL-2942-6]**

### Pesticide Tolerance for Glyphosate

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Final rule.

**SUMMARY:** This rule establishes a tolerance for the combined residues of the herbicide glyphosate and its metabolite in or on the crop group fruiting vegetables (except cucurbits) including tomatoes, peppers, and eggplants. The regulation to establish a miximum permissible level for residues of glyphosate in or on the crop group was requested in a petition submitted by the Interregional Research Project No. 4 (IR-4).

**EFFECTIVE DATE:** Effective on December 20, 1985.

**ADDRESS:** Written objections, identified by the document control number [PP 3E2893/R809], may be submitted to the: Hearing Clerk (A-110), Environmental

Protection Agency, Rm. 3708, 401 M St., SW., Washington, DC 20460.

**FOR FURTHER INFORMATION CONTACT:** By mail: Donald Stubbs, Emergency Response and Minor Use Section (TS-767C), Registration Division, Environmental Protection Agency, 401 M St., SW., Washington, DC 20460. Office location and telephone number: Rm. 716B, CM #2, 1921 Jefferson Davis Highway, Arlington, VA 22202, (703-557-1806).

**SUPPLEMENTARY INFORMATION:** EPA issued a proposed rule, published in the **Federal Register** of November 26, 1985 (50 FR 48615), which announced that the Interregional Research Project No. 4 (IR-4), New Jersey Agricultural Experiment Station, P.O. Box 231, Rutgers University, New Brunswick, NJ 08903, submitted pesticide petition 3E2893 proposing the establishment of a tolerance for the combined residues of the herbicide glyphosate (N(phosphonomethyl)glycine), and its metabolite aminomethylphosphonic acid for the crop group fruiting vegetables (except cucurbits) including tomatoes, peppers and eggplants at 0.1 part per million on behalf of Dr. Robert H. Kupelian, National Director, IR-4 Project and the Agricultural Experiment Stations of Arkansas, California, Florida, Louisiana, Maryland, Michigan, Tennessee, New Jersey, New York, North Carolina, Oregon, Puerto Rico, South Carolina, Texas, Kentucky, Virginia, and Washington, and the U.S. Department of Agriculture.

There were no comments or requests for referral to an advisory committee received in response to the proposed rule.

The data submitted and other relevant information have been evaluated and discussed in the proposed rulemaking. Based on the data and information considered, the Agency concludes that the tolerance would protect the public health. Therefore the tolerance is established as set forth below.

Any person adversely affected by this regulation may, within 30 days after publication of this document in the **Federal Register**, file written objections with the Hearing Clerk, at the address given above. Such objections should specify the provisions of the regulation deemed objectionable and the grounds for the objections. If a hearing is requested, the objections must state the issues for the hearing and the grounds for the objections. A hearing will be granted if the objections are supported by grounds legally sufficient to justify the relief sought.

The Office of Management and Budget has exempted this rule from the requirements of section 3 of Executive Order 12291.

**List of Subjects in 40 CFR Part 180**

Administrative practice and procedure, Agricultural commodities, Pesticides and pests.

Dated: December 12, 1985.

**Steven Schatzow,**

*Director, Office of Pesticide Programs.*

**PART 180—[AMENDED]**

Therefore, 40 CFR 180 is amended as follows:

1. The authority citation for Part 180 continues to read as follows:

Authority: 21 U.S.C. 346a.

2. Section 180.364(a) is amended by adding alphabetically the following crop group to read as follows:

**§ 180.364 Glyphosate; tolerances for residues.**

(a) * * *

| Commodities | Parts per million |
|---|---|
| * * * * * * * | |
| Vegetables, fruiting (except cucurbits) group | 0.1 |
| * * * * * * * | |

[FR Doc. 85-30241 Filed 12-19-85; 8:45 am]

BILLING CODE 6560-50-M

**40 CFR Part 799**

**[OPTS-42030A; FRL-2941-8]**

## Toxic Substances; Mesityl Oxide; Final Test Rule

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Final rule.

**SUMMARY:** EPA is issuing a final test rule establishing testing requirements under section 4(a) of the Toxic Substances Control Act (TSCA) for manufacturers and processors of mesityl oxide (MO; CAS No. 141-97-7). Testing requirements include (1) inhalation subchronic (90-day) toxicity in at least one mammalian species, (2) mutagenicity (including tests for both gene mutations and chromosomal aberrations), and (3) oncogenicity (if certain mutagenicity test results are positive).

**DATE:** In accordance with 40 CFR 23.5 (50 FR 7271; February 21, 1985), this rule shall be promulgated for purposes of judicial review at 1 p.m. eastern ["daylight" or "standard" as appropriate] time on January 6, 1986. This rule shall become effective on February 3, 1986.

**FOR FURTHER INFORMATION CONTACT:** Edward A. Klein, Director, TSCA Assistance Office (TS-799), Office of Toxic Substances, Rm. E-543, 401 M St., SW., Washington, DC 20460, Toll Free: (800-424-9065), In Washington, DC: (554-1404), Outside the USA: (Operator—202-554-1404).

**SUPPLEMENTARY INFORMATION:** In the **Federal Register** of July 5, 1983 (48 FR 30699), EPA issued a proposed rule under section 4(a) of TSCA to require testing of MO for chronic effects, mutagenicity, and oncogenicity (conditional on the mutagencity test results). The Agency is now promulgating a final rule requiring testing for these health effects.

### I. Introduction

This notice is part of the overall implementation of section 4 of the Toxic Substances Control Act (TSCA, Pub. L. 94-469, 90 Stat. 2003 *et seq.*, 15 U.S.C. 2601 *et seq.*), which contains authority for EPA to require development of data relevant to assessing the risks to health and the environmental posed by exposure to particular chemical substances or mixtures.

Under section 4(a)(1) of TSCA, EPA must require testing of a chemical substance to develop health or environmental data if the Agency finds that:

(A)(i) the manufacture, distribution in commerce, processing, use or disposal of a chemical substance or mixture or that any combination of such activities, may present an unreasonable risk or injury to health or the environment.

(ii) there are insufficient data and experience upon which the effects of such manufacture, distribution in commerce, processing, use, or disposal of such substance or mixture or of any combination of such activities on health or the environment can reasonably be determined or predicted, and

(iii) testing of such substance or mixture with respect to such effects is necessary to develop such data; or

(B) (i) a chemical substance or mixture is or will be produced in substantial quantities, and (I) it enters or may reasonably be anticipated to enter the environment in substantial quantities or (II) there is or may be significant or substantial human exposure to such substance or mixture,

(ii) there are insufficient data, and experience upon which the affects of the manufacture, distribution in commerce, processing, use, or disposal of such substance or mixture or of any combination of such activities on health or the environment can reasonably be determined or predicted, and

(iii) testing of such substance or mixture with respect to such effects is necessary to develop such data.

EPA uses a weight-of-evidence approach in making a section 4(a)(1)(A)(i) finding in which both exposure and toxicity information are considered to make the finding that the chemical may present an unreasonable risk. For the finding under section 4(a)(1)(B)(i), EPA considers only production, exposure, and release information to determine if there is or may be substantial release. For the second finding under both sections 4(a)(1)(A) and 4(a)(1)(B), EPA examines toxicity and fate studies to determine whether existing information is adequate to reasonably determine or predict the effects of human exposure to, or environmental release of, the chemical. In making the third finding, that testing is necessary, EPA considers whether any ongoing testing will satisfy the information needs for the chemical and whether testing that the Agency might require would be capable of developing the necessary information.

For a more complete understanding of the statutory section 4 findings, the reader is directed to the Agency's first proposed test rule package (chloromethane and chlorinated benzenes, published July 18, 1980; 45 FR 48510) and to the second package (dichloromethane, nitrobenzene, and 1,1,1-trichloroethane, published June 5, 1981; 46 FR 30300) for in-depth discussions of the general issues applicable to this section.

## II. Background

### *A. Profile*

Mesityl oxide, a colorless, oily liquid, vaporizes at room temperature producing a marked odor of peppermint detectable down to 0.017 part per million (ppm) (Ref. 1). The major use of MO is as a chemical intermediate. Four companies produce MO at six facilities as an intermediate in the manufacture of methyl isobutyl ketone (MIBK). Methyl isobutyl carbinol (MIBC) can also be produced as a coproduct in the same system (Ref. 2). Only two facilities currently isolate MO for use in end products (Ref. 3). The open literature lists a number of solvent uses for MO, e.g., for nitrocellulose, lacquers and lacquer thinners, and carburetor cleaners. According to current data, MO solvent uses have been largely phased out (Ref. 4).

The mesityl oxide level I Economic Impact Analysis, which accompanied the proposed rule, contains a thorough description of the MO production process (Ref. 5). The series of reactions leading to MO and then to MIBK and or MIBC (formed by hydrogenation of MO) may be performed in one system. Thus the MO "used" in this process is not isolated and exists only as a transient intermediate. MIBK is apparently produced only via the MO route (Ref. 4).

As noted, the primary use of MO is as an intermediate in the manufacture of MIBK. In excess of 120 million pounds per year are "produced" for this use (Ref. 4). End product uses may have at one time accounted for as much as 16 percent of production. The proposed rule estimated that 31.0 million pounds of MO was used in 1983 as a solvent and in pesticide formulations. According to current data, however, this figure has shrunk considerably due largely to a decline in the use of MO in solvent markets (Ref. 4). MO sales continue to decline. EPA estimates actual consumption of MO in 1983 at about 5 million pounds, consumed primarily in pesticide applications (Ref. 4).

### *B. ITC Recommendations*

The Interagency Testing Committee (ITC) designated MO for priority consideration in its Fourth Report, published in the **Federal Register** of June 1, 1979 (44 FR 31866). The ITC designated MO as a priority chemical and recommended the following health effects testing: Carcinogenicity, mutagenicity, teratogenicity, chronic effects, and an epidemiology study. The ITC based its recommendations for MO on production figures in excess of 27 million pounds, estimates of up to 6,100 workers exposed, widespread consumer exposure, and the lack of adequate data to assess potential health effects. The ITC was concerned that MO may possess biological activity because of its chemical structure.

### *C. Proposed Rule*

EPA issued a proposed test rule for MO in the **Federal Register** of July 5, 1983 (48 FR 30699). The EPA based its proposed testing requirements on the authority of section 4(a)(1)(A) of TSCA.

1. Test requirements. The proposed rule specified that MO be tested for:

a. Subchronic (90-day) inhalation toxicity test in at least one mammalian species to assess potential chronic effects.

b. Mutagenicity (gene mutations and chromosomal aberrations).

c. Oncogenicity testing was specified if MO is mutagenic in any one of the following tests: *in vitro* or *in vivo* cytogenetic tests, gene mutation in somatic cells assay, or *Drosophila melanogaster* sex-linked recessive lethal test.

2. Findings. The Agency made proposed findings that the manufacture, processing, and use of MO may present an unreasonable risk to human health due to chronic and mutagenic effects. EPA also proposed to find that if certain mutagenicity tests gave positive results, these data, supported by the potentially active biological structure of MO, would support an unreasonable risk finding of oncogenic effects. These proposed findings were based on:

a. End product use of over 31 million pounds per year; additional MO produced as a transient intermediate to MIBK.

b. 500–6,000 workers exposed in manufacturing, processing, distribution, and use.

c. Possible systemic effects (liver, kidney, possibly lung changes) in animals and possible anemia and leukopenia in workers and animals.

d. Possible mutagenic effects based on structure activity relationships to known alkylating agents.

e. Possible oncogenic effects if certain short-term mutagenicity tests proved positive.

f. The Agency also proposed to find that there are insufficient animal and human data to reasonably determine or predict the chronic and mutagenic effects of MO, and testing of MO was necessary to develop such data.

The Agency did not propose an epidemiology study because no end point had been sufficiently defined to make a finding for potential unreasonable risk to humans. Further, EPA did not propose testing for teratogenic effects because in the Agency's judgment the limited available data did not suggest a potential for these effects.

The analysis and findings on which the above determinations were based are presented in the Mesityl Oxide Support Document, which is available from the Office of Toxic Substances' TSCA Assistance Office and in the public record for this rulemaking.

### *D. Data Received Subsequent to Proposed Rule*

Following publication of the proposed test rule, MO was added to the list of chemicals subject to the Preliminary Assessment Information Rule—Manufacturer Reporting (40 CFR Part 712) (June 25, 1984; 49 FR 25859). Pursuant to this TSCA section 8(a) rule, data on production, use, and exposure were received on this chemical. Also, in response to the proposed rule, the affected industries submitted monitoring data from production facilities and additional exposure and use information. Most of these data were declared confidential business information (CBI). However, nonconfidential summaries of this

information, where possible, have been prepared and are included in the public record of this final rule. EPA evaluated these data and additional data reported by manufacturers of MO under the TSCA section 8(d) Health and Safety Data Reporting Rule (40 CFR Part 716) (September 2, 1982; 47 FR 38780).

1. Production and use. Exxon Chemical Americas notified EPA that it was withdrawing from the manufacture and marketing of MO for commercial purposes and adjusting its operations such that MO would exist solely as a nonisolated intermediate in its MIBK process (Ref. 6). Also, Eastman Kodak Co. stated that MO is only a transient nonisolated intermediate that is never removed from the reaction vessels in which it is manufactured or equipment through which it passes during the process except in very small quantities during sampling of crude MIBK or as a trace impurity in refined MIBK (Ref. 7). Based on information from limited air monitoring during sampling, MO was not detected by a method sensitive to 0.25 ppm. MIBK was detected at 5 ppm in air (Ref. 7).

Union Carbide Corp., Exxon Chemical Americas, and Shell Chemical Co. submitted CBI section 8(a) data. In a letter received by the Agency on October 4, 1983, Union Carbide Corp. stated that the major merchant market use of MO is confined to its carrier-solvent use in pesticides (Ref. 8). It further noted that the manufacture and storage of MO as an MIBK intermediate is an essentially enclosed process with little potential for significant human risk.

2. Exposure during manufacturing and processing. The Chemical Manufacturers Association's Ketones Panel (herein referred to as The Panel), representing the principal manufacturers of ketones, supplied the exposure details summarized below.

The Panel estimates that currently fewer than 200 workers are potentially exposed to MO at six production facilities on a regular basis (Refs. 2 and 3). Most of these workers are involved in the MIBK production process. Both Exxon Chemical and Eastman Kodak produce MO as a site-limited nonisolated intermediate to MIBK (Refs. 6 and 7). The MIBK process is closed, and according to one company the only potential for exposure to MO is during the 26-minute (0.43 hour) per shift sampling operation. During sampling, employees wear personal protective devices, including rubber gloves and full face shields. Based on data from limited air monitoring sampling, MO was not detected by a method sensitive to 0.25 ppm. MIBK was detected at 5 ppm (Ref. 7).

Personal monitoring samples taken within these plants show that MO levels ranged from nondetectable to 0.72 ppm, with an average of 0.07 ppm and a median of 0.22 ppm (Ref. 3). General area sampling of fugitive emissions measured MO levels ranging from nondetectable to 2.38 ppm, with an average of 0.58 ppm and a median of 0.22 ppm.

Shell Chemical Co. produces MO as an intermediate to MIBK at two locations using a closed reactor system (Ref. 3). This manufacturer estimates that 117 workers are potentially exposed to air concentrations of MO ranging from 0.1 ppm to 1 ppm on an 8-hour time-weighted average (TWA) basis. Likewise, Union Carbide produces MO at two facilities. During 1983 and 1984, 8-hour TWA monitoring data at one plant ranged between 0.1 and 2.0 ppm during production operations; short-term samples during tank truck loading ranged between 0.3 and 0.8 ppm. At the second plant, TWA monitoring data for production operations ranged between 0.6 and 3.9 ppm, with a mean of 1.5 ppm (Ref. 3). Union Carbide estimates that fewer than 30 workers are exposed in these operations.

The Panel further states that two members market MO, principally for use in agricultural products. Thus, additional employee exposure to MO may occur during herbicide formulation. Confidential data received from the Panel derived from a limited survey of MO users state that typically, automated, enclosed process equipment is used in the formulation process. This would include unloading bulk MO into storage tanks, mixing it with other ingredients, and removing and packaging the end product. Potential exposure to MO occurs during sampling, quality control, and loading operations. The Panel estimates that fewer than 100 workers are potentially exposed to MO in these operations. Monitoring data are limited, but suggestive that exposure to MO does occur.

The Agency has reviewed the data on MO submitted by CMA, confidential data submitted by manufacturers pursuant to both TSCA and the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), and other relevant data. The Agency used these data in reaching conclusions regarding the testing needs of the chemical.

In evaluating the potential exposure of workers to MO, EPA considered nonisolated intermediate exposure, isolated intermediate exposure, and exposure during distribution and processing. Exposure to MO in its function as a nonisolated intermediate to MIBK is limited. However, manfuacturing processes exist where MO may be isolated, processed, and stored prior to being converted to MIBK or for end product use. MO is also processed for use as a carrier solvent for herbicides. Exposure resulting from this processing is also subject to TSCA regulation (see Unit III.D below). EPA believes there are a number of steps during the manufacturing, processing, and distribution of MO when exposure can occur. In response to the proposed test rule, commenters submitted data showing that the amount of MO isolated for subsequent processing and/or sale has decreased significantly from the 1983 figures used by EPA in developing the NPRM. Nevertheless, the information available to EPA indicates that such isolation of MO and its attendant exposures continue to occur. Data avaialble to EPA show that over 200 workers are exposed to isolated MO in manufacturing and processing plants. An additional number of workers are exposed to isolated MO during herbicide formulation. EPA has thus concluded that current exposure to MO remains sufficient to support a "may present" finding.

If the remaining activities involving isolated MO have been halted or exposures have been significantly reduced since the submission of comments on the proposed rule, or should such activities be halted or exposures significantly reduced subsequent to the promulgation of this final rule, manufacturers and/or processers of MO could petition EPA under section 21 of TSCA to withdraw the test rule, providing evidence of the cessation of those activities. If EPA concluded the "may present" finding could no longer be made, the Agency would initiate rulemaking to withdraw the final rule. Concurrently, EPA might also initiate rulemaking pursuant to section 5(a)(2) and/or 8(a) of TSCA to require notification of the Agency prior to any significant change in manufacturing, handling, processing, or use patterns that would significantly increase exposure to MO.

### III. Response to Public Comments

The Agency received comments from the Chemical Manufacturers Association (CMA) Ketones Panel (The Panel), Exxon Chemical Americas, Eastman Kodak Co., Union Carbide Corp., Vulcan Materials Co., the American Industrial Health Council (AIHC), and the Natural Resources Defense Council (NRDC). A public

meeting was also requested by CMA and held on October 24, 1983, to address concerns regarding the legal and scientific basis for the proposed test rule. A transcript of this meeting is included in the public record of this rule. The major issues identified during the comment period are discussed below.

*A. Lack of Justification for the Unreasonable Risk Finding*

1. Exposure potential.

The Panel commented that exposure to MO is so limited that EPA could not justify a finding that MO "may present an unreasonable risk of injury" under section 4(a)(1)(A)(i) of TSCA. It commented that all but a small fraction of total MO production is either consumed as a nonisolated intermediate or is used for applications outside the coverage of TSCA. It estimated that while 3 to 5 million pounds MO are sold commercially each year, less than 1 million pounds are distributed for us in applications to which section 4 of TSCA applies. The Panel claims that all the MO that is produced as a carrier solvent for herbicides is subject to regulation under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA, 7 U.S.C. 136; 40 CFR 158.105 and 158.110) and is thus excluded from the definition of "chemical substance" in section 3(2)(B) of TSCA.

The Panel further claimed that the exposure estimates cited by EPA in the proposed rule included agricultural workers excluded from coverage under TSCA. Likewise, employee exposure to MO during herbicide formulation was claimed to be outside the scope of EPA's authority under section 4 of TSCA.

EPA has reviewed the data submitted by The Panel and has determined that there is a basis for a section 4(a)(1)(A)(i) finding for MO. As explained in Unit I, EPA uses a weight-of-evidence approach in making a section 4(a)(1)(A)(i) finding in which both exposure and toxicity information are considered to make the finding that a chemical may present an unreasonable risk. The criteria used by the Agency for determining the basis for the exposure component of the (A)(i) finding are considerably less rigorous than those required for a section 4(B)(i) finding. (The reader is directed to the **Federal Register** document on chloromethane and chlorinated benzenes (45 FR 48521; July 18, 1980), for a fuller discussion of these criteria.) Thus, the stronger EPA's scientific basis for suspecting potential toxicity, the less exposure data are needed to support the potential risk finding. In the case of MO, EPA has reviewed data which suggest that the chemical may be toxic in a variety of ways (see Unit III.A.2. below). These data, while insufficient to allow the Agency to reasonably predict whether the levels of MO to which people are exposed (see Unit II.D.2 above) will present an unreasonable risk, do suggest a reasonable potential for MO to produce leukopenia, hypertrophy of the liver, kidney, and spleen, and based on structural activity relationships, the potential to induce mutagenic effects. While these data also suggest some potential for MO to induce carcinogenic effects, EPA believes that the mutagenicity data to be developed under this rule will provide a more appropriate basis to determine whether MO's potential for oncogenic effects is sufficient to warrant a chronic bioassay.

In addition, the Agency has determined that the MO produced and processed for use as an inert component of a pesticide clearly falls under the legal authority of TSCA. In this case, MO itself is not a pesticide as defined in section 2(u) of FIFRA (7 U.S.C. 136), but rather an inert solvent used to formulate a pesticide. Thus, EPA in developing the support for this test rule considered potential exposure to workers processing MO or formulating the pesticide product containing MO. The Agency did not consider worker or consumer exposure that may result from exposure to MO in formulated pesticide products; such exposures are subject to FIFRA authority.

2. Hazard potential.

The Panel questioned the basis for EPA's proposed finding that MO may present an unreasonable risk of chronic health effects. It asserted that (1) EPA relied on seriously flawed data to support the risk finding for chronic effects, and (2) well-conducted studies indicate that chronic effects are not a concern for MO at current exposure levels. Noting that EPA based the potential unreasonable risk finding for chronic effects and the requirement for a subchronic study on the work of Ito (Ref. 9), it contended that this work has serious deficiencies in both the experimental design and the reporting of results which serve to invalidate the study. It further contended that, in contrast to the Ito work, the study conducted by Smyth et al. (Ref. 10) was adequately controlled and reasonably identifies the toxicity of MO following subchronic exposure. Also, Union Carbide, while acknowledging that MO is chemically reactive as an alkylating agent, postulated that steric hinderance may occur because of the position of the methyl groups on the beta carbon, thus lessening MO's biological activity. (Ref. 11).

The Agency disagrees with the commenters that there is no basis for the finding that MO may present an unreasonable risk of chronic effects. As described in the proposed rule and its accompanying support document, the Agency identified two studies that supported the may present an unreasonable risk finding and the need for subchronic inhalation testing of MO (Refs. 9 and 10). EPA believes that the data presented in the Ito study (Ref. 9) raise the level of concern for potential blood, kidney, liver, and lung effects from chronic exposure to MO. The Agency recognizes that the data, as reported by Ito, have flaws and thus only weakly suggest these effects (Ref. 12). The Agency believes, however, that these data are sufficient to support the finding that MO, under the present conditions of use, "may" present an unreasonable risk of chronic effects.

Further, the Agency does not agree that well-conducted studies are currently available on MO. The Smyth *et al.* study, referenced by industry, is from a paper published in 1942 (Ref. 10). The Agency initially found, and continues to believe, that there are sufficient design and reporting deficiencies in this study to question its adequacy by today's testing standards (Ref. 12). The Smyth *et al.* study was both inadequately conducted and reported by current standards. Deficiencies include short duration of exposure (6 weeks), small sample size (10 rats; 10 guinea pigs per group), combining of sexes, pooling of results from both species, and limited pathology. Also, the description of the pathology is such that it is difficult to associate an effect with a given dose. Furthermore, while the authors indicate that blood counts were taken several times on some animals among each exposed group, no specific details were given, making it difficult to interpret the data. While no blood abnormalities were observed in this study, the, limited sampling and short duration of exposure preclude dismissing the concerns for these effects. Hence, it follows that it is impossible to predict the possible health hazards likely to arise from repeated exposure to MO.

In summary, the Agency believes that the available data show that sublethal concentrations of the vapors of MO produce congestion, primarily in the kidney. The liver and lung are affected to a lesser degree. The hematopoietic system may also be a target of MO toxicity. Existing data are insufficient to reasonably determine or predict the

extent of this risk. For these reasons the Agency is requiring a subchronic study to develop data needed to assess the effects resulting from repeated exposures to MO.

EPA recognizes Union Carbide's concern that MO may be a sterically hindered ketone and that this may impact on the chemical's alkylating ability (Ref. 10). However, Union Carbide also recognizes, as does EPA, that MO is chemically reactive as an alkylating agent. Based on chemical structure alone, i.e., its structural relation to known alkylating agents, MO has a potential for posing mutagenic and oncogenic risks. Because the beta carbon is planar (in resonance with the carbonyl electrons) it may be less available to metabolic activation. The fact remains, however, that this can only be determined by utilizing biological systems. For this reason EPA made a conditional "may present" finding for oncogenicity. In this case, MO will be tested for oncogenicity only if the select "short-term" mutagenicity tests are positive indicating that biological activity occurred.

*B. Automatic Triggers for Chronic Oncogenicity Bioassay*

EPA received comments from CMA, AIHC, and Vulcan Chemicals on the Agency's use of mutagenicity tests to trigger 2-year oncogenicity studies. The Agency's responses to a variety of public comments on this approach, the test sequences, and the assays (and triggers for oncogenicity testing) contained within them may be found in the final Phase I test rule for the $C_9$ aromatic hydrocarbon fraction (50 FR 20662; May 17, 1985).

As discussed in the final Phase I test rule for the C aromaic hydrocarbon fraction (50 FR 20662, 20668–20672), the Agency believes that the use of sequences of tiered tests for mutagenicity testing and the use of automatic triggers to require chronic oncogenicity bioassays based on the results of certain mutagenicity assays are consistent with both current scientific knowledge and the regulatory approach to chemical testing established under section 4 of TSCA. Existing data show a strong correlation between positive results in certain mutagenicity tests and positive results in animal chronic oncogenicity bioassays for a large number of substances tested in both types of systems. Thus, positive results in one more of these mutagenicity assays provide a basis for concluding that the substance may be an oncogen and, in conjunction with evidence of both an active chemical structure and the potential for human exposure to the substance, that such exposure may present an unreasonable risk of oncogenicity. If all of these mutagenicity tests yield negative results, the likelihood of MO being oncogenic is small and the chronic bioassay will not be required. Conversely, if any one of these trigger tests is positive, potential oncogenicity of MO is suggested and a chronic bioassay is essential to confirm or deny that potential and provide a basis for judging what oncogenic risk exposure to MO may present (see 50 FR 20662).

Because the different mutagenicity assays used to trigger chronic oncogenicity bioassay testing generally measure differnt genotoxic effects, or smiliar effects under substantially different test conditions (e.g., *in vitro* versus *in vivo* metabolic activation), and because each test has independently shown a strong ability to identify animal carcinogens, EPA believes that it generally is appropriate for positive results in any one of these mutagenicity tests to trigger a requirement to perform chronic oncogenicity bioassays. However, EPA agrees with commenters on the proposed test rule mentioned above that the overall scientific weight-of-evidence as to a substance's potential oncogenicity should be appropriately factored into these testing decisions. Furthermore, EPA believes that the weight-of-evidence should apply differently in the case of substances where testing is required under section 4(a)(1)(A) alone (as in the case of MO) when compared with substances where the Agency finds that testing is supported under section 4(a)(1)(B) (as is the case for the $C_9$ aromatic hydrocarbon fraction). Where EPA has made findings of substantial production and significant or substantial exposure under section 4(a)(1)(B), there is a presumption that testing of the substance for oncogenicity is needed, and the question before the Agency is whether the weight-of-evidence from the mutagenicity testing shows an absence of oncogenic potential such that EPA can reasonably predict that the expected exposures to the substance will not present an unreasonable risk of oncogenicity. In contract, where testing is being required under section 4(a)(1)(A) alone, EPA must consider whether all of the relevant data available to the Agency after completion of the required mutagenicity tests provide evidence that the substance may present an unreasonable risk of oncogenicity.

In the case of MO, testing is being required under section 4(a)(1)(A) of TSCA alone. The finding of potential unreasonable risk of mutagenic effects is based on structure-activity relationships, and there are no test results to verify it. Thus, EPA is making a conditional "may present" finding for oncogenicity testing. This means that if any one of the four required short-term mutagenicity tests produces a positive result, EPA considers that these data, supported by the potentially biologically active structure of MO, show sufficient potential of MO to be a suspect oncogen and that chronic oncogenicity bioassay testing shall be automatically required.

*C. Mutagenicity as a Regulatable End Point*

While the industry commenters agreed that appropriate mutagenicity assays can be used for assessing carcinogenic potential, they objected to the use of the more elaborate tests to assess mutagenic risk as a separate end point. They objected to EPA's apparent use of rigid inflexible testing schemes in favor of a tiered approach to permit informed scientific judgement.

The general sequences of tiered tests usually employed by EPA in assessing the mutagenic (both gene mutation and cytogenetic) potential of chemical substances, which are required in this final Phase I test rule for MO, were previously described in the proposed test rule issued by the Agency for mesityl oxide (48 FR 30699; July 5, 1983), and are more completely described in the final Phase I test rule for the $C_9$ aromatic hydrocarbon fraction (50 FR 20662, 20668–20671; May 17, 1985). Although these general test sequences are usually employed, the Agency ultimately specifies the required mutagenicity test for each specific chemical substance on a case-by-case basis.

As described in detail in the final Phase I test rule for the $C_9$ aromatic hydrocarbon fraction (50 FR 20662, 20668–71), the Agency feels that there is a consensus in the scientific community on both the need for, and the manner of, identifying mammalian mutagens, and that its proposed scheme for identifying these agents is in keeping with those recommended by experts in the field of mammalian mutagenesis. Further, while it is recognized that there is, as yet, no generally accepted single methodology for estimating human risk from mutagenic agents, it is the Agency's view that appropriate methodologies do exist and are usable. Therefore, the Agency concludes that it is appropriate at this time to obtain mutagenicity data on MO with which to perform estimates of mutagenic risk for this substance for

regulatory use, should MO prove to be a mammalian germ-cell mutagen.

For reasons more fully described in the final Phase I test rule for the $C_6$ aromatic hydrocabon fraction (50 FR 20662, 20668–71), EPA believes that the use of automatic triggers between the assays contained in the mutagenicity testing scheme for MO is appropriate. However, in an effort to incorporate scientific judgment prior to the use of the end-point mutagenicity tests, i.e., the mouse specific-locus test and the heritable translocation test, EPA has decided to utilize automatic triggers between assays contained in lower-tier tests, and a "presumptive automatic trigger and opt-out" approach between lower-tier tests and end point tests in this final test rule for MO. Under this approach, EPA is promulgating a tiered testing scheme for mutagenicity for MO with automatic triggers to additional mutagenicity testing (including the two end point tests). Before testing is initiated in one or both of the end point mutagenicity tests, EPA will hold a public program review if the results of the previous tier tests are positive. Public participation in this program review will be either in the form of written public comments or a public meeting. Request for public comments or notification of a public meeting will be published in the **Federal Register**. If, after the review of public comments, no change in the test program is deemed necessary by EPA, testing will continue to the next test without delay. EPA will provide notification to the test sponsor(s) that the next tier test shall be conducted. If the Agency believes additional testing is no longer warranted as a result of the earlier test results public comment, scientific judgment, and other appropriate factors, EPA will issue a proposed amendment to "opt-out" by repealing the existing requirement and, after consideration of public comments on the proposed amendment, issue a final decision whether to rescind the rule requirement. This approach offers the advantage of allowing the incorporation of scientific judgment based on the weight of the evidence after the initial testing tiers have been completed and allowing change in test requirements to respond to specific chemical issues, while not significantly delaying higher-tier testing when it is deemed necessary.

EPA has decided not to use the public program review approach between the lower-tier mutagenicity tests for the MO test rule. EPA believes the use of automatic triggers between these tiers is suitable. It should be noted that this does not exclude the public from requesting modifications in the test program. Provisions are available under section 21 of TSCA for the public to petition EPA at any time to amend a rule under section 4.

*D. Additional Comments by the NRDC on Mutagenicity*

The NRDC believes at least two tests should be used in the second tier of mutagenicity testing to guard against a possible false-negative result in the *Drosphila* sex-linked recessive lethal (SLRL) assay.

NRDC cites as evidence of the insensitivity of the SLRL assay its failure to detect the mutagenicity of beta-naphtylamine and 3-methylcholanthrene. A review prepared for the Gene-Tox Program (Ref. 13) found that both of these agents had been inadequately tested in this assay and could not be judged to be either positive or negative. Further testing may find that these agents give positive responses in the SLRL assay. A review of the Gene-Tox data base shows that a total of 54 known carcinogens were tested in both the *Salmonella typhimurium*/mammalian microsomal assay (Ames assay) and the SLRL assay. Of these, 4 were positive in both systems; 1 was positive in the Ames assay, and negative in the SLRL assay; and 13 were positive in the Ames assay, but because of technical inadequacies could not be judged to be either positive or negative in the SLRL assay. Presumably, retesting of these latter 13 agents would increase the percentage of carcinogens that give a positive response in both assays.

It should also be pointed out that agents tested in the Ames assay will also be tested for their ability to induce chromosomal aberrations. Agents which are positive in the Ames assay but negative in the SLRL assay would still be tested for oncogenicity if either the *in vitro* or *in vivo* cytogenetics assays gave a positive response. Chemicals positive in the Ames assays but negative in the SLRL assay and the *in vitro* and *in vivo* cytogenetics assays would not require testing for oncogenicity. In these instances, the Agency feels that negative responses in insects and two mammalian systems, including a whole animal system, outweigh a single positive response in a prokaryotic system. However, the Agency will continue to evaluate comparative data on these systems and, if additional data indicate a need, will modify its test scheme, and may revise its stand on this in future test rules.

For these reasons, and also because the overall correlation with carcinogenicity in the SLRL assay is approximately 88 percent, the Agency believes that its choice of this assay as a trigger for oncogenicity testing for MO is reasonable and scientifically sound.

Further, the NRDC feels that there should be greater specificity in the test schemes, particularly the somatic cell gene mutation assay and the cytogenetics assays. Also, NRDC feels that mesityl oxide should be tested in strain TA 102 in the Ames assay.

It was an oversight that the proposed test rule for MO did not state specifically that the somatic cell gene mutation tests are to be performed in a mammalian cell line both with and without metabolic activation. However, the test guidelines referred to in the proposed test rule specify the use of mammalian cells and a metabolic activation system. The Agency is proposing those guidelines as test standards for this test rule.

The Agency's reasons for not specifying a particular cell line for either the *in vitro* mammalian cell gene mutation or *in vitro* cytogenetics assays are set forth in EPA's response to the CMA comments as detailed in the final Phase I test rule for the $C_6$ aromatic hydrocarbon fraction (50 FR 20662). By separate cell lines in the *in vitro* and *in vivo* cytogenetics assays, it is assumed that NRDC means different species since cell lines apply only to *in vitro* assays. The Agency has decided to not specify the species to be used or the *in vivo* cytogenetics assay because not one animal species has a sufficient data base of tested chemicals to allow for a preferential choice. Rodents, especially rats and mice, are commonly used for the *in vivo* assy while Chinese hamster ovary cells are commonly used for the *in vitro* assay. Under these conditions, the species specific effects referred to by NRDC would not be an issue.

The Agency intended that its use of the term "cytogenetics assay" referred to an assay for chromosomal aberrations such as breaks, translocations, or other changes in structure or number of the normal chromosome complement of the cells or species used in either the *in vitro* or *in vivo* assays. NRDC's use of the unscheduled DNA synthesis assay is an example of where a cytogenetic assay is inappropriate and would not be considered under this class of tests.

The Agency, at this time, is not recommending the use of strain TA 102 in the Ames assay because of the limited data base of tested chemicals available for this strain and because of its still unknown performance record during routine use in multiple laboratories. The Agency will, however, review data on this strain as it becomes

more widely available and may revise its position in the future. Companies performing or sponsoring tests on mesityl oxide may, at their discretion, include TA 102 in addition to the strains routinely used in the Ames assay.

*E. Comments on Persons Subject to Testing*

The Agency received comments from Eastman Kodak Co. and Union Carbide Corp. requesting clarification of who would be subject to the test rule. Kodak, specifically, requested EPA's definition of "manufacture" as that term is used under section 4(a) of TSCA. Noting that TSCA contains a generic definition of "manufacture," Kodak cited numerous examples of the Agency's providing specific guidance on the applicability of its rules to byproducts, impurities, and nonisolated intermediates. Also, Union Carbide requested an EPA decision on whether (1) manufacturers of MO as a nonisolated intermediate and (2) manufacturers of MO intended for use as a pesticide are covered by this rule. Both commenters felt that these judgements are necessary to arrive at appropriate cost sharing for testing mandated by the rule.

EPA is exempting from these testing requirements those manufacturers and processors that produce and process MO only as an impurity. Persons who manufacture or process MO as a byproduct or as a nonisolated intermediate including that MO intended for use as an "inert" solvent in pesticide products are subject to the testing requirements set forth in this rule. The total MO domestic production, including that produced as a byproduct or a nonisolated intermediate, will be used in determining reimbursement shares under the Data Reimbursement Final Rule (48 FR 41786; September 19, 1983). The Agency's rationale for these decisions follows.

EPA is exempting those manufacturers and processors that produce MO only as an impurity because the EPA findings under section 4(a) are based on exposures to MO that are a result of intentional manufacture, processing, and distribution of MO. In addition, it would be difficult for both EPA and manufacturers and processors to identify with complete assurance all chemical substances which contain MO solely as an impurity. Further, the Agency would find it difficult to apply both the exemption and reimbursement processes to those who manufacture and/or process MO solely as an impurity. The Agency's reimbursement regulations issued pursuant to section 4(c) state that those who manufacture or process chemical substances as impurities will not be subject to test requirements unless the rule specifically states otherwise (40 CFR 791.48(b)). EPA finds no basis to impose such requirement in this rule. EPA is including persons who manufacture or process MO as a byproduct or nonisolated intermediate because these activities constitute intentional manufacture and processing of MO. Finally, as discussed in Unit III.A.1 above, raw materials, intermediates, and inert ingredients produced or used in the manufacture of a pesticide are not themselves regulated under FIFRA (unless they happen to be pesticides themselves) and, therefore, are subject to TSCA. Such raw materials, intermediates, and inerts become subject to FIFRA jurisdiction when they become a component of a pesticide product (see 42 FR 64572, 64586; Dec. 23, 1977). Thus, those persons who manufacture MO for use in production of a pesticide product and those who process MO for such uses are subject to the testing requirements of this rule.

*F. Comments on Protocol Submission and the Phased Test rule Process*

The NRDC submitted comments concerning the need for requiring validated protocols and recommended modification of the Agency's two-phased test rule process. These comments were considered and addressed in both the final Phase I test rule for the $C_9$ aromatic hydrocarbon fraction (50 FR 20662, 20666–20667; May 17, 1985) and the final rule on Test Rule Development and Exemption Procedures, published in the **Federal Register** of October 10, 1984 (49 FR 39774).

However, EPA shares NRDC's desire that test rules should be completed as rapidly as possible, and the Agency has decided to modify the test rule development process for MO. Elsewhere in this issue of the **Federal Register**, EPA is proposing certain TSCA test guidelines as the required test standards for MO. The Agency is also proposing that the test data from each required study be submitted within certain time frames. By taking this action, EPA believes that testing will be initiated more expeditiously than would occur if the normal two-phase process were followed (See Unit IV.E. below).

## IV. Final Test Rule for Mesityl Oxide

*A. Findings*

EPA is basing the final testing requirements for MO on the authority of section 4(a)(1)(A) of TSCA.

1. EPA finds that the manufacture, processing, and distribution in commerce of MO may present an unreasonable risk of injury to human health due to potential chronic, mutagenic, and oncogenic (conditional on the mutagenicity test results) effects for the reasons presented in Unit II.D. above and more fully discussed in the proposed test rule and the support document which is available in the public record.

Data submitted to EPA since publication of the proposed rule indicate that in excess of 120 million pounds of MO are produced annually as an intermediate in MIBK production; approximately 5 million pounds are sold annually for solvent use (primarily for use in pesticides). Over 200 workers are exposed to MO in its manufacture, processing, and distribution. Additional workers are exposed during the herbicide formulation process. Limited monitoring data are sufficient to show that potential occupational exposures occur in certain job categories during MO production and processing.

The finding of potential chronic toxicity is based on preliminary studies of Ito (Ref. 9), which indicate that exposure to MO may induce leukopenia and hypertrophy of the liver, kidney, and spleen. Support for this finding is provided by the earlier work of Smyth *et al.* (Ref. 10) which identified the liver, kidney, and lung as potential targets of MO's toxicity. The finding of potential mutagenic risk is based on the hypothesis that MO may behave as an alkylating agent and interact with the informational molecules of human cells (DNA, RNA, or protein). These reactions, if not repaired, may result in cellular and/or genetic damage which may be expressed as mutagenic effects. The conditional "may present" finding for oncogenicity is based on positive results in the short-term mutagenicity tests predictive for oncogenicity, supported by the potentially biologically active structure of MO.

2. EPA also finds that there are insufficient data and experience upon which the effects of the manufacture, processing, and distribution of MO on human health can reasonably be determined or predicted.

3. Testing of MO for chronic toxicity (via subchronic testing) and mutagenicity is necessary to develop such data. Testing for oncogenicity will be required if positive results are obtained in the short-term mutagenicity assays.

*B. Required Testing*

EPA is requiring that MO be tested for chronic toxicity (via a 90-day subchronic toxicity test), mutagenicity, and for

oncogenicity if specific mutagenicity test results are positive.

*C. Test Substance*

EPA is requiring that MO of at least 97 percent purity be used as the test substance because this grade is readily available and is the material to which workers would be exposed.

*D. Persons Required to Test*

Section 4(b)(3)(B) specifies that the activities for which the Agency makes section 4(a) findings (manufacture, processing, distribution, use and/or disposal) determine who bears the responsibility for testing. Manufacturers are required to test if the findings are based on manufacturing ("manufacture" is defined in section 3(7) of TSCA to include "import"). Processors are required to test if the findings are based on processing. Both manufacturers and processors are required to test if the exposures giving rise to the potential risk occur during use, distribution, or disposal. Because EPA has found that the manufacturing, processing, and distribution in commerce of MO give rise to exposures that may lead to an unreasonable risk, EPA is proposing that persons who manufacture or process, or who intend to manufacture or process, this chemical at any time from the effective date of this test rule to the end of the reimbursement period be subject to the rule. The end of the reimbursement period ordinarily will be 5 years after the submission of the last final report required under the test rule. As discussed in the Agency's test rule development and exemption procedures (40 CFR Part 790), EPA expects that manufacturers will conduct testing and that processors will ordinarily be exempted from testing.

Because TSCA contains provisions to avoid duplicative testing, not every person subject to this rule must individually conduct testing. Section 4(b)(3)(A) of TSCA provides that EPA may permit two or more manufacturers or processors who are subject to the rule to designate one such person or a qualified third person to conduct the tests and submit data on their behalf. Section 4(c) provides that any person required to test may apply to EPA for an exemption from that requirement.

*E. Test Rule Development and Exemptions*

Elsewhere in this issue of the **Federal Register**, the Agency is proposing that certain TSCA test guidelines be utilized as test standards for the development of data under this rule for mesityl oxide. As discussed in that document and in previous documents (50 FR 20652; May 17, 1985), EPA has reviewed the method for development of test rules and has decided that for most section 4 rulemakings, the Agency will utilize single-phase rulemaking. In light of this decision, EPA has reevaluated the process for developing test standards for section 4 rulemakings initiated under a two-phase process and has determined that for certain of these two-phase rules, TSCA test guidelines are available for promulgation as relevant test standards. EPA has decided that where TSCA or other appropriate test guidelines are available, the Agency in most cases will propose the relevant guidelines as the test standards for those rules.

EPA believes that, in line with its commitment to expedite the section 4 rulemaking process, it is appropriate to propose the applicable TSCA test guidelines as test standards at the same time as a Phase I final test rule is issued. With regard to the rulemaking for mesityl oxide, TSCA test guidelines are available for all the testing requirements included in this Phase I final rule. Thus, in the accompanying notice, the Agency is proposing these TSCA test guidelines as test standards.

The public, including the manufacturers and processors subject to the Phase I rule, will have an opportunity to comment on the use of the TSCA test guidelines. The Agency will review the submitted comments and will modify the TSCA guidelines, where appropriate, when the test standards are promulgated.

During the development of a test rule under the two-phase process, persons subject to the Phase I final rule are normally required to submit proposed study plans within 90 days after the effective date of the Phase I final rule. (See 40 CFR 790.30(a)(2); published in the **Federal Register** of May 17, 1985 (50 FR 20658).) However, because EPA is proposing applicable TSCA test guidelines as the test standards for the studies reguired by this Phase I final rule, persons subject to the rule, i.e., manufacturers and processors of mesityl oxide, are not required to submit proposed study plans for the required testing at this time. Persons subject to this rule, however, are still required to submit notices of intent to test or exemption applications in accordance with 40 CFR 790.25, published in the **Federal Register** of May 17, 1985 (50 FR 20657). For this rule, once the test standards are promulgated, persons who have notified EPA of their intent to test must submit study plans (which adhere to the promulgated test standards) no later than 30 days before the initiation of each required test.

Processors of MO subject to this rule, unless they are also manufacturers, will not be required to submit letters of intent, exemption applications or study plans (before testing in initiated) unless manufacturers fail to sponsor the required tests. The basis for this decision is that manufacturers are expected to pass an appropriate portion of the test costs on to processors through the pricing of products containing MO.

EPA's final regulations for the issuance of exemptions from testing requirements are in 40 CFR Part 790. In accordance with those regulations, any manufacturer or processor subject to this Phase I test rule may submit an application to EPA for an exemption from conducting any or all of the tests required under this rule. If manufacturers perform all the required testing, processors will be granted exemptions automatically without having to file applications.

Because persons subject to this rule for MO are not required to submit proposed study plans for approval, EPA will grant conditional exemptions under this rule. These exemptions will be granted following EPA's receipt of a letter of intent to conduct the required tests rather than after receipt and approval of a study plan. Notice of EPA's adoption of the final test standards and deadlines will be announced in a final Phase II test rule.

Elsewhere in this issue of the **Federal Register**, EPA is proposing deadlines for the submission of test data. Such deadlines are required under section 4(b)(1)(C) of TSCA. These proposed data submission deadlines are open for public comment and may be modified, where appropriate, when the final Phase II test rule is promulgated.

*F. Reporting Requirements*

EPA is requiring that all data developed under this rule be reported in accordance with the EPA Good Laboratory Practice (GLP) standards pursuant to 40 CFR Part 792, published in the **Federal Register** of November 29, 1983 (48 FR 53922).

EPA is required by TSCA section 4(b)(1)(C) to specify the time period during which persons subject to a test rule must submit test data. The Agency is proposing these deadlines elsewhere in this issue of the **Federal Register**.

TSCA section 12(b) requires that persons who export or intend to export to a foreign country any MO subject to the testing requirements of this rule (e.g., not including MO contained in a formulated pesticide product) notify EPA of such exportation or intent to

export. While the results of required testing may not be available for some time, a notice to the foreign government about the export of such substances subject to test rules serves to alert them to the Agency's concern about the substances. It gives these governments the opportunity to request such data that the Agency may currently possess plus whatever data may become available as a result of testing activities. Thus, upon the effective date of this rule, persons who export or intend to export MO must submit notices to the Agency pursuant to TSCA section 12(b)(1) and 40 CFR Part 707. For additional information, see the **Federal Register** of November 19, 1984 (49 FR 45581).

TSCA section 14(b) governs Agency disclosure of all test data submitted pursuant to section 4 of TSCA. Upon receipt of data required by this rule, the Agency will announce the receipt within 15 days in the **Federal Register** as required by section 4(d). Test data received pursuant to this rule will be made available for public inspection by any person except in those cases where the Agency determines that confidential treatment must be accorded pursuant to section 14(b) of TSCA.

The publication of the notice in the **Federal Register** announcing the receipt of the mutagenicity data on MO will start the deferred portion of the rule if the results of certain studies indicate that MO is mutagenic in those test systems. Persons subject to the rule are required to submit study plans for this deferred testing at least 30 days prior to the initiation of each study.

*G. Enforcement Provisions*

The Agency considers failure to comply with any aspect of a section 4 rule to be a violation of section 15 of TSCA. Section 15(1) of TSCA makes it unlawful for any person to fail or refuse to comply with any rule or order issued under section 4. Section 15(3) of TSCA makes it unlawful for any person to fail or refuse to: (1) Establish or maintain records or (2) submit reports, notices, or other records required by the Act or any regulations issued under TSCA.

Additionally, TSCA section 15(4) makes it unlawful for any person to fail or refuse to permit entry or inspection as required by section 11. Section 11 applies to any "establishment, facility, or other premises in which chemical substances or mixture are manufactured, processed, stored, or held before or after their distribution in commerce. . . ." The Agency considers a testing facility to be a place where the chemical is held or stored and, therefore, subject to inspection. Laboratory audits and/or inspections will be conducted periodically in accordance with the procedures outlined in TSCA section 11 by designated representatives of the EPA for the purpose of determining compliance with the final rule for MO. These inspections may be conducted for purposes which include verification that testing has begun, that schedules are being met, that reports accurately reflect the underlying raw data and interpretations and evaluations thereof, and that the studies are being conducted according the EPA GLP standards and the test standards established in the second phase of this rulemaking.

EPA's authority to inspect a testing facility also derives from section 4(b)(1) of TSCA, which directs EPA to promulgate standards for the development of test data. These standards are defined in section 3(2)(B) of TSCA to include those requirements necessary to assure that data developed under testing rules are reliable and adequate, and such other requirements as are necessary to provide such assurance. The agency maintains that laboratory inspections are necessary to provide this assurance.

Violators of TSCA are subject to criminal and civil liability. Persons who submit materially misleading or false information in connection with the requirement of any provision of this rule may be subject to penalties calculated as if they had never submitted their data. Under the penalty provisons of section 16 of TSCA, any person who violates section 15 could be subject to a civil penalty of up to $25,000 per day for each violation. Intentional violations could lead to the imposition of criminal penalties up to $25,000 for each day of violation and imprisonment for up to 1 year. Other remedies are available to EPA under sections 7 and 17 of TSCA, such as seeking an injunction to restrain violations of TSCA section 4.

Individuals as well as corporations could be subject to enforcement actions. Sections 15 and 16 of TSCA apply to "any person" who violates various provisions of TSCA. EPA may, at its discretion, proceed against individuals as well as companies themselves. In particular this includes individuals who reports false information or who cause it to be reported. In addditonal, the submission of false, fictitious, or fraudulent statements is a violation under 18 U.S.C. 1001.

## V. Economic analysis of final Test Rule

To assess the economic inpact of this rule, EPA has prepared an economic analysis that evaluates the potential for significant economic impacts on the industry as a result of the required testing. The economic analysis estimates the costs of conducting the required testing and evaluates the potential for significant adverse economic impacts as a result of these test costs by examining four market characteristics of mesitye oxide: (1) Price sensitivity of demand, (2) industry cost characteristics, (3) industry structure, and (4) market expectations.

Total testing costs for the final rule for MO are estimated to range from $1,872,800 to $2,824,000. This estimate includes the costs for both the required minimum series of tests as well as the conditional ones. The annualized test costs (using a cost of capital of 25 percent over a period of 15 years) range from $485,300 to $731,800. Based on an estimated production (1983) volume of 134.9 million pounds, the unit costs range from 0.36 to 0.54 cents per pound. Compared with the 1982 unit sales value for MO of 54 cents per pound, the test costs per pound are 0.67 to 1.0 percent of price.

Based on these costs and the market characteristics of MO, the economic analysis indicates that the potential for significant adverse economic impact as a result of this test rule is low. This conclusion is based on the following observations: (1) The estimated unit test costs are small; (2) the demand for MO in MIBK manufacture is inelastic as there are no substitutes and the demand for MIBK appears somewhat inelastic; and (3) the market expectations of MO are favorable.

## VI. Availability of Test Facilities and Personnel

Section 4(b)(1) of TSCA requires EPA to consider "the reasonably foreseeable availability of the facilities and personnel needed to perform the testing required under the rule." Therefore, EPA conducted a study to assess the availability of test facilities and personnel to handle the additional demand for testing programs negotiated with industry in place of rulemaking. Copies of the study, "Chemical Testing Industry: Profile of Toxicological Testing," October 1981, can be obtained through the NTIS under publication number PB 82-140773. On the basis of this study, the Agency believes that there will be available test facilities and personnel to perform the testing required in this test rule.

## VIII. Rulemaking Record

EPA has established a public record for this rulemaking (docket number OPTS-42030A). This record includes the basic information the Agency

considered in developing this rule, and appropriate **Federal Register** notices.

This record includes the following information:

*A. Supporting Documentation*

(1) **Federal Register** notices pertaining to this final rule consisting of:

(a) Notice containing the ITC designation of mesityl oxide to the Priority List (44 FR 31884; June 1, 1979).

(b) Notice of final rule requiring the submission of unpublished health and safety studies (47 FR 38780; September 2, 1982).

(c) Notice of proposed rule on mesityl oxide (48 FR 30699; July 5, 1983).

(d) Notice adding mesityl oxide to the list of chemicals subject to the preliminary assessment information rule (49 FR 25859; June 25, 1984).

(e) Notice of final rule on EPA's TSCA Good Laboratory Practice Standards (48 FR 53922; November 29, 1983).

(f) Notice of final rule on test rule development and exemption procedures (49 FR 39774; October 10, 1984).

(g) Notice of final rule concerning data reimbursement (48 FR 41786; September 19, 1983).

(h) Notice of interim final rule on test rule development and exemption procedures (50 FR 20652; May 17, 1985).

(i) Notice of final rule on the $C_9$ Aromatic Hydrocarbon Fraction (50 FR 20662; May 17, 1985).

(2) Support documents consisting of:

(a) Mesityl oxide technical support document for proposed rule.

(b) Economic impact analysis of NPRM for mesityl oxide.

(c) Economic impact analysis of final test rule for mesityl oxide.

(3) Communications consisting of:

(a) Written public comments.

(b) Transcription of public meeting.

(c) Summaries of phone conversations.

(d) Meeting summaries.

(4) Reports—published and unpublished contractor's reports.

*B. References*

(1) Krasavage, W.J., O'Donoghue, J.L., and Divincenzo G.D. "Ketones." *Patty's Industrial Hygiene and Toxicology.* Vol. II C: 4752–4754.

(2) CMA. Comments of the Ketones Panel of the Chemical Manufacturers Association on EPA's Proposed Test Rule for Mesityl Oxide. Letter from G. Cox, CMA to Public Information Office, EPA. October 4, 1983.

(3) CMA. Proposed Test Rule for Mesityl Oxide. Letter from G. Cox, Chemical Manufacturers Association to Public Information Office, EPA. May 16, 1984.

(4) USEPA. U.S. Environmental Protection Agency. Memorandum from Hollis Call to Garry Timm. Mesityl Oxide Consumption. June 11, 1985.

(5) Mathtech, Inc. Economic Impact Analysis of Proposed Test Rule for Mesityl Oxide. Contract No. 68–01–6287. June 8, 1983.

(6) Exxon Chemical Americas. Mesityl Oxide Proposed Test Rule. Comment letter submitted by M.R. Schimenti, Exxon to Public Information Office, EPA. October 4, 1983.

(7) Eastman Kodak Co., Mesityl Oxide, Proposed Test Rule. Letter from G.Y. Brokaw, Eastman Kodak to Public Information Office, EPA. October 6, 1983.

(8) Union Carbide Corp. Comments to EPA's Proposed Test Rule on Mesityl Oxide. Letter from J.B. Browning to Public Information Office, EPA. October 4, 1983.

(9) Ito, S. "Industrial Toxicological Studies on Mesityl Oxide." (translation from Japanese). *Yokahama Igaku* 20(b):253–265. 1969.

(10) Smyth, H. F., Jr., Seaton, J., Fischer, L. "Response of Guinea Pigs and Rats to Repeated Inhalation of Vapors of Mesityl Oxide." *Journal of Industrial Hygiene and Toxicology* 24:46–50. 1942.

(11) Union Carbide Corporation. Public Meeting on Mesityl Oxide. Comments by Tipton Tyler, Union Carbide at public meeting. October 24, 1983.

(12) USEPA. U.S. Environmental Protection Agency. Memorandum from Irwin P. Baumel to Gary Timm. Review of Toxicity Data on Mesityl Oxide. June 29, 1984.

(13) Lee, W.R., Abrahamson, S., Valencia, R., von Halle, E.S., Wurgler, F.E., and Zimmering, S. "The sex-linked recessive lethal test for mutagenesis in *Drosophila melanogaster.*" A report of the U.S. Environmental Protection Agency Gene-Tox Program. *Mutation Res.* 123:183–279. 1983.

Confidential Business Information (CBI), while part of the record, is not available for public review. A public version of the record, from which CBI has been deleted, is available for inspection from 8 a.m. to 4 p.m., Monday through Friday, except legal holidays, in Rm. E–107, 401 M St., SW., Washington, DC.

## VIII. Other Regulatory Requirements

*A. Classification of Rule*

Under Executive Order 12291, EPA must judge whether a regulation is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. This test rule is not major because it does not meet any of the criteria set forth in section 1(b) of the order. First, the actual annual cost of all the testing required for MO is estimated at $405,984 to $605,530 over the market life of chemical. Second, because the cost of the required testing will be distributed over a large production volume, the rule will have only very minor effects on users' prices (no more than 0.7 percent of price) for this chemical even if all test costs were passed on. Finally, taking into account the nature of the market for this substance, the low level of costs involved, and the expected nature of the mechanisms for sharing the costs of the required testing, EPA concludes that there will be no significant adverse economic effects of any type as a result of this rule.

This regulation was submitted to the Office of Management and Budget (OMB) for review as required by Executive Order 12291. Any comments received from OMB are included in the Public Record for this rulemaking.

*B. Regulatory Flexibility Act*

Under the Regulatory Flexibility Act (15 U.S.C. 601 *et seq.*, Pub. L. 96–354, September 19, 1980), EPA is certifying that this test rule, if promulgated, will not have a significant impact on a substantial number of small businesses for the following reasons:

1. There are no small manufacturers of this chemical.

2. Small processors are not expected to perform testing themselves, or participate in the organization of the testing effort.

3. Small processors will experience only very minor costs, if any, in securing exemption from testing requirements.

4. Small processors are unlikely to be affected by reimbursement requirements.

*C. Paperwork Reduction Act*

The information collection requirements contained in this rule have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*, and have been assigned OMB control number 2070–0033.

**List of Subjects in 40 CFR Part 799**

Testing, Environmental protection, Hazardous substances, Chemicals, Recordkeeping and reporting requirements.

Dated: December 13, 1985.

**John A. Moore,**

*Assistant Administrator for Pesticides and Toxic Substances.*

## PART 799—[AMENDED]

Part 799 is amended as follows:

1. The authority citation continues to read as follows:

**Authority:** 15 U.S.C. 2603, 2611, 2625.

2. New § 799.2500 is added, to read as follows:

**§ 799.2500 Mesityl oxide (MO).**

(a) *Identification of test substance.* (1) Mesityl oxide (CAS No. 141.79–7) shall be tested in accordance with this section.

(2) Mesityl oxide of at least 97 percent purity shall be used as the test substance.

(b) *Persons required to submit study plans, conduct tests, and submit data.* (1) All persons who manufacture or process or intend to manufacture or process MO from the effective date of this rule, February 3, 1986, to the end of the reimbursement period shall submit letters of intent to conduct testing or exemption applications, study plans, and/or shall conduct tests, and submit data as specified in this section, Subpart A of this Part, and Part 790 of this chapter.

(2) Persons subject to this section are not subject to the requirements of § 790.30 (a)(2), (5), and (6) and (b), and § 790.87(a)(1)(ii) of this chapter.

(3) Persons who notify EPA of their intent to conduct tests in compliance with the requirements of this section must submit plans for these tests no later than 30 days before the initiation of each of those tests.

(4) In addition to the requirements of § 790.87(a) (2) and (3) of this chapter, EPA will conditionally approve exemption applications for this rule if EPA has received a letter of intent to conduct the testing from which exemption is sought and EPA has adopted test standards and schedules in a final Phase II test rule.

(c) *Health effects testing*—(1) *Subchronic inhalation toxicity*—(i) *Required testing.* A 90-day subchronic inhalation toxicity test shall be conducted with MO.

(ii) [Reserved]

(2) *Mutagenic effects—chromosomal aberrations*—(i) *Required testing.* (A) An *in vitro* cytogenetic test shall be conducted with MO.

(B) An *in vitro* cytogenetic test shall be conducted for MO if the *in vitro* cytogenetic test conducted pursuant to paragraph (c)(2)(i)(A) of this section produces a negative result.

(C) A dominant lethal assay shall be conducted for MO if it produces a positive result in the *in vivro* or *in vitro* cytogenetics test conducted pursuant to paragraphs (c)(2)(i) (A) and (B) of this section.

(D) A heritable translocation assay shall be conducted for MO if it produces a positive result in the dominant lethal assay conducted pursuant to paragraph (c)(2)(i)(C) of this section.

(ii) [Reserved]

(3) *Mutagenic effects—gene mutations*—(i) *Required testing.* (A) A *Salmonella typhimurium* mammalian microsomal reverse mutation assay (Ames assay) shall be conducted with MO.

(B) A sex-linked recessive lethal test in *Drosophila melanogaster* shall be conducted for MO if it produces a positive result in the Ames assay conducted pursuant to paragraph (c)(3)(i)(A) of this section.

(C) A gene mutation in somatic cells assay shall be conducted with MO if it produces a negative result in the Ames assay conducted pursuant to paragraph (c)(3)(i)(A) of this section.

(D) A sex-linked recessive lethal test in *Drosophila melanogaster* shall be conducted for MO if it produces a positive result in the gene mutation in somatic cells assay conducted pursuant to paragraph (c)(3)(i)(C) of this section.

(E) A mouse specific-locus test shall be conducted for MO if it produces a positive result in the sex-linked recessive-lethal test in *Drosophila melanogaster* conducted pursuant to paragraph (c)(3)(i)(B) or (D) of this section.

(ii) [Reserved]

(4) *Oncogenicity*—(i) *Required testing.* An oncogenicity bioassay shall be conducted by inhalation for MO if MO gives positive results in any one or more of the following tests:

(A) *In vitro* cytogenetics test, conducted pursuant to paragraph (c)(2)(i)(A) of this section.

(B) *In vivo* cytogenetics test, conducted pursuant to paragraph (c)(2)(i)(B) of this section.

(C) Gene mutation in somatic cells assay, conducted pursuant to paragraph (c)(3)(i)(C) of this section.

(D) *Drosophila melanogaster* sex-linked recessive-lethal test, conducted pursuant to paragraph (c)(3)(i)(B) or (D) of this section.

(ii) [Reserved]

(Information collection requirements approved by the Office of Management and Budget under control number 2070-0033.)

[FR Doc. 85-30172 Filed 12-19-85; 8:45 am]

BILLING CODE 6560-50-M

## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

### 50 CFR Part 17

## Endangered and Threatened Wildlife and Plants; Final Rule To Determine Zanthoxylum thomasianum (Prickly-ash) To Be an Endangered Species

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Final rule.

**SUMMARY:** The Service determines a plant, *Zanthoxylum thomasianum* (prickly-ash), to be an endangered species under the Endangered Species Act of 1973, as amended. *Zanthoxylum thomasianum* is only found in seasonally deciduous vegetation formations that occur on limestone and on areas of volcanic origin in northern and central Puerto Rico and in southern St. Thomas and St. John, Virgin Islands. Fewer than 1,000 individuals of the species are known to exist. All five sites that support populations of *Zanthoxylum thomasianum* are located on privately owned land. The continued existence of this species is endangered by its very limited number, plus potential habitat modifications or destruction due to limestone mining, urbanization, and road maintenance. This final rule will implement the protection provided by the Endangered Species Act of 1973, as amended, for *Zanthoxylum thomasianum*.

**DATES:** The effective date of this rule is January 21, 1986.

**ADDRESSES:** The complete file for this rule is available for inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Banco de Ponce Building, Dr. Basora and Mendez Vigo Streets, P.O. Box 3005—Marina Station, Mayagüez, Puerto Rico 00709, and at the Service's Regional Office, Richard B. Russell Federal Building, Room 1282, 75 Spring Street SW., Atlanta, Georgia 30303.

**FOR FURTHER INFORMATION CONTACT:** Mr. David Densmore at the above Mayagüez address (809/833-5760) or Mr. Richard P. Ingram at the above Atlanta Regional Office address (404/221-3583 or FTS 242-3583).

**SUPPLEMENTARY INFORMATION:**

### Background

*Zanthoxylum thomasianum* was first described by Krug and Urban in 1896, on the basis of a specimen collected by Eggers in St. Thomas (now part of the U.S. Territory of the Virgin Islands) in 1880. The species was not collected again in St. Thomas until 1980 (Vivaldi and Woodbury, 1981). It was collected by Britton and Shafer on St. John, Virgin Islands, in 1913 and found there again by Woodbury in 1983. It was also discovered by Woodbury in the early 1960's at the summit of Piedras Chiquitas (a rocky outcrop between the municipalities of Salinas and Coamo) and along Road 155, north of Coamo, Commonwealth of Puerto Rico. More recently, it was discovered by a high school teacher in the upper part of the Guajataca Gorge in Isabela, Puerto Rico.

The prickly ash is an evergreen, often multi-stemmed shrub or small tree reaching 6 to 20 ft (1.8 to 6 m) in height

and up to 4 in (10 cm) in diameter at breast height. Leaves are alternate, odd-pinnate, with 5 to 9 shiny, stalkless, rounded or ovate leaflets, each having 1 or 2 sharp spines at the base and usually 1 to 3 spines on the midvein below. Flowers are minute, clustered, and unisexual, with male and female on different plants (dioecious). Fruits consist of 1 to 3 egg-shaped follicles from each flower that split along one side and contain single black, shiny seeds.

Two small specimens of *Zanthoxylum thomasianum* were recently found at Piedras Chiquitas, where the few trees formerly known were believed to have been destroyed by hurricane winds in 1979. However, the population along Road 155 has apparently been destroyed by the combined effects of road improvement and maintenance, and illegal dumping of trash (J.L. Vivaldi, personal communication). Only two individuals of the species are known to exist at the Guajataca Gorge locale. The largest known population is located on the southern coast of St. Thomas and may consist of several hundred individuals. About 50 individuals were recently found at Gift Hill on St. John, and at least one specimen is known to exist north of Salt Pond Bay, also on St. John (R.O. Woodbury, personal communication). Specimens in the Salt Pond Bay area may be within the boundaries of the Virgin Islands National Park (J.M. Matuszak, personal communication).

*Zanthoxylum thomasianum* was recommended for Federal listing by the Smithsonian Institution (Ayensu and DeFilipps, 1978). In August 1979, the Service contracted with Dr. José L. Vivaldi, a resident botanist of Puerto Rico, to conduct a status survey of plans considered to be candidates for listing as endangered or threatened in Puerto Rico and the Virgin Islands. Reports and documentation resulting from this survey indicated that *Zanthoxylum thomasianum* should be proposed for listing as an endangered species. *Zanthoxylum thomasianum* was included among the plants being considered for listing as endangered or threatened species by the Fish and Wildlife Service, as published in the **Federal Register** (45 FR 82479) dated December 15, 1980.

In a notice published in the **Federal Register** on February 15, 1983 (48 FR 6752), the Service reported the earlier acceptance of the new taxa in the Smithsonian's 1978 book as under petition within the context of section 4(b)(3)(A) of the Act, as amended in 1982. The Service subsequently found that listing *Zanthoxylum thomasianum* was warranted, but precluded by other pending listing actions, in accordance with section 4(b)(3)(B)(iii) of the Act; notification of the finding was published in the January 20, 1984, **Federal Register** (49 FR 2485). An additional petition finding required in accordance with Section 4(b)(3)(B)(ii) of the Act was incorporated in the proposed rule for this species. The Service proposed to list Zanthoxylum thomasianum in the February 11, 1985, **Federal Register** (50 FR 5647).

**Summary of Comments and Recommendations**

In the February 11, 1985, proposed rule (50 FR 5647) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Appropriate agencies of the Commonwealth of Peurto Rico and Government of the Virgin Islands, municipal governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. Newspaper notices inviting general public comment were published in the Virgin Islands *Daily News* (in English) on March 2, 1985, and in *EL Nuevo Día* (in Spanish) on March 5, 1985. Five letters of comment were received and are discussed below. No public hearing was requested; therefore none was held.

A representative of the Federal Highway Administration responded March 8, 1985, pointing out that the plants at Guajataca Gorge were not in the immediate vicinity of road maintenance or construction activities in that area. The Service notes that the proposed rule mentioned the effects of such activities only in respect to the Coamo population, which is now believed to have been destroyed by roadwork and illegal trash disposal.

Dr. José Vivaldi, Director of the Terrestrial Ecology Section of the Puerto Rico Department of Natural Resources, in a letter dated March 13, 1985, reported finding two small trees of this species at Piedras Chiquitas since his 1981 status survey, upon which the proposed rule was based. He reconfirmed that the old trees are no longer there. The final rule has incorporated this new information. Dr. Vivaldi also reported pending preparation of a regulation to implement amendments to the Organic Law of the Department that would provide authorization for designation and protection of endangered and threatened species in the Commonwealth of Puerto Rico.

The Commissioner of the Virgin Islands Department of Conservation and Cultural Affairs relayed comments from a professional botanist with the Virgin Islands Cooperative Extension Service, College of the Virgin Islands, who endorsed the proposed listing. Endorsement was also registered By Dr. Ariel Lugo, Project Leader, Institute of Tropical Forestry, Forest Service, U.S. Department of Agriculture, in support of listing this species.

**Summary of Factors Affecting the Species**

After a thorough review and consideration of all information available, the Service has determined that *Zanthoxylum thomasianum* should be classified as an endangered species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations promulgated to implement the listing provisions of the Act (codified at 50 CFR Part 424) were followed. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Zanthoxylum thomasianum* (Krug and Urban) P. Wilson, prickly-ash, are as follows:

A. *The present or threatened destruction, modification or curtailment of its habitat or range.* Modification and destruction of habitat appear to be the most serious threats to the species, especially in St. Thomas and St. John, Virgin Islands. The St. Thomas population is located in an area close to the capital, Charlotte Amalie, and to some of the principal hotel complexes serving the tourist trade. The plants are located on property of potential importance to tourism on a small island where land value is high. This particular area has been subdivided into lots, and plans to clear the lots and build are being formulated. The principal St. John site, with about 50 individuals, is located in the Gift Hill area of Fish Bay Estates. This area has also been subdivided into lots. At least one specimen is known to exist at the other location on St. John; this plant and possibly other isolated individuals may exist on Federal lands within the boundaries of the Virgin Island National Park. Lands adjacent to the Park would have the same development potential and value as the other site in St. John, while proposed improvement of facilities within the Park could affect other plants. Such developments, unless conducted with consideration and care, could either destroy or substantially modify habitat upon which individuals

of *Zanthoxylum thomasianum* depend. The population at Coamo, Puerto Rico, was apparently destroyed by activities related to road improvement and by unathorized disposal and burning of trash near the road.

Habitat modification can also be expected in the Guajataca Gorge site. Local residents use the area for planting yams, which results in *Zanthoxylum thomasianum* plants being uprooted. In addition, nearby limestone hills are being mined for fill material. The hill where the plants are located could be razed in order to offer limestone fill for sale. These activities could destroy or adversely modify the species' habitat.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Taking for these purposes has not been a documented factor in the decline of this species, but could become so in the future. The species occurs near habitations. Professional cultivation from cuttings and seed has so far been unsuccessful.

C. *Disease or predation.* Disease and predation have not been documented as factors in the decline of the species.

D. *The inadequacy of existing regulatory mechanisms.* The government of the Virgin Islands does not have specific rules or legislation to protect endangered or threatened plant species. The Commonwealth of Puerto Rico has recently adopted a regulation that recognizes and provides protection for certain Commonwealth listed species, including the prickly ash. For the small, critically endangered populations of the prickly ash in Puerto Rico, Federal listing enhances the protections available and the funding possibilities for needed research.

E. *Other natural or manmade factors affecting its continued existence. Zanthoxylum thomasianum* is found in small, compact, localized populations. Its ecological requirements are still poorly understood. The species is dioecious, and the ratio of male to female plants is unknown. The multistemmed growth form of the species makes estimates of actual population size difficult. The two Puerto Rican populations are relictual and probably too small to guarantee the survival of a dioecious species. Hurricanes have probably affected the species in the past, as evidenced by the losses from the Piedras Chiquitas population. Individuals in exposed areas, such as coastal hills, may be adversely affected by high winds. These factors compound the vulnerability of *Zanthoxylum thomasianum* to the previously mentioned threats.

The Service has carefully assessed the best scientific information available regarding the past, present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list *Zanthoxylum thomasianum* as an endangered species. With so few individuals known to exist and a high risk of damage to the plant and/or its habitat, endangered status seems an accurate assessment of the species' condition. It is not prudent to propose critical habitat because doing so would increase the risk to the species, as detailed below.

**Critical Habitat**

Section 4(a)(3) of the Act, as amended, requires that to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time a species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for this species at this time. As discussed under threat factor "B" above, *Zanthoxylum thomasianum* may be threatened by collecting, an activity regulated by the Endangered Species Act with respect to plant only on lands under Federal jurisdiction. Publication of critical habitat localities would increase the risk of taking or vandalism. The small sizes of populations exacerbate these risks. Thus, designation of critical habitat for *Zanthoxylum thomasianum* would not be prudent at this time.

**Available Conservation Measures**

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, Commonwealth, Territory, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition, cooperative efforts with the Commonwealth and Territory, and requires that recovery action be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against collecting are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402 and are now under revision (see proposal at 48 FR 29990; June 29, 1983). Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service. No critical habitat is being designated for *Zanthoxylum thomasianum*, as discussed above, and Federal involvement is likely only where habitat or plants may be affected by actions of the National Park Service or the Federal Highway Administration. In the event that facilities are upgraded or roadways widened, resurfaced, or realigned in the immediate vicinity of known populations or individuals, a strong commitment, together with funds, will be needed to protect *Zanthoxylum thomasianum*. Designers and work crews need to be alerted so that the plants are considered in any plans for the reconstruction of nearby roads. Such work should be done with care so that the habitat of *Zanthoxylum thomasianum* is left unchanged. It is not know whether there will be Federal involvement in any proposed subdivision developments. Federal authorization, funding, or participation in any of these projects becomes subject to the provisions of section 7 discussed above.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general trade prohibitions and exceptions that apply to all endangered plant species. With respect to *Zanthoxylum thomasianum*, all trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, or sell or offer for sale this species in interstate or foreign commerce. Certain exceptions can apply to agents of the Service and Commonwealth and Territory conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances. International trade and interstate commercial trade in *Zanthoxylum thomasianum*, are not known to exist, and the plant is not presently in experimental cultivation. Therefore few permit applications

involving plants of wild origin are anticipated.

Section 9(a)(2)(B) of the Act, as amended in 1982, prohibits the removal and reduction to possession of endangered plant species from areas under Federal jurisdiction. Regulations implementing this new prohibition were published on Sepember 30, 1985 (50 FR 39681). This prohibition now applies to *Zanthoxylum thomasianum*,. Permits for exceptions to this prohibition are available. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Federal Wildlife Permit Office, U.S. Fish and Wildlife Service, Washington, DC 20240 (703/235–1903).

### National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

### Literature Cited

Ayensu, E.S., and R.A. DeFilipps. 1978. Endangered and Threatened Plants of the United States. Smithsonian Institution and World Wildlife Fund. Washington, D.C. xv+403 pp.

Vivaldi, J.L., and R.O. Woodbury. 1981. Status report on *Zanthoxylum thomasianum*, (Krug and Urban) P. Wilson. Status Report submitted to the U.S. Fish and Wildlife Service, Mayagüez. P.R. 39 pp.

### Authors

The primary author of this final rule is Mr. David Densmore, U.S. Fish and Wildlife Service, Caribbean Field Office, P.O. Box 3005, Marina Station, Mayagüez, Puerto Rico 00709–3005.

### List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

### Regulation Promulgation

### PART 17—[AMENDED]

Accordingly, Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for Part 17 continues to read as follows:

**Authority:** Pub. L. 93–205, 87 Stat. 884; Pub. L. 94–359, 90 Stat. 911; Pub. L. 95–632, 92 Stat. 3751; Pub. L. 96–159, 93 Stat. 1225; Pub. L. 97–304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. Amend § 17.12(h) by adding the following, in alphabetical order under the family Rutaceae, to the List of Endangered and Threatened Plants:

**§ 17.12 Endangered and threatened plants.**

* * * * *

(h) * * *

| Species | | Historic range | Status | When listed | Critical habitat | Special rules |
|---|---|---|---|---|---|---|
| Scientific name | Common name | | | | | |
| * | * * | * * | * | * | | |
| Rutaceae—Citrus family: | | | | | | |
| *Zanthoxylum thomasianum* | Prickly-ash | U.S.A. (PR, VI) | E | 213 | NA | NA |
| * | * * | * * | * | * | | |

Dated: December 4, 1985.

**P. Daniel Smith,**

*Acting Assistant Secretary for Fish and Wildlife and Parks.*

[FR Doc. 85–30222 Filed 12–19–85; 8:45 am]

BILLING CODE 4310–55–M

## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

### 50 CFR Part 652

**[Docket No. 50575–5075]**

### Atlantic Surf Clam and Ocean Quahog Fisheries

**AGENCY:** National Marine Fisheries Service (NMFS), NOAA, Commerce.

**ACTION:** Notice of surf clam fishery closure and 1986 fishing year time restriction.

**SUMMARY:** NOAA issues this notice closing the Mid-Atlantic Area surf clam fishery and restricting the fishing time period at the beginning of the 1986 fishing year. This action is necessary because harvest from the surf clam fishery will exceed the quota for the last quarter of the 1985 fishing year and the first quarter of the 1986 fishing year. The intended effect of the notice is to prevent harvests from exceeding the annual quota for the surf clam fishery.

**EFFECTIVE DATE:** 1400 hours, Eastern Standard Time, December 19, 1985, through 2400 hours EST, December 28, 1985.

**FOR FURTHER INFORMATION CONTACT:** Bruce Nicholls, Plan Coordinator, 617–281–3600, extension 272.

**SUPPLEMENTARY INFORMATION:** Regulations implementing the Fishery Management Plan for Atlantic Surf Clam and Ocean Quahog Fisheries contain at § 652.22(d) a provision requiring that, if the Regional Director determines that the quota for any time period will be exceeded, the Secretary of Commerce will publish a notice in the **Federal Register** stating the determination and setting a date and time for closure of the fishery.

Harvest of surf clams in the Mid-Atlantic Area has increased significantly over the past several years, including 1985. This is due to both the growth of significant numbers of clams from the 1976 and 1977 year classes, and the reduced size limit [from 5½ to 5¼ inches on October 14, 1984 (49 FR 40580), and to five inches on November 8, 1985 (50 FR 46671)]. On May 12, 1985 (50 FR 20215), the Regional Director reduced allowable fishing time from six hours per week to six hours every other week for vessels harvesting surf clams in the Mid-Atlantic Area. In addition, the fishery was closed from June 23, 1985, through July 4, 1985. Despite the above actions to slow harvest, landings continued to increase, preventing a return to a six hour per week schedule.

The last two week period in 1985, continuing the every other week fishing schedule, ends on December 21st, leaving a one week gap until the end of the year. To allow equal access to the same number of fishing days for all participants in the fishery, the final week of the year must be either open to all vessels or closed to all vessels. Closure during this week might result in a slight underharvest of the quota, while opening the fishery to all vessels during the week would probably result in overharvest of the quota. Whether either would occur is dependent on variable that are difficult to predict.

Traditionally, analysis to calculate annual landings versus annual quotas

occurs shortly after the new year, and is adjusted as late landing reports are submitted. The number of late landing reports is usually small, but has the potential for significantly increasing annual landings figures.

For several years, the industry has expressed its preference for scheduling closures over holidays. A Christmas closure is the least disruptive time to close the fishery, and is widely supported throughout the industry.

Therefore, the Regional Director has determined that the appropriate course of action to avoid overharvest of the 1985 surf clam quota while simultaneously observing the preference of the industry is to close the fishery at 1400 hours December 19, 1985, through 2400 hours December 28, 1985. This closure applies only to surf clams taken in the fishery conservation zone in the Mid-Atlantic Area.

The Regional Director has examined current and projected catch rates in the Mid-Atlantic Area surf clam fishery. He has concluded that allowable fishing time greater than the six hour, every other week schedule in effect since May 1985 would result in rapid harvest of the quarterly allocation, and that a closure would be necessary to avoid exceeding the quarterly allocation. To reduce the possibility of a closure and allow the fishery to continue throughout the quarter, the Regional Director has determined that the six hour, every other week schedule will be in effect at the start of the first quarter of 1986. The Regional Director will continue to monitor landings in the first quarter to determine if allowable fishing time requires adjustment.

Therefore, the surf clam fishing year will begin at 0001 hours EST on December 29, 1985, with six hours fishing time every other week. ▼

**Other Matters**

This action is taken under the authority of 50 CFR Part 652 and is taken in compliance with Executive Order 12291.

(16 U.S.C. 1801 *et seq.*)

**List of Subjects in 50 CFR Part 652**

Fisheries, Fishing.

Dated: December 17, 1985.

**Carmen J. Blondin,**

*Deputy Assistant Administrotor For Fisheries Resource Management, National Marine Fisheries Service.*

[FR Doc. 85-30151 Filed 12-17-85; 2:09 pm]

BILLING CODE 3510-22-M

# Proposed Rules

Federal Register
Vol. 50, No. 245
Friday, December 20, 1985

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

## DEPARTMENT OF AGRICULTURE

### Agricultural Marketing Service

### 7 CFR Part 966

[Docket No. AO-265-A5]

### Florida Tomato Marketing Order; Hearing on Proposed Amendment

**AGENCY:** Agricultural Marketing Service, USDA.

**ACTION:** Notice of hearing on proposed rule.

**SUMMARY:** This provides notice of a public hearing to be held to consider a proposed amendment to the Florida Tomato Marketing Order (hereinafter called the order). The proposals were submitted by the Florida Tomato Committee, the industry organization administering the order. The principle changes would limit committee, tenure, require periodic referenda, allow for production research and promotion including paid advertising, interchangeable alternates within districts, authority to accept voluntary contributions and to accept assessments in advance or to borrow money. The order has not been amended since 1969. Several sections are outmoded and should be considered at the amendment hearing. The text of the proposal to be considered is set forth below.

**DATE:** The hearing is scheduled to begin January 14, 1986, at 9:00 a.m.

**ADDRESS:** The hearing will be held at the Florida Fruit and Vegetable Association Auditorium, 4401 East Colonial Drive, Orlando, Florida 32814.

**FOR FURTHER INFORMATION CONTACT:** Kenneth G. Johnson, Vegetable Branch, Fruit and Vegetable Division, AMS, USDA, Washington, DC 20250, phone (202) 447-7920.

**SUPPLEMENTARY INFORMATION:** The amendments was proposed and the hearing requested by the Florida Tomato Committee established under the marketing agreement and order program regulating the handling of tomatoes grown in Florida. The Department of Agriculture proposes that it be authorized to make any necessary conforming changes which may result from this hearing.

This administrative action is governed by the provision of section 556 and 557 of Title 5 of the United States Code and therefore is excluded from the requirements of Executive Order 12291.

The Regulatory Flexibility Act (Pub. L. 96-354), effective January 1, 1981, seeks to ensure that within the statutory authority of a program the regulatory and informational requirements are tailored to the size and nature of small businesses. Interested persons are invited to present evidence at the hearing on the possible regulatory and informational impact of the proposals on small business.

The hearing is called pursuant to the provisions of the Agricultural Marketing Agreement Act of 1937, as amended (7 U.S.C. 601 *et seq.*), and the applicable rules of practice and procedure governing the formulation of marketing agreements and orders (7 CFR Part 900). The proposed amendment of the marketing agreement and order has not received the approval of the Secretary of Agriculture.

The public hearing is for the purpose of: (1) Receiving evidence about the economic and marketing conditions which relate to the proposed amendment of the marketing agreement and order; (ii) determining whether there is a need for the proposed amendment to the marketing agreement and order; and (iii) determining whether the proposed amendment or appropriate modification of it will tend to effectuate the declared policy of the Act.

**List of Subjects in 7 CFR Part 966**

Marketing agreements and orders, Tomatoes, Florida.

1. The authority citation for 7 CFR Part 966 continues to read as follows:

**Authority:** Secs. 1-19, 48 Stat. 31, as amended; 7 U.S.C. 601-674.

Proposal No. 1 *Committee tenure.*

Revise § 966.23 to read as follows:

**§ 966.23 Term of office.**

* * * * * * *

(b) Committee members and alternates shall serve during the term of office for which they are selected and have qualified, or during that portion thereof beginning on the date on which they qualify during such term of office and continuing until the end thereof, and until their successors are selected and have qualified. However, from the date this amended section becomes effective, no member or alternative shall serve more than ten full consecutive terms without approval of the Secretary.

Proposal No. 1 *Alternative members.*

Section 966.23 is amended by relettering paragraph (b) as paragraph (c) and adding a new paragraph (b) to read as follows:

**§ 966.32 Procedure.**

* * * * * * *

(b) If both a member and respective alternate are unable to attend a committee meeting, the committee may designate any other alternate present from the same district to serve in place of the absent member.

* * * * * * *

Proposal No. 3 *Borrowing money.*

Section 966.42 is revised by adding a new paragraph (e) as follows:

**§ 966.42 Assessments.**

* * * * *

(e) In order to provide funds for the administration of the provisions of this part, the committee may accept the payment of assessments in advance, or may borrow money for such purposes.

Proposal No. 4 *Accepting gifts.*

Add new § 966.45 as follows:

**§ 966.45 Contributions.**

The committee may accept voluntary contributions but these shall only be used to pay expenses incurred pursuant to § 966.48. Furthermore, such contributions shall be free from any encumbrances by the donor and the committee shall retain complete control of their use.

Proposal No. 5.

Revise § 966.48 to read as follows:

**§ 966.48 Research and promotion.**

The committee may, with the approval of the Secretary, establish, or provide for the establishment of projects including production research, marketing research and development

projects, and marketing promotion including paid advertising, designed to assist, improve or promote the marketing, distribution and consumption or efficient production of tomatoes. The expenses of such projects shall be paid by funds collected pursuant to §§ 966.42 and 966.45.

Proposal No. 6 *Periodic referenda.*

Section 966.84 is amended by relettering paragraph (d) as paragraph (e) and adding a new paragraph (d) to read as follows:

**§ 966.84 Termination.**

* * * * *

(d) The committee shall recommend to the Secretary within every ten year period beginning on the effective date hereof that a referendum be conducted to ascertain whether continuance of this subpart is favored by the producers.

* * * * *

Proposal No. 7.

Make such other changes as may be necessary to make the entire order conform with any amendments thereto that may result from this hearing.

Copies of this notice of hearing and the order may be obtained from William C. Knope, Lakeland Marketing Field Office, Fruit and Vegetable Division, AMS, U.S. Department of Agriculture, P.O. Box 9, Lakeland, Florida 33802, phone (813) 683-5983, or from Kenneth G. Johnson, Fruit and Vegetable Division, AMS, USDA, Washington, DC 20250.

From the time this hearing notice is issued and until the issuance of a final decision in a proceeding, Department employees involved in the decisional process are prohibited from discussing the merits of the hearing issues on an ex parte basis with any person having an interest in the proceeding. For this particular proceeding, the prohibition applies to employees in the following organizational units:

Office of the Secretary of Agriculture;
Office of the Administrator, Agricultural Marketing Service;
Office of the General Counsel, except Regional Attorneys;
Fruit and Vegetable Division, Agricultural Marketing Service.

Procedural matters are not subject to the above prohibition and may be discussed at any time.

Signed at Washington, DC, on December 16, 1985.

**William T. Manley,**

*Deputy Administrator, Marketing Programs.*

[FR Doc. 85-30124 Filed 12-19-85; 8:45 am]

BILLING CODE 3410-02-M

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

### 14 CFR Part 71

**[Airspace Docket No. 85-ANM-31M]**

## Proposed Alteration of Transition Area; Wenatchee, WA

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** This notice proposes to alter the transition area at Wenatchee, Washington, to accommodate a new VOR/DME-C instrument approach procedure to the Pangborn Field Airport at Wenatchee, Washington. This action is necessary to ensure segregation of aircraft using approach procedures in instrument weather conditions and other aircraft operating in visual weather conditions.

**DATE:** Comments must be received on or before February 10, 1986.

**ADDRESSES:** Send comments on the proposal to: Manager, Airspace & Procedures Branch, ANM-530, Federal Aviation Administration, Docket No. 85-ANM-31, 17900 Pacific Highway South, C-68966, Seattle, Washington 98168.

The official docket may be examined in the Regional Counsel's office at the same address.

An informal docket may also be examined during normal business hours at the address listed above.

**FOR FURTHER INFORMATION CONTACT:** Robert L. Brown, Airspace & Procedures Specialist, ANM-534, Federal Aviation Administration, Docket No. 85-ANM-31, 17900 Pacific Highway South, C-68966, Seattle, Washington 98168, The telephone number is (206) 431-2534.

**SUPPLEMENTARY INFORMATION:**

### Comments Invited

Interested parties are invited to participate in this proposed rulemaking by submitting such written data, views, or arguments as they may desire. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in developing reasoned regulatory decisions on the proposal. Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspect of the proposal. Communications should identify the airspace docket and be submitted to the address listed above. Commenters wishing the FAA to acknowledge receipt of their comments on this notice must submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comment to Airspace Docket No. 85-ANM-31". The postcard will be date/time stamped and returned to the commenter. All communications received before the specified closing date for comments will be considered before taking any action on the proposed rule. The proposal contained in this notice may be changed in the light of comments received. All comments submitted will be available for examination at the address listed above both before and after the closing date for comments. A report summarizing each substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket.

### Availability of NPRM's

Any person may obtain a copy of this Notice of Proposed Rulemaking (NPRM) by submitting a request to the Federal Aviation Administration, Airspace & Procedures Branch, 17900 Pacific Highway South, C-68966, Seattle, Washington, 98168. Communications must identify the notice number of this NPRM. Persons interested in being placed on a mailing list for future NPRM's should also request a copy of Advisory Circular 11-2 which describes the application procedure.

### The Proposal

The FAA is considering an amendment to § 71.181 of Part 71 of the Federal Aviation Regulations (14 CFR Part 71) to alter the 1200 foot and 700 foot transition area at Wenatchee, Washington. This action will expand the present transition area to provide controlled airspace for aircraft executing a new VOR/DME-C instrument approach procedure to the Pangborn Field Airport.

The FAA has determined that this proposed regulation only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep them operationally current. It, therefore—(1) is not a "major rule" under Exective Order 12291; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) does not warrant preparation of a regulatory evaluation as the anticipated impact is so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, it is certified that this rule, when promulgated, will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

**List of Subjects in 14 CFR Part 71**

Transition areas, Aviation Safety.

**The Proposed Amendment**

Accordingly, pursuant to the authority delegated to me, the Federal Aviation Administration (FAA) proposes to amend § 71.181 of Part 71 of the Federal Aviation Regulations (14 CFR Part 71) as follows:

**PART 71—[AMENDED]**

1. The authority citation for Part 71 continues to read as follows:

Authority: 49 U.S.C. 1354(a), 1354(a), 1510; E.O. 10854; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983); 14 CFR 11.69

**§ 71.181 [Amended]**

2. By amending § 71.181 as follows:

**Wenatchee, Washington, Transition Area [Revised]**

That airspace extending upward from 700 feet above the surface within 4 miles each side of the Wenatchee VOR 124° radial, extending from the VOR to 12.5 miles southeast of the VOR and that airspace between the 5-mile radius circle of the Pangborn Field Airport (lat. 47°23'56"N., long. 120°12'20"W.) and the 11 DME arc of the Wenatchee VOR/DME bounded by the north edge of V-120 clockwise to the Wenatchee VOR/DME 327° T (305° M) radial, including that airspace within a 1-mile radius of Francher Field, Washington, (lat. 47°26'55"N., long 120°16'40"W.); that airspace extending upward from 1,200 feet above the surface within 5 miles south and 8 miles north of the Wenatchee VOR 092° and 272° radials, extending from 7 miles west to 14 miles east of the VOR and within 5 miles southwest and 9.5 miles northeast of the 124° radial, extending from the VOR to 23 miles southeast of the VOR and that airspace between the 11 DME and the 19 DME arcs of the Wenatchee VOR/DME bounded by the north edge of V-120 clockwise to the Wenatchee VOR/DME 327° T (305° M) radial.

Issued in Seattle, Washington, on December 4, 1985.

**Wayne J. Barlow,**

*Acting Director, Northwest Mountain Region.*

[FR Doc. 85-30096 Filed 12-19-85; 8:45 am]

BILLING CODE 4910-13-M

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**DEPARTMENT OF THE TREASURY**

**Internal Revenue Service**

**26 CFR Part 1**

**[LR-92-73]**

## Recapture of Investment Credit for Mass Assets

**AGENCY:** Internal Revenue Service.

**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** This document contains proposed regulations relating to recapture of investment credit for mass assets. The amendment will allow provisions of new standard mortality dispersion tables and new rules for applying them so as to correct certain situations that resulted in inaccurate computations and to incorporate the rules under the Accelerated Cost Recovery System (ACRS). The regulations would provide specific rules for the treatment of mass assets which are recovery property governed by ACRS. In addition, the regulations would provide new rules for assigning individual lives to mass assets and assets similar in kind.

**DATES:** Written comments are requests for a public hearing must be delivered or mailed by February 18, 1986. The amendments would apply to assets placed in service in taxable years beginning 30 days after date of publication of the Treasury Decision in the **Federal Register** and are proposed to be effective on the same date, except as otherwise provided for property depreciated under the ACRS methods.

**ADDRESS:** Send comments and requests for a public hearing to: Commissioner of International Revenue, Attention: CC:LR:T (LR-92-73) Washington, DC 20224.

**FOR FURTHER INFORMATION CONTACT:** Sandra E. Wallach of the Legislation and Regulations Division, Office of the Chief Counsel, Internal Revenue Service, 1111 Constitution Avenue, NW., Washington, DC 20224, Attention: CC:LR:T (202-566-3458, not a toll-free number).

**SUPPLEMENTARY INFORMATION:**

**Background**

This document contains proposed amendments to the Income Tax Regulations (26 CFR Part 1) under sections 46 and 47 of the Internal Revenue Code of 1954.

The investment tax credit is allowed for certain depreciable property used in a trade or business. The amount of credit available is determined by reference to the depreciable life of the property. Recapture of a certain amount of the credit is required when the property is disposed of or ceases to be eligible for the credit with respect to the taxpayer before the end of its depreciable life (recapture period, in the case of recovery property). For most assets, it is easy to determine when the asset is retired or ceases to be eligible for the credit. The investment tax credit is available for certain other assets, however, which are fungible assets too numerous to be accounted for on an asset-by-asset basis. These assets are known as "mass assets." Special rules are required for recapture in the case of these mass assets. This project amends regulations setting out the rules for recapture for mass assets and updates the rules to include ACRS.

Under the existing regulations, taxpayers are allowed to determine statistically when mass assets are retired for recapture of investment credit. The determinations are based on mortality dispersion tables. The taxpayer may use its own mortality dispersion table or a standard mortality dispersion table prescribed by the Commissioner.

The proposed regulations contain two new standard mortality dispersion tables. One applies to non-recovery property (in general, property to which the ACRS depreciation methods do not apply) and the other to recovery property within the meaning of section 168. The proposed regulations also change the rules for applying mortality dispersion tables, for assigning individual useful lives to mass assets and assets similar in kind, and provide rules specifically applicable to recovery property.

**Recapture Determinations**

The existing standard mortality dispersion table is designed for recapture in the year assets are placed in service, based on expected retirements (front-end recapture). The new tables are designed for recapture in each year assets are expected to be retired (rear-end recapture). The proposed regulatios do not require taxpayers to account for actual retirements, other than abnormal or extraordinary retirements.

The existing regulations made no provision for application of a standard mortality dispersion table to recovery property. The proposed regulations would provide a standard mortality dispersion table specifically applicable to recovery property. In addition, the regulations would provide that an asset's present class life is to be used in determining retirements on the standard mortality dispersion table even though the recovery period (as defined in section 168 (c)) is determinative of the investment credit.

**Grouping of Mass Assets**

The existing regulations allow taxpayers to place assets with different lives in the same mass assets account. Recapture determination under a mortality dispersion table are based on the average life of the account. Thus, taxpayers may shield assets with shorter lives from recapture because the assets with longer lives increase the

average life of the account. In order to remove this potential for abuse, the proposed regulations require that all mass assets in an account have the same useful life, or the same present class life and recovery period in the case of recovery property.

The existing regulations require taxpayers to maintain sufficient records on which to substantiate the accuracy of the retirement statistics used in establishing their own mortality dispersion tables. The proposed regulations continue to require these records and, in addition, state that, if a taxpayer fails to maintain adequate records, the Service will determine recapture based on the standard mortality dispersion table.

The proposed regulations require that a mass asset account contain only assets placed in service in the same taxable year (closed-end or vintage accounts). In the case of property that is subject to an election under section 167 (m) or that is recovery property, this rule conforms these regulations to the regulations under sections 167 (m) and 168. In the case of property that is not ADR or recovery property this rule imposes a new requirement. Due to the change to rear-end recapture, the use of the open-end accounts distorts the retirement figures determined under a mortality dispersion table because, for example, some assets in the account may be in the first year since they were placed in service while others are in the second or third year. In the interest of accurate administration of the mortality dispersion tables, the proposed regulations require the use of closed-end accounts for all mass assets.

### Assets Similar in Kind

The existing regulations allow taxpayers to assign separate lives to certain assets placed in multiple asset accounts. In determining investment credit for assets similar in kind, the taxpayer may assign each asset the average useful life used in computing the allowance for depreciation. Alternatively, the taxpayer may assign the assets different lives based on the range of estimated lives used in determining the average life. This allows taxpayers to receive investment credit for some assets in an account based on a useful life greater than the average life of those assets. This rule is inconsistent with section 46 (c) which requires that taxpayers use the period used for depreciation in determining investment credit. In computing the allowance for depreciation, assets placed in a multiple asset account must, in general, be assigned the average life of the account. See example 2 of paragraph (b) of § 1.167 (b)–1. Therefore, in order that the investment credit be determined based on the same life used for depreciation, under the proposed regulations, taxpayers must assign to each asset in the account the average life of the assets.

### Effective Dates

The amendments to the existing regulations relating to assignment of individual lives and recapture of credit taken for non-recovery property (in general, property to which the ACRS depreciation methods do not apply) are applicable prospectively only.

The new rules added for recovery property apply to all property depreciated under the ACRS methods (*i.e.*, recovery property placed in service on or after January 1, 1981).

### Comments and Requests for a Public Hearing

Before adopting these proposed regulations, consideration will be given to any written comments that are submitted (preferably eight copies) to the Commissioner of Internal Revenue. All comments will be available for public inspection and copying. A public hearing will be held upon written request to the Commissioner by any person who has submitted written comments. If a public hearing is held, notice of the time and place will be published in the **Federal Register**. The collection of information requirements contained herein have been submitted for OMB review under the Paperwork Reduction Act, and comments on them should be sent to the Office of Information and Regulatory Affairs of OMB, Attn: Desk Officer for Internal Revenue Service, New Executive Office Bldg, Washington, DC 20503. The Internal Revenue Service requests persons submitting comments to OMB to also send copies of the comments to the Service.

### Executive Order 12291 and Regulatory Flexibility Act

The Commissioner of Internal Revenue has determined that this proposed rule is not a major rule as defined in Executive Order 12291 and that a Regulatory Impact Analysis is therefore not required. Although this document is a notice of proposed rulemaking which solicits public comment, the Internal Revenue Service has concluded that the regulations proposed herein are interpretative and that the notice and public procedure requirements of 5 U.S.C. 553 do not apply. Accordingly, these proposed regulations do not constitute regulations subject to the Regulatory Flexibility Act (5 U.S.C. chapter 6).

### Drafting Information

The principal author of these proposed regulations is Sandra E. Wallach of the Legislation and Regulations Division of the Office of Chief Counsel, Internal Revenue Service. However, personnel from other offices of the Internal Revenue Service and Treasury Department participated in developing the regulations, both on matters of substances and style.

### List of Subjects in 26 CFR 1–0—1.58–8

Income taxes, Tax liability, Tax rates, Credits.

### Proposed Amendments to the Regulations

The proposed amendment to 26 CFR Part 1 are as follows:

## PART 1—[AMENDED]

**Paragraph 1.** The authority for Part 1 continues to read in part:

Authority: 26 U.S.C. 7805. * * * Section 1.48–1 also issued under 26 U.S.C. 38 (b) (as in effect before the amendments made by Subtitle F of the Tax Reform Act of 1984) and 26 U.S.C. 47.

**Par. 2.** Section 1.46–3 is amended as follows:

1. Paragraph (i) is added and reserved.

2. Paragraphs (e)(1) through (e)(6) are redesignated paragraphs (j)(1) through (j)(6), respectively.

3. The heading of paragraph (j), as redesignated, is revised to read: "(j) *Estimated useful life of property not described in paragraph (e)(8) of this section*—".

4. Paragraph (e)(7) is removed.

5. A new paragraph (e) is added to read as follows:

### § 1.46–3 Qualified investment.

* * * * *

(e) *Useful life/recovery period*—(1) *In general.* For purposes of computing qualified investment in property that is not recovery property (within the meaning of section 168) the useful life of such property to be used in determining the applicable percentage to be applied to its basis or cost is the life used or to be used by the taxpayer in computing ther allowance for depreciation with respect to such property for the taxable year in which the property is placed in service. Thus, if property is placed in service by a taxpayer in a taxable year but the period for depreciation with respect to such property does not begin until a succeeding taxable year (see paragraph (d)(1) of this section), the useful life for purposes of computing

qualified investment must be the useful life that the taxpayer uses in computing the allowances for depreciation. See paragraph (e)(6) of this section for rules for determining the useful life of property with respect to which the allowance for depreciation is computed under the unit of production method, the income-forecast method, or any other method which does not measure the useful life of the property in terms of years. For purposes of computing qualified investment in recovery property (within the meaning of section 168) the class of recovery property which applies to such property (as determined under section 168(c)) is determinative of the applicable percentage to be applied to its basis or cost.

(2) *Individual life.* (i) In order to determine qualified investment for multiple asset accounts (or single asset accounts for which an average life rate is used) it is necessary to determine the average life of the account. In order to determine average life, each asset which is section 38 property must be assigned an individual life. The rules for assigning individual lives to section 38 property are set forth below.

(ii) The individual life of any section 38 property to which an election under section 167(m) applies is the present class life selected for such property under § 1.167(a)-11 (b)(4), whether or not such property constitutes mass assets (as defined in §1.47-1(g)(2)).

(iii) The individual life of section 38 property described in this paragraph (e)(2)(iii) is determined for each asset on the best estimate obtainable on the basis of all the facts and circumstances. The individual life for each asset placed in a multiple asset account (including a mass asset account) must be the same as the useful life of such asset used in determining the group, classified, or composite life for the account for purposes of computing depreciation. Property is described in this paragraph (e)(2)(iii) if:

(*a*) it is not recovery property within the meaning of section 168;

(*b*) no election under section 167(m) is applicable to the property; and

(*c*) it is placed in a multiple asset account for which a group, classified, or composite rate is used in computing depreciation (or in single asset accounts for which an average life rate is used).

(iv) The individual life for recovery property within the meaning of section 168 is the recovery period which applies to such property as determined under section 168(c).

(3) *Assets similar in kind.* (i) For assets similar in kind contained in a multiple asset account (or in a single asset account for which an average life rate is used) and placed in service in taxable years beginning on or after [30 days after publication of this Treasury Decision in the **Federal Register**], the taxpayer must assign to each of those assets the average life of those assets used in computing the allowance for depreciation. Thus no assets may receive investment credit for a life longer than the average life of the assets in the account. For example, assume the taxpayer places 10 similar trucks in a multiple asset account for which a group rate is used in computing the allowance for depreciation. The trucks have an average useful life of 6 years, based on an estimated range of 5 to 7 years. The taxpayer must assign each asset a useful life of 6 years, even though some assets in the account are expected to remain in service for more than 6 years. For assets similar in kind that are placed in service in taxable years beginning before [30 days after publication of this Treasury Decision in the **Federal Register**], the rules contained in paragraph (e)(3) (ii) and (iv) of 26 CFR 1.46-3 (revised as of April 1, 1983) apply.

(ii) For purposes of paragraph (e)(3)(i) of this section, assets shall not be considered as "similar in kind" in respect of other assets unless all such assets are substantially of the same value, nor shall used section 38 property be considered as "similar in kind" to new section 38 property.

(4) *Mass assets.* For "mass assets" (as defined in paragraph (g)(2) of § 1.47-1) placed in service in taxable years beginning on or after [30 days after publication of this Treasury Decision in the **Federal Register**], each asset must be assigned the life of the account, even if a mortality dispersion table indicates that some assets are expected to remain in service longer than the life of the account. See paragraphs (g)(3) and (h)(2) of § 1.47-1 regarding the grouping of mass assets. For mass assets placed in service in taxable years beginning before [30 days after publication of this Treasury Decision in the **Federal Register**], the rules contained in paragraph (j)(3)(iii) of this section apply.

(5) *Useful life of property subject to amortization.* In the case of property with respect to which amortization in lieu of depreciation is allowable, the term over which amortization deductions are taken shall be considered as the useful life of such property.

(6) *Useful life of property subject to certain methods of depreciation.* If a taxpayer is using a method of depreciation, such as the unit of production or retirement method, which does not measure the useful life of the property in terms of years, he must estimate such useful life in years in order to compute his qualified investment.

(7) *Record requirements.* The taxpayer shall maintain sufficient records to determine whether section 47 (relating to certain dispositions, etc., of section 38 property) applies with respect to any asset.

(8) *Effective dates.* The provisions in paragraphs (e) (1) through (7) of this section apply only to property—

(i) the construction, reconstruction, or erection of which—

(*a*) Is completed by the taxpayer after August 15, 1971, or

(*b*) Is begun by the taxpayer after March 31, 1971, or

(ii) which is acquired by the taxpayer—

(*a*) After August 15, 1971, or

(*b*) After March 31, 1971, and before August 16, 1971, pursuant to an order which the taxpayer establishes was placed after March 31, 1971.

For property not described in this paragraph (e)(8), the rules in paragraphs (j) (1) through (6) of this section apply.

* * * * *

**Par. 3.** Section 1.47-1 is amended as follows:

1. The heading of paragraph (a)(1) is revised to read as follows: "*Property which is not recovery property within the meaning of section 168.*"

2. The first sentence of paragraph (a)(1)(i) is amended by adding the language "which is not recovery property within the meaning of section 168 (see paragraph (a)(3) of this section for special rules for recovery property within the meaning of section 168)" after the phrase "section 38 property" and before the phrase "the basis (or cost)".

3. The last sentence of paragraph (a)(1)(i) is amended by removing the language "paragraph (h)" and adding in its place the language "paragraph (l)".

4. Paragraph (a) is amended by adding a new paragraph (a)(3) to read "(3) *Special rules for recovery property within the meaning of section 168.* [Reserved]."

5. Paragraphs (f), (g) and (h) are redesignated (j), (k), and (l), respectively.

6. Paragraph (e) is amended by—

a. Redesignating paragraphs (e)(2) through (e)(5) as paragraphs (f)(1) thorugh (f)(4);

b. Removing the heading for paragraph (e)(1), and redesignating paragraphs (e)(1), (i), (ii), and (iii) as paragraphs (e) (1), (2), and (3), respectively;

c. Revising redesignated paragraphs (e)(1) and (2)(2), and the introductory text of redesignated paragraph (e)(3), to read as follows:

**§ 1.47-1 Recomputation of credit allowed by section 38.**

* * * * *

(e) *Identification of property*—(1) *Record requirements.* In general, the taxpayer must maintain records from which he can establish, with respect to each item of section 38 property, the following facts:

(i) The date the property is disposed of or otherwise ceases to be section 38 property,

(ii) The estimated useful life or recovery period in the case of recovery property (within the meaning of section 168) which was assigned to the property under paragraph (e) of § 1.46-3,

(iii) The month and the taxable year in which the property was placed in service and,

(iv) The basis (or cost), actually or reasonably determined, of the property.

(2) *Recapture determination.* For purposes of determining whether section 38 property is disposed of, or otherwise ceases to be section 38 property with respect to the taxpayer, before the close of its estimated useful life or recovery period in the case of recovery property (within the meaning of section 168), and for purposes of determining recomputed qualified investment, the taxpayer must establish from his records the facts required by paragraph (e)(1) of this section.

(3) *Examples.* If the taxpayer fails to maintain records from which he can establish the facts required by paragraph (e)(1) of this section, then this section shall be applied to the taxpayer in the manner indicated in the following examples:

* * * * *

7. Paragraph (i) is added and reserved.

8. A new heading is added to redesignated paragraph (f), and the heading for redesignated paragraph (f)(1) is revised, to read as follows: "(f) *Treatment of mass assets placed in service in taxable years beginning before [30 days after publication of this treasury decision in the "Federal Register"]*—(1) *In general.*".

9. Paragraph (f)(1)(i), as redesignated, is amended by removing the language "in the case of mass assets (as defined in subparagraph (4) of this paragraph)" from the first sentence and adding in its place the language "for mass assets (as defined in paragraph (f)(3) of this section) placed in service in taxable years beginning before [30 days after publication of this Treasury Decision in the **Federal Register** ]" and by removing the language "facts required by subparagraph (1) of this paragraph," from the first sentence and adding in its place the language "facts required by paragraph (e) of this section.".

10. Paragraph (f)(1)(ii)(*a*), as redesignated, is amended by removing the language "(e)(3)(ii)(*b*)" and adding in its place the language "(j)(3)(ii)(*b*)".

11. Paragraph (f)(1)(iii), as redesignated, is amended by removing the language "§ 1.46-3(e)(3)(iii)" and adding in its place the language "§ 1.46-3(j)(3)(iii)".

12. In redesignated paragraph (f)(1)(v), paragraph (*c*) of the example is amended by removing the language "(3)(iv)" from the last sentence and adding in its place the language "(2)(iv)".

13. Paragraph (f)(2)(i), as redesignated, is amended by removing, in the first sentence, the language "§ 1.46-3(e)(3)(ii)(*b*) or (iii)" and adding in its place the language "§ 1.46-3(j)(3) (ii)(*b*) or (iii)".

14. Paragraph (f)(2)(ii), as redesignated, is amended by removing, in the first sentence, the language "§ 1.46-3(e)(3)(iii)" and adding in its place the language "1.46-3(j)(3)(iii)".

15. Paragraph (f)(2)(iii), as redesignated, is amended by removing from the first sentence in the introductory text and from paragraph (f)(2)(iii)(*a*) the language "(e)(3)(ii)(*b*)" and adding in its place the language "(j)(3)(ii)(*b*)", and by removing from the second sentence of the introductory text the language "subparagraph (1)(i) of this paragraph" and adding in its place the language "paragraph (e)(1) of this section".

16. Paragraph (f)(2)(iv) is amended by removing the language "§ 1.46-3(e)(3)(ii)(*b*) or (iii)" and adding in its place the language "§ 1.46-3(j)(3) (ii)(*b*) or (iii)".

17. Paragraph (f)(3), as redesignated, is amended by removing in the first sentence the language "(e)(3)(iii)" and adding in its place the language "(j)(3)(iii)".

18. Paragraphs (f)(4) (ii), (iii), and (iv), as redesignated, are amended by removing the language "(3)(i)" and adding in its place the language "(2)(i)".

19. New paragraphs (g) and (h) are added to read as follows:

**§ 1.47-1 Recomputation of credit allowed by section 38.**

* * * * *

(g) *Treatment of mass assets which are not recovery property for taxable years beginning on or after [30 days after publication of this Treasury Decision in the* **Federal Register***]*—(1) *In general.* (i) For mass assets which are not recovery property within the meaning of section 168 and are placed in service in taxable years beginning on or after [30 days after publication of this Treasury Decision in the **Federal Register**] the taxpayer may use its own mortality dispersion table or a standard mortality dispersion table prescribed by the Commissioner to recompute qualified investment for mass assets (as defined in paragraph (g)(2) of this section). The taxpayer must then use whichever table was chosen to determine the number of assets expected to be retired each year after the assets are placed in service. Recapture determinations must be made at the end of each taxable year in which assets are expected to be retired before the end of the useful life used to determine qualified investment. Taxpayers may rely on the table and, in general, do not need to account for actual retirements.

(ii) If the taxpayer uses its own mortality dispersion table, the table must be based on an acceptable survey of the taxpayer's actual experience and on appropriate statistical methods. The survey of the taxpayer's actual experience must be based on a sample of not less than 250 items. The taxpayer must maintain records showing the historical data used to develop the table. If the taxpayer does not maintain adequate records, the standard mortality dispersion table will be used to recompute qualified investment. The taxpayer may not use its own table for assets placed in service in a taxable year, unless the table was prepared before the beginning of that year. For example, assume a calendar year taxpayer completes preparation of its own table on July 1, 1979. It may use the table for assets placed in service in 1980, but not for assets placed in service in 1979.

(iii) A taxpayer may use the standard mortality dispersion table for one mass asset account and its own table for a different mass asset account. However, if the taxpayer applies a table to a mass asset account in any taxable year, the taxpayer must treat a subsequent change to another table for that account as a change of accounting methods under section 446(e) and obtain consent of the Commissioner.

(2) *Definition of mass assets.* The term "mass assets" means a mass or group of individual items of section 38 property (i) not necessarily homogeneous, (ii) each of which is minor in value relative to the total value of such mass or group, (iii) numerous in quantity, (iv) usually accounted for only on a total dollar or quantity basis, (v) with respect to which separate identification is impracticable, (vi) with the same useful life (in the case

of recovery property, with the same present class life and recovery period) and (vii) placed in service in the same taxable year.

(3) *Grouping of mass assets.* In general, items in a mass asset account need not be of a similar type although they must have the same useful life. See paragraph (e) of § 1.46–3 for rules for assigning useful lives to mass assets. For example, hammers and saws with useful lives of 4 years may be put in the same account. Hammers with useful lives of 5 years, however, may not be put in an account with hammers with useful lives of 4 years. However, if a taxpayer uses its own mortalitiy dispersion table, all assets in an account must have approximately the same basis or cost. All mass assets in an account must be treated as placed in service (within the meaning of § 1.46–3(d)) on the same date. Taxpayers must use appropriate averaging conventions to determine the date mass assets are placed in service. See paragraph (c)(2) of this section, paragraph (b) of § 1.167(a)–10 for property not subject to an election under section 167(m), and paragraph (c)(2) of § 1.167(a)–11 for property subject to an election under section 167(m).

(4) *Useful life.* The useful life of mass assets used in computing the allowance for depreciation must be used in applying the taxpayer's mortality dispersion table or the standard mortality dispersion table. See paragraph (e) of § 1.46–3 for rules for assigning useful lives to mass assets. For example, if the taxpayer computes the depreciable life of mass assets under section 167(m), it must use the same depreciable life in applying the standard mortality dispersion table.

(5) *Standard mortality dispersion table.* The standard mortality dispersion table prescribed by the Commissioner and set forth below is based on whole- and half-year average useful life categories. Each category contains 30 columns. Each column shows the percentage of basis or cost in a mass asset account expected to be retired in each of the first 30 years after the property is placed in service. The table is set forth below:

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STANDARD MORTALITY DISPERSION TABLE

PERCENTAGE OF BASIS OR COST OF MASS ASSET ACCOUNT CONSIDERED DISPOSED OF EACH 12-MONTH PERIOD AFTER THE ACCOUNT IS PLACED IN SERVICE

| Average Useful Life (Years) | 1st (1) | 2nd (2) | 3rd (3) | 4th (4) | 5th (5) | 6th (6) | 7th (7) | 8th (8) | 9th (9) | 10th (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 2.28 | 13.59 | 34.13 | 34.13 | 13.59 | 2.28 | - | - | - | - |
| 3.5 | 1.62 | 8.23 | 23.51 | 33.28 | 23.51 | 8.23 | 1.62 | - | - | - |
| 4 | 1.22 | 5.46 | 15.98 | 27.34 | 27.34 | 15.98 | 5.46 | 1.22 | - | - |
| 4.5 | .99 | 3.76 | 11.12 | 21.20 | 25.86 | 21.20 | 11.12 | 3.76 | .99 | - |
| 5 | .82 | 2.77 | 7.92 | 15.91 | 22.58 | 22.58 | 15.91 | 7.92 | 2.77 | .82 |
| 5.5 | .71 | 2.10 | 5.88 | 11.92 | 18.75 | 21.28 | 18.75 | 11.92 | 5.88 | 2.10 |
| 6 | .62 | 1.66 | 4.40 | 9.19 | 14.98 | 19.15 | 19.15 | 14.98 | 9.19 | 4.40 |
| 6.5 | .55 | 1.33 | 3.38 | 7.25 | 12.00 | 16.39 | 18.20 | 16.39 | 12.00 | 7.25 |
| 7 | .51 | 1.11 | 2.74 | 5.49 | 9.64 | 13.87 | 16.64 | 16.64 | 13.87 | 9.64 |
| 7.5 | .47 | .92 | 2.20 | 4.49 | 7.79 | 11.55 | 14.65 | 15.86 | 14.65 | 11.55 |
| 8 | .44 | .78 | 1.85 | 3.61 | 6.46 | 9.52 | 12.91 | 14.43 | 14.43 | 12.91 |
| 8.5 | .40 | .70 | 1.52 | 2.97 | 5.16 | 8.19 | 10.87 | 13.05 | 14.28 | 13.05 |
| 9 | .38 | .61 | 1.29 | 2.47 | 4.43 | 6.69 | 9.27 | 11.93 | 12.93 | 12.93 |
| 9.5 | .37 | .52 | 1.13 | 2.07 | 3.69 | 5.57 | 8.13 | 10.44 | 11.72 | 12.72 |
| 10 | .35 | .47 | .97 | 1.80 | 3.09 | 4.83 | 6.90 | 9.01 | 10.79 | 11.79 |
| 11 | .32 | .39 | .75 | 1.35 | 2.24 | 3.64 | 5.10 | 6.82 | 8.51 | 10.24 |
| 12 | .30 | .32 | .60 | 1.06 | 1.73 | 2.67 | 3.88 | 5.31 | 6.79 | 8.19 |
| 13 | .28 | .27 | .49 | .84 | 1.34 | 2.04 | 3.12 | 4.13 | 5.37 | 6.63 |
| 14 | .27 | .24 | .40 | .71 | 1.06 | 1.68 | 2.32 | 3.17 | 4.38 | 5.26 |
| 15 | .26 | .21 | .35 | .57 | .89 | 1.31 | 1.89 | 2.60 | 3.43 | 4.36 |
| 16 | .25 | .18 | .29 | .49 | .75 | 1.10 | 1.48 | 2.13 | 2.83 | 3.38 |
| 17 | .24 | .16 | .28 | .42 | .60 | .92 | 1.30 | 1.67 | 2.34 | 2.82 |
| 18 | .23 | .15 | .24 | .37 | .51 | .78 | 1.08 | 1.39 | 1.93 | 2.50 |
| 19 | .23 | .14 | .20 | .32 | .47 | .66 | .92 | 1.15 | 1.61 | 2.08 |
| 20 | .22 | .13 | .19 | .28 | .40 | .57 | .77 | 1.03 | 1.36 | 1.73 |
| 25 | .20 | .09 | .12 | .18 | .23 | .31 | .41 | .53 | .67 | .85 |
| 30 | .19 | .07 | .09 | .12 | .15 | .20 | .25 | .32 | .40 | .49 |

| Average Useful Life (Years) | 11th (11) | 12th (12) | 13th (13) | 14th (14) | 15th (15) | 16th (16) | 17th (17) | 18th (18) | 19th (19) | 20th (20) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | - | - | - | - | - | - | - | - | - | - |
| 3.5 | - | - | - | - | - | - | - | - | - | - |
| 4 | - | - | - | - | - | - | - | - | - | - |
| 4.5 | - | - | - | - | - | - | - | - | - | - |
| 5 | - | - | - | - | - | - | - | - | - | - |
| 5.5 | .71 | - | - | - | - | - | - | - | - | - |
| 6 | 1.66 | .62 | - | - | - | - | - | - | - | - |
| 6.5 | 3.38 | 1.33 | .55 | - | - | - | - | - | - | - |
| 7 | 5.49 | 2.74 | 1.11 | .51 | - | - | - | - | - | - |
| 7.5 | 7.70 | 4.49 | 2.20 | .92 | .47 | - | - | - | - | - |
| 8 | 9.52 | 6.46 | 3.61 | 1.85 | .78 | .44 | - | - | - | - |
| 8.5 | 10.87 | 8.19 | 5.16 | 2.97 | 1.52 | .70 | .40 | - | - | - |
| 9 | 11.93 | 9.27 | 6.69 | 4.43 | 2.47 | 1.29 | .61 | .38 | - | - |
| 9.5 | 11.72 | 10.44 | 8.13 | 5.57 | 3.69 | 2.07 | 1.13 | .52 | .37 | - |
| 10 | 11.79 | 10.79 | 9.01 | 6.90 | 4.83 | 3.09 | 1.80 | .97 | .47 | .35 |
| 11 | 10.64 | 10.64 | 10.24 | 8.51 | 6.82 | 5.10 | 3.64 | 2.24 | 1.35 | .75 |
| 12 | 9.28 | 9.87 | 9.87 | 9.28 | 8.19 | 6.79 | 5.31 | 3.88 | 2.67 | 1.73 |
| 13 | 7.77 | 8.62 | 9.10 | 9.10 | 8.62 | 7.77 | 6.63 | 5.37 | 4.13 | 3.12 |
| 14 | 6.62 | 7.25 | 8.32 | 8.32 | 8.32 | 8.32 | 7.25 | 6.62 | 5.26 | 4.38 |
| 15 | 5.32 | 6.23 | 7.04 | 7.61 | 7.93 | 7.93 | 7.61 | 7.04 | 6.23 | 5.32 |
| 16 | 4.22 | 5.30 | 6.11 | 6.80 | 6.89 | 7.54 | 7.54 | 6.89 | 6.80 | 6.11 |
| 17 | 3.71 | 4.48 | 4.94 | 5.93 | 6.51 | 6.54 | 7.14 | 7.14 | 6.54 | 6.51 |
| 18 | 3.12 | 3.57 | 4.46 | 4.81 | 5.71 | 6.19 | 6.21 | 6.75 | 6.75 | 6.21 |
| 19 | 2.60 | 2.97 | 3.76 | 4.37 | 4.96 | 5.48 | 5.53 | 6.19 | 6.36 | 6.36 |
| 20 | 2.17 | 2.66 | 3.18 | 3.72 | 4.25 | 4.76 | 5.22 | 5.57 | 5.83 | 5.96 |
| 25 | 1.06 | 1.29 | 1.55 | 1.85 | 2.18 | 2.50 | 2.84 | 3.19 | 3.54 | 3.84 |
| 30 | .59 | .72 | .87 | 1.02 | 1.20 | 1.40 | 1.60 | 1.83 | 2.06 | 2.30 |

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| Average Useful Life (Years) | 21st (21) | 22nd (22) | 23rd (23) | 24th (24) | 25th (25) | 26th (26) | 27th (27) | 28th (28) | 29th (29) | 30th (30) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | - | - | - | - | - | - | - | - | - | - |
| 3.5 | - | - | - | - | - | - | - | - | - | - |
| 4 | - | - | - | - | - | - | - | - | - | - |
| 4.5 | - | - | - | - | - | - | - | - | - | - |
| 5 | - | - | - | - | - | - | - | - | - | - |
| 5.5 | - | - | - | - | - | - | - | - | - | - |
| 6 | - | - | - | - | - | - | - | - | - | - |
| 6.5 | - | - | - | - | - | - | - | - | - | - |
| 7 | - | - | - | - | - | - | - | - | - | - |
| 7.5 | - | - | - | - | - | - | - | - | - | - |
| 8 | - | - | - | - | - | - | - | - | - | - |
| 8.5 | - | - | - | - | - | - | - | - | - | - |
| 9 | - | - | - | - | - | - | - | - | - | - |
| 9.5 | - | - | - | - | - | - | - | - | - | - |
| 10 | - | - | - | - | - | - | - | - | - | - |
| 11 | .39 | .32 | - | - | - | - | - | - | - | - |
| 12 | 1.06 | .60 | .32 | .30 | - | - | - | - | - | - |
| 13 | 2.04 | 1.34 | .84 | .49 | .27 | .28 | - | - | - | - |
| 14 | 3.17 | 2.32 | 1.68 | 1.06 | .71 | .40 | .24 | .27 | - | - |
| 15 | 4.36 | 3.43 | 2.60 | 1.89 | 1.31 | .89 | .57 | .35 | .21 | .26 |
| 16 | 5.30 | 4.22 | 3.63 | 2.83 | 2.13 | 1.48 | 1.10 | .75 | .49 | .29 |
| 17 | 5.93 | 4.94 | 4.48 | 3.71 | 2.82 | 2.34 | 1.67 | 1.30 | .92 | .60 |
| 18 | 6.19 | 5.71 | 4.81 | 4.46 | 3.57 | 3.12 | 2.50 | 1.93 | 1.39 | 1.08 |
| 19 | 6.19 | 5.53 | 5.48 | 4.96 | 4.37 | 3.76 | 2.97 | 2.60 | 2.08 | 1.61 |
| 20 | 5.96 | 5.83 | 5.57 | 5.22 | 4.76 | 4.25 | 3.72 | 3.18 | 2.66 | 2.17 |
| 25 | 4.13 | 4.38 | 4.58 | 4.70 | 4.78 | 4.78 | 4.70 | 4.58 | 4.38 | 4.13 |
| 30 | 2.54 | 2.78 | 3.01 | 3.23 | 3.42 | 3.61 | 3.75 | 3.86 | 3.95 | 3.98 |

The following notes explain the derivation of the table:

(i) The table is based on normal probability distribution. A normal distribution is characterized by a symmetrical dispersion of assets around the average. The equation of the normal probability distribution is—

$$\left( Y = \frac{N}{\sigma\sqrt{2\pi}} \right) \times \left( e^{z} \right)$$

The symbols in the equation are as follows:

N = the number of mass assets in the group

$\sigma$ = the standard deviation of the normal distribution

$\pi$ = the constant 3.14159

$$z = -\tfrac{1}{2}\,\frac{(X - \bar{X})^2}{2}$$

e = the constant 2.71828

x = an independent variable

$\bar{X}$ = mean or average of the mass assets in the group (average useful life)

$(x - \bar{X})$ = the deviation of x from the mean or average of the mass assets in the group

$\sigma 2$ = the variance of x

(ii) The range of expected useful lives is assumed to extend from the time of acquisition (1×3 Standard Deviations) to double the average useful life (3 Standard Deviations). Practically all cases (99.73 percent) fall within the (−3 Standard Deviation range under the assumption of a normal probability distribution. The first year mortality figures shown in the table for assets with a long average useful life are greater than those shown for one or more of the succeeding years. In addition, the last year mortality figures shown in the table for assets with a long average useful life are greater than those shown for one or more of the preceeding years. The reason is that the tails (beginning and ending years) of the distribution have been adjusted so that 100 percent of the assets (and not 99.73 percent) are included within the range of useful lives.

(6) *Recapture determinations.* A recapture determination must be made at the end of each taxable year in which assets are expected to be retired before the end of the useful life used to determine qualified investment. The percentage of basis or cost in a mass asset account expected to be retired under the taxpayer's mortality dispersion table or under a standard mortality dispersion table will be considered disposed of ratably over the year. The taxpayer is not required to account for actual retirements other than abnormal or extra-ordinary retirements. See paragraph (b) of § 1.67(a)-8 for definitions of abnormal retirements of non-recovery property that is not subject to an election under section 167 (m). See paragraph (d)(3)(ii) of § 1.167 (a)-11 for definitions of extraordinary retirements of non-recovery property subject to an election under section 167 (m).

(7) *Example.* Paragraph (g)(6) of this section may be illustrated by the following example.

*Example.* (i) A calendar year taxpayer placed 1000 assets which are not recovery property in service in 1984. Taxpayer established a single mass asset account for these assets. Under the taxpayer's averaging convention the taxpayer uses July 1 as the assumed date of all additions to mas asset accounts. The assets have estimated useful lives of 3 years. The unadjusted basis in the account is $10,000.

(ii) The standard mortality dispersion table indicates that 2.28% of basis will be considered retired in the first year, 13.59% more will be considered retired in the second year, and 34.13% will be considered retired in the third year. The remaining 50% of basis will be in service for 3 years or more.

(iii) For 1984, no credit is allowed for 1.14% of the basis in the account, because 1984 is the taxable year the assets were placed in service. The standard mortality dispersion table indicates that 2.28% of basis is expected to be retired in the first year after the assets were placed in service. Since the assets were not considered placed in service until July 1, only 50 percent, or a 6-month ratable portion, of the 2.28% of basis is considered disposed of in 1984. The remaining 1.14% will be considered disposed of over the first half of 1985. Qualified investment for the remaining 98.86% is $3,295., which is 33⅓ percent of the basis attributable to that portion of the account.

(iv) For 1985, credit for 7.94% of the basis placed in service has to be recaptured. Of the 2.28% indicated by the standard mortality dispersion table to be disposed, of in the first year, 1.14%, or a 6-month ratable portion, will be considered disposed of in the first half of 1985. Of the 113.59% indicated by the table to be disposed of in the second year, 6.8%, or a 6-month ratable portion, will be considered disposed of in the second half of 1985. Removing the qualified investment with respect to 7.94% of the account from the $9886. for which the credit was allowed in year 1 results in a qualified investment of $3030.36 (33⅓% of $9092). Thus, the credit allowed is $303.04, as compared to a $329.50 credit "allowable" for the full basis placed in the account. The decrease in allowable credit and, therefore, the amount recaptured is $26.46.

(v) For 1986, credit for 23.87% of the basis placed in service has to be recaptured. Of the 13.59% indicated by the standard mortality dispersion table to be disposed of in the second year, 6.8% or a 6-month ratable portion, will be considered disposed of in the first half of 1986. Of the 34.13% indicated by the table to be disposed of in the third year, 17.07% or a 6-month ratable portion, will be considered disposed of in the second half of 1986. Removing the qualified investment with respect to 23.87% of the account from the $9886. for which the credit was allowed in year 1 results in a qualified investment of $2499.42 (33⅓% of $7499.). Thus, the credit allowed is $249.94, as compared to a $329.50 credit "allowable" for the full basis placed in the account. The decrease in allowable credit and, therefore, the amount recaptured is $79.56.

(vi) For 1987, credit for 17.07% of the basis placed in service has to be recaptured. Of the 34.13% indicated by the standard mortality dispersion table to be disposed of in the third year, 17.07%, or a 6-month ratable portion, will be considered disposed of in the first half of 1987. Removing the qualified investment with respect to 17.07% of the account from the

$9886, for which the credit was allowed in year 1 results in a qualified investment of $2726.06 (33⅓% of $8179.). Thus, the credit allowed is $272.61, as compared to a $329.50 credit "allowable" for the full basis placed in the account. The decrease in allowable credit and, therefore, the amount recaptured is $56.89.

(vii) None of the credit is recaptured for the precent of basis disposed of after June 30, 1987

(h) *Treatment of mass assets which are recovery property within the meaning of section 168*—(1) *In general.* (i) For mass assets (as defined in paragraph (g)(2) of this section) which are recovery property within the meaning of section 168, the taxpayer must determine dispositions of assets from a mass asset account by the use of an appropriate mortality dispersion table. Such table must be used to determine the number of assets expected to be retired each year after the assets are placed in service. Recapture determinations must be made at the end of each taxable year in which assets are expected to be retired before the end of the recapture period (as defined in subsection (a)(5)(E)(ii) of section 47).

(ii) The taxpayer may use its own mortality dispersion table prescribed by the Commissioner. The taxpayer's own mortality dispersion table or a standard mortaility dispersion table must be based on an acceptable survey of the taxpayer's actual experience and on appropriate statistical methods. The survey of the taxpayer's actual experience must be based on a sample of not less than 250 items. The taxpayer must maintain records showing the historical data used to develop the table. If the taxpayer does not maintain adequate records, the standard mortality dispersion table will be used to determine dispositions of assets from a mass account. The taxpayer may not use its own table for assets placed in service in a taxable year unless the table was prepared before the beginning of that year. For example, assume a calendar year taxpayer completes preparation of its own table on July 1, 1981. It may use the table for assets placed in service in 1982, but not for assets placed in service in 1981.

(iii) A taxpayer may use the standard mortality dispersion table for one mass asset account and its own table for a different mass asset account. However, if the taxpayer applies to a mass asset account in any taxable year, the taxpayer must treat a subsequent change to another table for that account as a change of accounting methods under section 446(e) and obtain consent of the Commissioner.

(2) *Grouping of mass assets.* In general, all items in a mass asset account must have the same present class life (as defined in § 1.167 (a)–11(b)(4)) and the same recovery period but need not be of a similar type. However, if a taxpayer uses its own mortality dispersion table, all assets in an account must have approximately the same cost. For purposes of applying a mortality dispersion table, all assets placed in service during a taxable year will be considered to be placed in service on the first day of the second half of the taxable year.

(3) *Present class life.* The present class life of the assets placed in a mass asset account must be used in applying either the taxpayer's mortality dispersion table or the standard mortality dispersion table, notwithstanding the fact that the appropriate recovery period is used in computing the tax credit.

(4) *Standard mortality dispersion table.* The standard mortality dispersion table prescribed by the Commissioner for purposes of this paragraph is set forth below.

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## STANDARD MORTALITY DISPERSION TABLE

### PERCENTAGE OF BASIS OR COST OF MASS ASSET ACCOUNT CONSIDERED DISPOSED OF EACH 12-MONTH PERIOD AFTER THE ACCOUNT IS PLACED IN SERVICE

| Present Class Life | 1st (1) | 2nd (2) | 3rd (3) | 4th (4) | 5th (5) | 6th (6) | 7th (7) | 8th (8) | 9th (9) | 10th (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2.5 | 3.59 | 23.84 | 45.14 | 23.84 | 3.59 | - | - | - | - | - |
| 3 | 2.28 | 13.59 | 34.13 | 34.13 | 13.59 | 2.28 | - | - | - | - |
| 3.5 | 1.62 | 8.23 | 23.51 | 33.28 | 23.51 | 8.23 | 1.62 | - | - | - |
| 4 | 1.22 | 5.46 | 15.98 | 27.34 | 27.34 | 15.98 | 5.46 | 1.22 | - | - |
| 5 | .82 | 2.77 | 7.92 | 15.91 | 22.58 | 22.58 | 15.91 | 7.92 | 2.77 | .82 |
| 6 | .62 | 1.66 | 4.40 | 9.19 | 14.98 | 19.15 | 19.15 | 14.98 | 9.19 | 4.40 |
| 6.5 | .55 | 1.33 | 3.38 | 7.25 | 12.00 | 16.39 | 18.20 | 16.39 | 12.00 | 7.25 |
| 7 | .51 | 1.11 | 2.74 | 5.49 | 9.64 | 13.87 | 16.64 | 16.64 | 13.87 | 9.64 |
| 7.5 | .47 | .92 | 2.20 | 4.49 | 7.79 | 11.55 | 14.65 | 15.86 | 14.65 | 11.55 |
| 8 | .44 | .78 | 1.85 | 3.61 | 6.46 | 9.52 | 12.91 | 14.43 | 14.43 | 12.91 |
| 8.5 | .40 | .70 | 1.52 | 2.97 | 5.16 | 8.19 | 10.87 | 13.05 | 14.28 | 13.05 |
| 9 | .38 | .61 | 1.29 | 2.47 | 4.43 | 6.69 | 9.27 | 11.93 | 12.93 | 12.93 |
| 9.5 | .37 | .52 | 1.13 | 2.07 | 3.69 | 5.57 | 8.13 | 10.44 | 11.72 | 12.72 |
| 10 and 10.5 | .35 | .47 | .97 | 1.80 | 3.09 | 4.83 | 6.90 | 9.01 | 10.79 | 11.79 |
| 11 and 11.5 | .32 | .39 | .75 | 1.35 | 2.24 | 3.64 | 5.10 | 6.82 | 8.51 | 10.24 |
| 12 and 12.5 | .30 | .32 | .60 | 1.06 | 1.73 | 2.67 | 3.88 | 5.31 | 6.79 | 8.19 |
| 13 and 13.5 | .28 | .27 | .49 | .84 | 1.34 | 2.04 | 3.12 | 4.13 | 5.37 | 6.63 |
| 14 | .27 | .24 | .40 | .71 | 1.06 | 1.68 | 2.32 | 3.17 | 4.38 | 5.26 |
| 15 | .26 | .21 | .35 | .57 | .89 | 1.31 | 1.89 | 2.60 | 3.43 | 4.36 |
| 16 and 16.5 | .25 | .18 | .29 | .49 | .75 | 1.10 | 1.48 | 2.13 | 2.83 | 3.38 |
| 17 | .24 | .16 | .28 | .42 | .60 | .92 | 1.30 | 1.67 | 2.34 | 2.82 |
| 18 | .23 | .15 | .24 | .37 | .51 | .78 | 1.08 | 1.39 | 1.93 | 2.50 |
| 19 | .23 | .14 | .20 | .32 | .47 | .66 | .92 | 1.15 | 1.61 | 2.08 |
| 20-24 | .22 | .13 | .19 | .28 | .40 | .57 | .77 | 1.03 | 1.36 | 1.73 |
| 25-29 | .20 | .09 | .12 | .18 | .23 | .31 | .41 | .53 | .67 | .85 |
| 30-50 | .19 | .07 | .09 | .12 | .15 | .20 | .25 | .32 | .40 | .49 |

| Present Class Life | 11th (11) | 12th (12) | 13th (13) | 14th (14) | 15th (15) | 16th (16) | 17th (17) | 18th (18) | 19th (19) | 20th (20) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2.5 | - | - | - | - | - | - | - | - | - | - |
| 3 | - | - | - | - | - | - | - | - | - | - |
| 3.5 | - | - | - | - | - | - | - | - | - | - |
| 4 | - | - | - | - | - | - | - | - | - | - |
| 5 | - | - | - | - | - | - | - | - | - | - |
| 6 | 1.66 | .62 | - | - | - | - | - | - | - | - |
| 6.5 | 3.38 | 1.33 | .55 | - | - | - | - | - | - | - |
| 7 | 5.49 | 2.74 | 1.11 | .51 | - | - | - | - | - | - |
| 7.5 | 7.70 | 4.49 | 2.20 | .92 | .47 | - | - | - | - | - |
| 8 | 9.52 | 6.46 | 3.61 | 1.85 | .78 | .44 | - | - | - | - |
| 8.5 | 10.87 | 8.19 | 5.16 | 2.97 | 1.52 | 70 | .40 | - | - | - |
| 9 | 11.93 | 9.27 | 6.69 | 4.43 | 2.47 | 1.29 | .61 | .38 | - | - |
| 9.5 | 11.72 | 10.44 | 8.13 | 5.57 | 3.69 | 2.07 | 1.13 | .52 | .37 | - |
| 10 and 10.5 | 11.79 | 10.79 | 9.01 | 6.90 | 4.83 | 3.09 | 1.80 | .97 | .47 | .35 |
| 11 and 11.5 | 10.64 | 10.64 | 10.24 | 8.51 | 6.82 | 5.10 | 3.64 | 2.24 | 1.35 | .75 |
| 12 and 12.5 | 9.28 | 9.87 | 9.87 | 9.28 | 8.19 | 6.79 | 5.31 | 3.88 | 2.67 | 1.73 |
| 13 and 13.5 | 7.77 | 8.62 | 9.10 | 9.10 | 8.62 | 7.77 | 6.63 | 5.37 | 4.13 | 3.12 |
| 14 | 6.62 | 7.25 | 8.32 | 8.32 | 8.32 | 8.32 | 7.25 | 6.62 | 5.26 | 4.38 |
| 15 | 5.32 | 6.23 | 7.04 | 7.61 | 7.93 | 7.93 | 7.61 | 7.04 | 6.23 | 5.32 |
| 16 and 16.5 | 4.22 | 5.30 | 6.11 | 6.80 | 6.89 | 7.54 | 7.54 | 6.89 | 6.80 | 6.11 |
| 17 | 3.71 | 4.48 | 4.94 | 5.93 | 6.51 | 6.54 | 7.14 | 7.14 | 6.54 | 6.51 |
| 18 | 3.12 | 3.57 | 4.46 | 4.81 | 5.71 | 6.19 | 6.21 | 6.75 | 6.75 | 6.21 |
| 19 | 2.60 | 2.97 | 3.76 | 4.37 | 4.96 | 5.48 | 5.53 | 6.19 | 6.36 | 6.36 |
| 20-24 | 2.17 | 2.66 | 3.18 | 3.72 | 4.25 | 4.76 | 5.22 | 5.57 | 5.83 | 5.96 |
| 25-29 | 1.06 | 1.29 | 1.55 | 1.85 | 2.18 | 2.50 | 2.84 | 3.19 | 3.54 | 3.84 |
| 30-50 | .59 | .72 | .87 | 1.02 | 1.20 | 1.40 | 1.60 | 1.83 | 2.06 | 2.30 |

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| Present Class Life | 21st (21) | 22nd (22) | 23rd (23) | 24th (24) | 25th (25) | 26th (26) | 27th (27) | 28th (28) | 29th (29) | 30th (30) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2.5 | - | - | - | - | - | - | - | - | - | - |
| 3 | - | - | - | - | - | - | - | - | - | - |
| 3.5 | - | - | - | - | - | - | - | - | - | - |
| 4 | - | - | - | - | - | - | - | - | - | - |
| 5 | - | - | - | - | - | - | - | - | - | - |
| 6 | - | - | - | - | - | - | - | - | - | - |
| 6.5 | - | - | - | - | - | - | - | - | - | - |
| 7 | - | - | - | - | - | - | - | - | - | - |
| 7.5 | - | - | - | - | - | - | - | - | - | - |
| 8 | - | - | - | - | - | - | - | - | - | - |
| 8.5 | - | - | - | - | - | - | - | - | - | - |
| 9 | - | - | - | - | - | - | - | - | - | - |
| 9.5 | - | - | - | - | - | - | - | - | - | - |
| 10 and 10.5 | - | - | - | - | - | - | - | - | - | - |
| 11 and 11.5 | .39 | .32 | - | - | - | - | - | - | - | - |
| 12 and 12.5 | 1.06 | .60 | .32 | .30 | - | - | - | - | - | - |
| 13 and 13.5 | 2.04 | 1.34 | .84 | .49 | .27 | .28 | - | - | - | - |
| 14 | 3.17 | 2.32 | 1.68 | 1.06 | .71 | .40 | .24 | .27 | - | - |
| 15 | 4.36 | 3.43 | 2.60 | 1.89 | 1.31 | .89 | .57 | .35 | .21 | .26 |
| 16 and 16.5 | 5.30 | 4.22 | 3.63 | 2.83 | 2.13 | 1.48 | 1.10 | .75 | .49 | .29 |
| 17 | 5.93 | 4.94 | 4.48 | 3.71 | 2.82 | 2.34 | 1.67 | 1.30 | .92 | .60 |
| 18 | 6.19 | 5.71 | 4.81 | 4.46 | 3.57 | 3.12 | 2.50 | 1.93 | 1.39 | 1.08 |
| 19 | 6.19 | 5.53 | 5.48 | 4.96 | 4.37 | 3.76 | 2.97 | 2.60 | 2.08 | 1.61 |
| 20-24 | 5.96 | 5.83 | 5.57 | 5.22 | 4.76 | 4.25 | 3.72 | 3.18 | 2.66 | 2.17 |
| 25-29 | 4.13 | 4.38 | 4.58 | 4.70 | 4.78 | 4.78 | 4.70 | 4.58 | 4.38 | 4.13 |
| 30-50 | 2.54 | 2.78 | 3.01 | 3.23 | 3.42 | 3.61 | 3.75 | 3.86 | 3.95 | 3.98 |

(5) *Recapture determinations.* A recapture determination must be made at the end of each taxable year in which assets are expected to be retired before the end of the recapture period. The percentage of basis or cost in a mass asset account expected to be retired under the taxpayer's mortality dispersion table or under a standard mortality dispersion table will be considered disposed of ratably over the taxable year. The taxpayer is not required to account for actual retirements. The concept of abnormal or extraordinary retirements does not apply to recovery property. See paragraph (l)(1) of § 1.168–2.

(6) *Example.* Paragraph (h)(5) of this section may be illustrated by the following example.

*Example.* (i) A calendar year taxpayer placed 1000 assets which are recovery property in service in 1981. Taxpayer established a single mass asset account for these assets. July 1 is the assumed date of all additions to mass asset accounts. Each asset is 3 year recovery property and has a present class life of 4 years. The unadjusted basis in the account is $10,000.

(ii) By applying the 4 year present class life, the standard mortality dispersion table indicates that 1.22% of basis would be considered retired in the first year, 5.46% more would be considered retired in the second year, and 15.98% more would be considered retired in the third year. The remaining 77.34% of basis will be in service longer than the 3 year recapture period.

(iii) For 1981, no credit was allowed for .61% of the basis in the account, because 1981 was the taxable year the assets were placed in service. The standard mortality dispersion table indicates that 1.22% of basis was expected to be retired in the first year after the assets were placed in service. Since the assets were not considered placed in service until July 1, only 50 percent, or a 6-month ratable portion of the 1.22% of basis was considered disposed of in 1981. The remaining .61% was considered disposed of over the first half of 1982. Qualified investment for the remaining 99.39% is $5963.40, which is 60 percent of the basis attributable to that portion of the account.

(iv) For 1982, credit for 3.34% of the basis placed in service was recaptured. Of the 1.22% indicated by the standard mortality dispersion table to be disposed of in the first year, .61%, or a 6-month ratable portion, was considered disposed of in the first half of 1982. Of the 5.46% indicated by the table to be disposed of in the second year, 2.73%, or a 6-month ratable portion, was considered disposed of in the second half of 1982. Removing the qualified investment with respect to 3.34% of the account from the $9939. for which the credit was allowed in year 1 results in a qualified investment of $5763. (60% of $96050.). Thus, the credit allowed was $576.30 as compared to a $596.34. credit "allowable" for the full basis placed in the account. The decrease in allowable credit was therefore $20.04, $3.66 of which is recaptured at 100% and $16.38 of which is recaptured at 66% (see paragraph (h)(6) (viii) of this section). The amount recaptured was therefore $14.47.

(v) For 1983, credit for 10.72% of the basis placed in service must be recaptured. Of the 5.46% indicated by the standard mortality dispersion table to be disposed of in the second year, 2.73%, or a 6-month ratable portion, will be considered disposed of in the first half of 1983. Of the 15.98% indicated by the table to be disposed of in the third year, 7.99%, or a 6-month ratable portion, will be considered disposed of in the second half of 1983. Removing the qualified investment with respect to 10.72% of the account from the $9939. for which the credit was allowed in year 1 results in a qualified investment of $5320.20 (60% of $8867.). Thus, the credit allowable is $532.02, as compared to a $596.34 credit "allowable" for the full basis placed in the account. The decrease in allowable credit

is therefore 64.32, $16.38 of which is recaptured at 66% and $47.94 of which is recaptured at 33%. The amount recaptured is therefore $26.63.

(vi) For 1984 credit for 7.99% of the basis placed in service must be recaptured. Of the 15.98% indicated by the standard mortality dispersion table to be disposed of in the third year, 7.99% or a 6-month ratable portion, will be considered disposed of in the first half of 1984. Removing the qualified investment with respect to 7.99% of the account from the $9939, for which the credit was allowed in year 1 results in a qualified investment of $5484. (60% of $9140.). Thus, the credit allowable is $548.40, as compared to a $596.34 credit "allowable" for the full basis placed in the account. The decrease in allowable credit is therefore $47.94, 33% of which is recaptured ($15.82).

(vii) None of the credit is recaptured for the percent of basis disposed of after June 30, 1984.

(viii) The amount of the decrease in allowable credit attributable to the first half of a taxable year is determined by multiplying the decrease in allowable credit for the entire taxable year by a fraction, the numerator of which is the percent of basis disposed of in the first half of the taxable year and the denominator of which is the entire percent of basis disposed of in the taxable year. The amount of the decrease in allowable credit attributable to the second half of a taxable year is determined by applying the formula above, except the numerator of the fraction will be the percent of basis disposed of in the second half of the taxable year.

(7) *Effective date.* The rules in this paragraph (h) apply to all recovery property placed in service on or after January 1, 1981.

* * * * *

20. Paragraph (l)(4), as redesignated, is amended by removing "paragraph (e)(1) of this section" from the first sentence and inserting in its place "paragraph (e) of this section".

21. Paragraph (l)(5), as redesignated, is amended by removing "(h)" from the first sentence and inserting in its place "(l)".

**§ 1.48-9 [Amended]**

Par. 4. Section 1.48-9 is amended as follows:

1. Paragraph (a)(4)(ii) is amended by removing "§ 1.46-3(e)(7)" and inserting in its place "§ 1.46-3(e)".

2. Paragraph (b)(1)(i) is amended by removing "§ 1.47-1(h)" from the last sentence and inserting in its place "§ 1.47-1(l)".

3. Paragraph (l)(2) is amended by removing "§ 1.47-1(h)(5)" from the last sentence and inserting in its place "§ 1.47-1(l)(5)".

4. Paragraph (q)(1) is amended by removing "(h)(3)(ii)" from the last sentence and inserting in its place "(l)(3)(ii)".

5. Paragraph (q)(7)(iv) is amended by removing "(h)(3)(ii)" from the last sentence and inserting in its place "(l)(3)(ii)".

**Par. 5.** Paragraph (d)(3)(v)(*d*)(*2*) of § 1.167(a)-11 is amended by removing "paragraph (e)(4)" and inserting in its place "paragraph (g)(2)."

**Roscoe L. Egger, Jr.,**

*Commissioner of Internal Revenue.*

[FR Doc. 85-29290 Filed 12-19-85; 8:45 am]

BILLING CODE 4830-01-M

## DEPARTMENT OF THE INTERIOR

### Office of Surface Mining Reclamation and Enforcement

### 30 CFR Part 946

### Proposed Public Comment Period and Opportunity for Public Hearing on Proposed Amendment to the Virginia Permanent Regulatory and Abandoned Mine Land Reclamation Programs

**AGENCY:** Office of Surface Mining Reclamation and Enforcement (OSM), Interior.

**ACTION:** Proposed rule.

**SUMMARY:** OSM is announcing procedures for a public comment period and for requesting a public hearing on the substantive adequacy of a proposed amendment submitted by the Commonwealth of Virginia as a modification to its permanent regulatory and abandoned mine land reclamation programs (hereinafter referred to as the Virginia programs) under the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The amendment consists of new regulations which, except for certain existing operations, would completely replace those now implementing Chapter 19, Title 45.1 of the Code of Virginia, the Virginia Coal Surface Mining Control and Reclamation Act of 1979, as amended.

This notice sets forth the times and locations that the Virginia program and proposed amendment will be available for public inspection, the comment period during which interested persons may submit written comments on the proposed amendment, and the procedures that will be followed regarding the public hearing.

**DATES:** Written comments from the public not received by 4:00 p.m. on January 21, 1986, will not necessarily be considered in the decision process. A public hearing on the proposed amendment has been scheduled for 1:00 p.m. on January 8, 1986, in the conference room of the Lebanon Area Office of the Office of Surface Mining, Flannagan and Carroll Streets, Lebanon, Virginia. Any person interested in making an oral or written presentation at the hearing should contact Mr. William Thomas at the OSM Big Stone Gap Field Office by 4:00 p.m. on January 6, 1986. If no one expresses an interest in participating in the hearing by this date, the hearing will not be held. If only one person has so contacted Mr. Thomas, a public meeting, rather than a hearing, may be held; the results of the meeting will be included in the Administrative Record.

**ADDRESSES:** Written comments and requests for a hearing should be mailed to: Mr. William Thomas, Director, Big Stone Gap Field Office, Office of Surface Mining Reclamation and Enforcement, P.O. Box 626, Big Stone Gap, Virginia 24219.

Copies of the Virginia program, the proposed modifications to the program, and the administrative record of the Virginia program are available for public review and copying at the OSM offices and the State regulatory authority office listed below, Monday through Friday, 9:00 a.m. to 4:00 p.m., excluding holidays. Each requestor may receive, free of charge, one copy of the proposed amendment by contacting the OSM Big Stone Gap Field Office.

Office of Surface Mining Reclamation and Enforcement, Big Stone Gap Field Office, P.O. Box 626, Big Stone Gap, Virginia 24219, Telephone: (703) 523-4303

Office of Surface Mining Reclamation and Enforcement, Lebanon Area Office, Flannagan and Carroll Streets, P.O. Box 487, Lebanon, Virginia 24266, Telephone: (703) 889-4032

Office of Surface Mining Reclamation and Enforcement, 1100 "L" Street, NW., Room 5124, Washington, DC 20240, Telephone: (202) 343-4855

Virginia Division of Mined Land Reclamation, 622 Powell Avenue, Big Stone Gap, Virginia 24219, Telephone: (703) 523-2925

**FOR FURTHER INFORMATION CONTACT:** Mr. William Thomas, Director, Big Stone Gap Field Office, Office of Surface Mining Reclamation and Enforcement, P.O. Box 626, Big Stone Gap, Virginia 24219, Telephone: (703) 523-4303.

**SUPPLEMENTARY INFORMATION:**

#### I. Background

The Secretary of the Interior conditionally approved the Virginia programs on December 15, 1981. Information pertinent to the general background, revisions, modifications and amendments to the permanent program submissions, as well as the

Secretary's findings, the disposition of comments and a detailed explanation of the conditions of approval of the Virginia programs can be found in the December 15, 1981 Federal Register (46 FR 61085–61115). The programs have been amended several times since approval; information concerning the amendments may be obtained from the agency offices listed under "ADDRESSES."

**II. Submission of Amendment**

In accordance with the provision of 30 CFR 732.17 (d) and (f), on March 25, 1985, the Director notified Virginia of the changes necessary to ensure that the approved regulatory program was no less effective than SMCRA and its implementing regulations, as revised since December 15, 1981, when the program was originally approved. To comply with this letter and to meet other needs and State objectives, the Commonwealth elected to undertake a complete rewrite of the regulations governing its permanent regulatory and abandoned mine land reclamation programs.

By letter of November 8, 1985, Virginia submitted these regulations to OSM for review as a program amendment (Administrative Record No. VA 571). The proposed regulations, consisting of Parts 430–03–19.700 through 480–03–19.882, would replace Parts V700 through V882 of the currently approved regulations, although the current performance standards of Subchapter VK and the current permit application content requirements of Subchapter VG would remain in effect for mines operating under existing permits.

In accordance with the provisions of 30 CFR 732.17 and 884.15, OSM is now seeking comment on whether the proposed regulations satisfy the criteria for approval of State program amendments set forth at 30 CFR 732.15, 732.17, 884.14 and 884.15. If approved, the proposed amendment will become part of the Virginia permanent regulatory and abandoned mine land reclamation programs.

**III. Procedural Requirements**

1. *Compliance with the National Environmental Policy Act:* The Secretary has determined that, pursuant to section 702(d) of SMCRA, 30 U.S.C. 1292(d), no environmental impact statement need be prepared on this rulemaking.

2. *Executive Order No. 12291 and the Regulatory Flexibility Act:* On August 28, 1981, the Office of Management and Budget (OMB) granted OSM an exemption from Sections 3, 4, 7, and 8 of Executive Order 12291 for actions directly related to approval or conditional approval of State regulatory programs. Therefore, this action is exempt from preparation of a Regulatory Impact Analysis and regulatory review by OMB.

The Department of the Interior has determined that this rule would not have a significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*). This rule would not impose any new requirements; rather, it would ensure that existing requirements established by SMCRA and the Federal rules will be met by the State.

3. *Paperwork Reduction Act:* This rule does not contain information collection requirements which require approval by the Office of Management and Budget under 44 U.S.C. 3507.

**List of Subjects in 30 CFR Part 946**

Coal mining, Intergovermental relations, Surface mining, Underground mining.

Dated: December 13, 1985.

**James W. Workman,**

*Deputy Director, Operations and Technical Services, Office of Surface Mining.*

[FR Doc. 85–30122 Filed 12–19–85; 8:45 am]

BILLING CODE 4310–05–M

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**National Park Service**

**36 CFR Part 7**

## Lake Mead National Recreation Area, Arizona-Nevada; Noise Abatement Regulation

**AGENCY:** National Park Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** The intent of this rulemaking is to allow a recreational activity that has been a tradition at Lake Mead National Recreation Area for many years to continue; namely, to continue to allow motor vessels to exceed established noise level limitations while being operated in authorized regattas. Boat noise limitations are exempted by present Arizona, Nevada and U.S. Coast Guard regulations when the boats are engaged in an authorized boating regatta. National Park Service general regulations allowed for such noise exemptions until the July, 1983 revision. Powerboats designed and constructed for competitive water events are traditionally exempted from State and Federal noise limitations during authorized regattas. This proposed exemption will not adversely affect other recreational users of the lake and will be exercised by permit only during the few authorized regattas that take place annually at Lake Mead.

**DATES:** Written comments will be accepted through January 21, 1986.

**ADDRESS:** Comments should be addressed to: Superintendent, Lake Mead National Recreation Area, 601 Nevada Highway, Boulder City, Nevada, 89005.

**FOR FURTHER INFORMATION CONTACT:** Jerry D. Wagers, Superintendent, Lake Mead National Recreation area, Telephone: (702) 293–4041.

**SUPPLEMENTARY INFORMATION:**

**Background**

Boating regattas have been an accepted activity at Lake Mead since the area was established and are an appropriate use of Lakes Mead and Mohave. The July 1984 revision of 36 CFR 3.7 deleted the exemption for intense or prolonged noise during periods of regattas and requires all boats not to exceed a noise level of 82 decibels measured at 82 feet. The states of Arizona and Nevada provide for exemptions to noise and promote water regattas on the lakes and rivers within their respective jurisdictions. U.S. Coast Guard regulations provide similar exemptions. Present CFR regulations do not make an exemption and are therefore in conflict with local state laws. To impose a noise level restriction on vessels participating in regattas is inconsistent with long standing policy and puts an unnecessary burden on boaters who participate nationwide and who are then expected to meet severe noise limit standards when operating at Lake Mead National Recreation Area.

**Drafting Information**

The following persons participated in the writing of this regulation: C. Newton Sikes and Alsen E. Inman, Lake Mead National Recreation Area.

**Paperwork Reduction Act**

This rule does not contain information collection requirements which require approval by the Office of Management and Budget under 44 USC 3501 *et seq.*

**Compliance With Other Laws**

The Department of the Interior has determined that to his document is not a major rule under Executive Order 12291 and certifies that this document will not have a significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act 5 (5 U.S.C. 601 *et seq.*). The proposed

regulation will not have any significant economic effect because it serves only to make an infrequent exception to the noise level limitation imposed by 36 CFR 3.7, during authorized boating regattas. There should be no additional expenditures involved as a result.

The Service has determined that this proposed rulemaking will not have a significant effect on the quality of the human environment, health and safety because it is not expected to:

a. Increase public use to the extent of compromising the nature and character of the area or causing physical damage to it;

b. Introduce non-compatible uses which might compromise the nature and characteristics of the area, or cause physical damage to it;

c. Conflict with adjacent ownerships or land uses; or

d. Cause a nuisance to adjacent owners or occupants. Based on this determination, this proposed rulemaking is categorically excluded from the procedural requirements of the National Environmental Policy Act (NEPA) by Department of the Interior regulations in 516 DM 6, (49 FR 21438). As such, neither an Environmental Assessment nor an Environmental Impact Statement has been prepared.

**List of Subjects in 36 CFR Part 7**

National parks.

In consideration of the foregoing, it is proposed to amend 36 CFR Chapter 1 as follows:

## PART 7—SPECIAL REGULATIONS, AREAS OF THE NATIONAL PARK SYSTEM

1. The authority citation for Part 7 continues to read as follows:

Authority: 16 U.S.C. 1, 3, 9a, 462(k).

12. Section 7.48 (f) is added to read as follows:

**§7.48 Lake Mead National Recreation Area.**

* * * * *

(f) The Superintendent may exempt motor vessels from the noise level limitations imposed under §3.7 of this chapter when those vessels are engaged in a regatta that has been authorized by a permit issued by the Superintendent.

Dated: November 18, 1985.

P. Daniel Smith,

*Deputy Assistant Secretary for Fish and Wildlife and Parks.*

[FR Doc. 85-30187 Filed 12-19-85; 8:45 am]

BILLING CODE 4310-70-M

## ENVIRONMENTAL PROTECTION AGENCY

**40 CFR Parts 52 and 81**

**[EPA Number KS 1729; A-7-FRL-2940-4]**

## Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Purposes; State of Kansas

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rulemaking.

**SUMMARY:** On February 28, 1985, the State of Kansas submitted a revision to the carbon monoxide (CO) plan for Wichita, Kansas. This plan revision was in response to a call for a plan revision issued under section 110(a)(2)(H) of the Clean Air Act. Included in the plan revision is a request to redesignate the Wichita CO nonattainment area to attainment. The State submitted air quality data and air quality modeling to support the area redesignation. Today's action proposes to approve the SIP revision and the redesignation request.

The purpose of today's proposed rulemaking is to solicit public comments on this proposed action.

**DATES:** Comments must be received no later than January 21, 1986.

**ADDRESSES:** Comments should be sent to the Kansas City, Kansas address below. Copies of the State submission are available during normal business hours at the following locations:

Environmental Protection Agency, Region VII, Air Branch, 726 Minnesota Avenue, Kansas City, Kansas 66101

Kansas Department of Health and Environment, Bureau of Air Quality and Radiation Control, Forbes Field, Topeka, Kansas 66620

**FOR FURTHER INFORMATION CONTACT:** Robert J. Chanslor at (913) 236-2893; FTS 757-2893.

**SUPPLEMENTARY INFORMATION:** On March 3, 1978 (43 FR 8964), EPA designated a portion of Wichita, Kansas, nonattainment for the primary National Ambient Air Quality Standard (NAAQS) for Carbon Monoxide (CO) as required by section 107(d) of the Clean Air Act, as amended in 1977.

Beginning in 1979, the State submitted a plan and revisions intended to comply with the requirements of Part D of the Act. The State submitted an approvable plan to attain the CO standard in Wichita on April 16, 1981. This plan projected attainment of the CO standard by December 31, 1982. There were no significant stationary CO sources in the nonattainment area; thus, the plan as approved by EPA on January 22, 1981 (47 FR 3113), contained 11 transportation control measures (TCMs), most of which have now been implemented. TCMs included plans to improve traffic flow; an improved transit system; a voluntary I/M program; traffic signal retiming to speed up traffic flow; and on-street parking restrictions.

On February 3, 1983 (48 FR 4972), EPA identified Wichita, Kansas, as a nonattainment area unlikely to attain the CO standard by December 31, 1982. This determination was based upon available CO air quality data from 1980, 1981, and 1982. Violations of the CO standard were found in each of those years.

On February 29, 1984, EPA notified the State of Kansas under the authority of section 110(a)(2)(H) of the Act, that the CO SIP for Wichita, Kansas, was substantially inadequate to attain the CO standard. EPA extended the time required under section 110(c)(1)(C) for plan revision to one year. EPA requested that the State submit a schedule for plan development within 60 days of the date of notification. The State's schedule was received by EPA on May 23, 1984.

On March 1, 1985, the State of Kansas submitted a revised CO SIP for Wichita, Kansas. The plan as submitted contained a commitment to continue the voluntary I/M program through 1986; a contingency plan for additional TCMs if additional CO violations should be found; and a request to reduce the size of the CO nonattainment area. In addition, the plan contained a contractor's report showing that the CO standard would be attained at a special purpose monitor (SPM) location by 1987 because of projected automobile emission reductions expected from the Federal Motor Vehicle Pollution Control Program and air quality data from two of three CO monitor locations showing no standard violations in 1983 and 1984. The third monitor (SPM) began operation in mid-1982. THE SPM data show no violations in 1984.

The plan submitted by the State clearly shows that at least a portion of the designated nonattainment area has eight consecutive quarters showing no violation of the standard, but only four quarters at the SPM location. The two older monitor locations are representative of a neighborhood location and a location somewhat representative of the total area. The SPM location is in an area exposed to heavier traffic volumes.

A contractor study was commissioned to determine by modeling whether the CO standard could be attained prior to 1987. The modeling used was the current state-of-the-art CO modeling—Mobile 3

and Caline 3 with the proper queuing considerations. The modeling examined 1984, 1985, 1986, and 1987. The model results show attainment of the CO standard in 1984 at the SPM location and continued attainment through 1986, provided that the City continues the voluntary I/M programs.

Upon reviewing the State's CO SIP revision and the subsequent contractor's study report, EPA considered whether to propose approval of the revision or simply propose to redesignate the nonattainment area to attainment for CO. If the area is indeed in attainment, then a SIP to attain the standard is not needed. Two alternative approaches were considered. First, EPA could request the State to withdraw the SIP revision and request an attainment redesignation. Second, EPA could propose to approve the SIP revision as a revision to maintain the CO standard and at the same time propose redesignation to attainment for CO. These two options were presented to the State for consideration. The State of Kansas stated a preference for the second option, because a revised SIP has been formally adopted that is expected to insure continued compliance with the air quality standard for CO. EPA agrees that this is the better option. Thus, today's action proposes to approve the Wichita CO SIP revision under section 110 of the Act and at the same time proposes to approve the State's redesignation request under section 107(d) of the Act.

Because the plan revision as submitted only requested a partial redesignation, on July 30, 1985, the State requested that EPA redesignate the entire nonattainment area to attainment for CO.

With the exception of the on-street parking restrictions, all of the Part D Plan TCMs have been completed. The last TCM completed was the traffic signal timing. That program was completed in 1984. The voluntary I/M program has become an ongoing program. EPA believes that the TCMs completed and continuing in Wichita have contributed significantly to the CO emissions reductions and have resulted in improved CO air quality.

EPA's review of the State's submittal finds that it satisfies public hearings requirements of 40 CFR 51.4 and the revisions and submittal requirements of 40 CFR 51.6.

### Proposed Action

EPA proposes to approve the Wichita SIP revision as a plan to maintain the CO ambient air quality standard in the area designated nonattainment at 40 CFR 81.317. EPA proposes to redesignate the CO nonattainment area described at 40 CFR 81.317 as attainment. Final approval of the plan and redesignation depends upon a continued showing of no violations during the interim prior to final rulemaking.

Under 5 U.S.C. 605(b), the Administrator has certified that SIP approvals do not have a significant impact on a substantial number of small entities. (See 46 FR 8709.)

The Office of Management and Budget has exempted this rule from the requirements of section 3 of Executive Order 12291.

### List of Subjects

*40 CFR Part 52*

Air pollution control, Carbon Monoxide.

*40 CFR Part 81*

Air pollution control, National Parks, Wilderness Areas.

Authority: 42 U.S.C. 7401–7642.

Dated: September 27, 1985.

**Morris Kay,**

*Regional Administrator.*

[FR Doc. 85–29917 Filed 12–19–85; 8:45 am]

BILLING CODE 6560-50-M

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## 40 CFR Part 799

**[OPTS–42030B; FRL–2941–7]**

## Mesityl Oxide; Proposed Test Standards

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** Elsewhere in this issue of the **Federal Register**, EPA is issuing a final test rule establishing testing requirements under section 4(a) of the Toxic Substances Control Act (TSCA) for manufacturers and processors of mesityl oxide (MO; CAS No. 141–97–7). In this proposed rule, EPA is proposing that certain TSCA test guidelines be utilized as the test standards for the required studies and that test data be submitted within specified time frames.

**DATES:** Submit written comments on or before February 3, 1986. If persons request time for oral comment by January 21, 1986, EPA will hold a public meeting on this proposed rule in Washington, DC. For further information on arranging to speak at the meeting, see Unit VI of this preamble.

**ADDRESS:** Submit written comments, identified by the document control number (OPTS–42030B), in triplicate to: TSCA Public Information Office (TS–793), Office of Pesticides and Toxic Substances, Environmental Protection Agency, Rm. E–108, 401 M St., SW., Washington, DC 20460.

A public version of the administrative record supporting this action (with any confidential business information deleted) is available for inspection at the above address from 8 a.m. to 4 p.m., Monday through Friday, except legal holidays.

**FOR FURTHER INFORMATION CONTACT:** Edward A. Klein, Director, TSCA Assistance Office (TS–799), Office of Toxic Substances, Rm. E–543, 401 M St., SW., Washington, DC 20460, Toll Free: (800–424–9065), In Washington, DC: (554–1404), Outside the USA: (Operator–202–554–1404).

**SUPPLEMENTARY INFORMATION:** Elsewhere in this issue of the **Federal Register**, EPA is issuing a final test rule under section 4(a) of TSCA to require testing of MO for chronic effects, mutagenicity, and oncogenicity (conditional on the mutagenicity test results). The Agency is now proposing the test standards to be used and the time frames for submission of the required test data.

### I. Background

Elsewhere in this issue of the **Federal Register**, EPA is promulgating a Phase I final rule pursuant to TSCA section 4 that establishes testing requirements for manufacturers and processors of MO. This Phase I rule specifies the following testing requirements for MO: (1) Inhalation subchronic (90-day) toxicity; (2) mutagenicity (including tests for both gene mutations and chromosomal aberrations); and (3) oncogenicity (if certain mutagenicity test results are positive).

Once this Phase I test rule becomes effective, manufacturers and processors of MO would normally be required (under the two-phase test rule development process) to submit proposed study plans for each of these required studies and proposed schedules for both the initiation of testing and the submission of study data. (See 40 CFR 790.30, published in the **Federal Register** of May 17, 1985 (50 FR 20658).) EPA would review the submitted study plans and schedules and would thereafter issue them (with any necessary modifications) in a Phase II test rule proposal. This proposal would request public comment on the ability of the proposed study plans to ensure that the resulting data would be reliable and adequate. After evaluating and responding to public comment, EPA would adopt the study plans, including the reporting schedules, in a Phase II

final rule as the required test standards and data submission deadlines. (See 40 CFR 790.32, published in the **Federal Register** of May 17, 1985 (50 FR 20659).)

However, in the case of the MO test rule, which was initiated under the two-phase process, EPA has decided to propose the relevant TSCA test guidelines as the test standards (see Unit III below). In addition, EPA is proposing that the data from the required studies be submitted within certain time periods. These time periods will serve as the data submission deadlines required by TSCA section 4(b)(1) (see Unit IV below). The reasons for this change in the test rule development process for mesityl oxide are discussed below.

## II. Change in the Test Rule Development Process

### *A. Test Standards and Data Submission Deadlines*

TSCA section 4(b)(1) specifies that test rules shall include standards for the development of test data ("test standards") and deadlines for submission of test data. Under a two-phase test rule development process utilized by EPA since 1982 (47 FR 13012; March 26, 1982) and formally adopted in the fall of 1984 (49 FR 39774; October 10, 1984), test standards and data submission deadlines were to be adopted during the second phase of the rulemaking process. Upon issuance of the Phase I final rule, which established the effects and characteristics for which a given chemical substance must be tested, persons subject to the rule would be required by a specified date to submit proposed study plans detailing the methodologies and protocols they intended to use to perform the required tests. Such study plans were to include proposed schedules for the initiation and completion of testing and submission of test data. (See 40 CFR 790.30 (a) and (c); published in the **Federal Register** of October 10, 1984 (49 FR 39774).) In the second phase, after consideration of public comment, the Agency would promulgate the Phase II final rule adopting the study plans (with any necessary modifications) as the test standards for the development of test data and deadlines for the submission of test data.

In December 1983, the Natural Resources Defense Council and the Industrial Union Department of the American Federation of Labor-Congress of Industrial Organizations filed an action under TSCA section 20 which challenged, among other things, the use of the two-phase process. In an August 23, 1984 Opinion and Order, the Court found that utilization of the two-phase rulemaking process was permissible. However, the Court also held that the Agency was subject to a standard of promulgating test rules within a reasonable time frame. *NRDC* v. *EPA*, 595 F. Supp. 1255 (S.D.N.Y. 1984).

After issuing that Opinion, the Agency decided that to expedite development of section 4 test rules, it would utilize a single-phase rulemaking process for most test rules. In the document announcing this decision, EPA stated that the single-phase approach offers a number of advantages over the two-phase process (see 50 FR 20652, 20653; May 17, 1985). In this single-phase approach, the Agency proposes (in one document) not only the effects for which testing will be required but also proposes pertinent TSCA or other appropriate guidelines as the test standards and time frames for the submission of test data. After receiving and evaluating public comment on the proposed testing requirements, test guidelines, and data submission deadlines, EPA promulgates a final test rule.

This single-phase approach shortens the rulemaking period and expedites the initiation of required testing that would usually result from use of the two-phase rulemaking process. The single-phase process also eliminates the requirement under the two-phase approach for industry to submit proposed test protocols for approval. Moreover, by allowing commenters to submit alternative testing methodologies during the comment period, the single-phase approach preserves the flexibility of the two-phase process.

These same advantages, i.e., expedited initiation of testing and the elimination of proposed study plan submission requirements for persons subject to a Phase I rule, are factors considered by EPA in deciding to modify the rulemaking process for mesityl oxide. By proposing both pertinent TSCA test guidelines as the test standards and data submission deadlines at the time of issuance of the Phase I rule, EPA expects that the Phase II final rule will be issued 6 months sooner than would occur if the usual two-phase process was followed. Thus, required testing will be initiated on a more expedited basis. In addition, for each of the required tests for mesityl oxide, appropriate TSCA test guidelines are available (see Unit III below). Thus, EPA believes that there is no need for manufacturers and processors of MO to develop study plans for approval independent of these TSCA guidelines.

### *B. Modifications to Requirements Under a Phase I Final Rule for Mesityl Oxide*

As indicated above, persons subject to the mesityl oxide Phase I final rule and who have notified EPA of their intent to test would normally be required to submit proposed study plans and proposed data submission deadlines within a specified time of the final rule's effective date (see 40 CFR 790.30 (a) and (c), published in the **Federal Register** of May 17, 1985 (50 FR 20658)). However, because EPA is proposing certain TSCA guidelines as the test standards and data submission deadlines, persons subject to the Phase I final rule are not required to submit proposed study plans for the required testing or proposed dates for the initiation and completion of that testing.

However, persons subject to the Phase I final rule for mesityl oxide are still required to submit notices of intent to test or exemption applications in accordance with 40 CFR 790.25, published in the **Federal Register** of May 17, 1985 (50 FR 20657). Moreover, once the test standards are promulgated in the Phase II final rule, those persons who have notified EPA of their intent to test must submit study plans (which adhere to the promulgated test standards) no later than 30 days before the initiation of each required test.

## III. Proposed Test Standards

The Phase I rule specifies that MO be tested for inhalation subchronic toxicity, mutagenicity (including tests for both gene mutations and chromosomal aberrations, and oncogenicity (if certain tests predictive for oncogenicity are positive). The Agency is now proposing that this testing of MO be conducted using the following TSCA test guidelines (new parts 796, 797, 798 of 40 CFR were published in the **Federal Register** of September 27, 1985 (50 FR 39252)) as the test standards:

1. *Subchronic Exposure:* Inhalation Toxicity which appears at 40 CFR 798.2450.

2. *Mutagenicity:* Chromosomal Effects.

i. First Tier:

a. *In Vitro:* Mammalian Cytogenetics which appears at 40 CFR 798.5375.

b. *In Vivo:* Mammalian Bone Marrow Cytogenetics Tests: Chromosomal Analysis which appears at 40 CFR 798.5385.

ii. Second Tier:

Rodent Dominant Lethal Assay which appears at 40 CFR 798.5450.

iii. Third Tier: Rodent Heritable Translocation Assay which appears at 40 CFR 798.5460.

3. *Mutagenicity:* Gene Mutations.

i. First Tier: *Salmonella typhimurium* which appears at 40 CFR 798.5265.

Somatic Cells in Culture which appears at 40 CFR 798.5300.

ii. Second Tier: Sex Linked Recessive Lethal Test which appears at 40 CFR 798.5275.

iii. Third Tier: Mouse Specific Locus Test which appears at 40 CFR 798.5200.

4. *Chronic Exposure.* Oncogenicity which appears at 40 CFR 798.3300.

EPA believes that the TSCA Health Effects Test Guidelines cited above, if properly followed, should produce adequate and reliable data. These guidelines describe methods for performing testing of chemical substances under TSCA. The methods include the state-of-the-art for evaluating the effects of chemical substances. EPA reviews its TSCA test guidelines annually (see 47 FR 41857; Sept. 22, 1982).

EPA intends to propose shortly in a separate **Federal Register** notice, certain revisions to these TSCA Test Guidelines to provide more explicit guidance on the necessary minimum elements for each study. In addition, these revisions will avoid repetitive chemical-by-chemical changes to the guidelines in their adoption as test standards for chemical-specific test rules. EPA is proposing that these modifications be adopted in the test standards for MO.

The Agency believes the TSCA subchronic guideline will provide detailed information on toxic effects and target organs, and establish both a no-observed-effect level and appropriate levels for lifetime studies. EPA also uses the data from subchronic studies to predict potential chronic effects. The clinical testing which is required in subchronic studies is more extensive than that normally required in chronic studies. These data will be used in understanding the development of any toxic effects resulting from mesityl oxide exposure.

The Agency is requiring that the subchronic study be conducted by the inhalation route (the major route of human exposure to MO) in the rat. If a second species is chosen for testing it should be the mouse, since the rat and the mouse are the species of choice for oncology studies. Oncology testing for MO will be automatically triggered if select first and second tier mutagenicity test results are positive. The reader is directed to the final rule for MO appearing elsewhere in this issue of the **Federal Register** for a detailed explanation of EPA's tiered testing approach that automatically triggers both end-point mutagenicity tests and oncology testing. This test standard is proposed under 40 CFR 798.2450.

The Agency believes that the TSCA test guidelines for mutagenicity testing will provide adequate data to assess the potential human hazard resulting from exposure to MO due to interactions of the chemical with genetic material resulting in heritable change (mutation). The Agency is proposing the TSCA guidelines listed above as test standards. The changes made in the guidelines and the justification for these changes are set forth below.

1. *Salmonella typhimurium reverse mutation assay.* The direct plate incorporation method was selected as the choice assay for MO. Strains TA 1535, TA 1537, TA 98 and TA 100 were chosen because they have the largest data base of chemicals tested in this assay. Aroclor 1254 induced rat liver was chosen as the source of metabolic activation because it is the preferred source of activation for this assay, and because of its large historic data base. Both untreated and vehicle controls should be run to ensure that the solvent has no effect upon spontaneous reversion rate. DMSO is the routine solvent of choice for this assay. MO is to be tested over at least five doses up to a maximum of 5 mg/plate (in the absence of toxicity) to ensure an adequate range of test doses for detection of potential activity.

2. *Detection of gene mutation in somatic cells in culture.* L5178Y mouse lymphoma cells were chosen for use in this assay because of the activity of MO's structural analogue, isophorone, in this system. Both untreated and vehicle controls are to be used to ensure that the vehicle has no effect upon cell growth, survival or spontaneous mutation rate. Aroclor 1254 induced rat liver S-9 is the chosen source of metabolic activation because of its historical data base and generally accepted use in this assay. DMSO is the solvent of choice for this system. A 4-hour exposure time was chosen because it is the standard exposure period recommended for this test.

3. *Sex-linked recessive lethal test in Drosophila Melanogaster.* A negative control is to be included regardless of the size of the historical control because the assay is too important to be done without one. This will ensure that any observed effects are the result of chemical treatment and not environmental factors. Exposure is by vapors because it is the route of human exposure.

4. *The mouse visible specific locus test.* EPA is proposing that this assay be done at 2 doses by the inhalation route. EPA believes that dose-response data are essential for risk estimation. The route of administration is by inhalation because that is the expected route of human exposure. The mouse is the test animal of choice. Strains $(C_3H \times 101)F_1$ or $(101 \times C_3H)F_1$ hybrids are chosen because of the historical data base available for these strains.

## IV. Reporting Requirements

EPA is proposing that all data developed under this rule be reported in accordance with its TSCA Good Laboratory Practice (GLP) standards which appear at 40 CFR Part 792.

Test sponsors are required to submit individual study plans at least 30 days prior to the initiation of each study.

EPA is required by section 4(b)(1)(c) of TSCA to specify the time period during which persons subject to a test rule must submit test data. The Agency is proposing specific reporting requirements for each of the proposed test standards as follows:

The subchronic toxicity tests shall be completed and the final results submitted to the Agency within 15 months of the effective date of the final test rule. Interim progress reports shall be provided quarterly.

The mutagenicity studies shall be completed and the final results submitted to the Agency as follows:

First tier gene mutation and chromosomal aberration tests within 1 year.

Second tier gene mutation and chromosomal aberration tests within 2 years.

Third tier gene mutation within 4 years. Interim quarterly reports shall be provided for all tests.

The oncogenicity tests, to be triggered if certain tier I or II mutagenicity tests are positive, shall be completed and the final results submitted to the Agency 53 months after submission of the positive mutagenicity test results. Interim progress reports shall be provided quarterly.

As required by TSCA section 4(d), the Agency plans to publish in the **Federal Register** a notice of the receipt of any test data submitted under this test rule within 15 days of receipt of that data. Except as otherwise provided in TSCA section 14, such data will be made available for examination by any persons.

## V. Issues for Comment

EPA invites comment on the use of the TSCA test guidelines and the chemical specific modifications to these guidelines as the proposed test standards for the required testing of mesityl oxide. EPA also invites comment on the proposed schedule for the required testing.

### VI. Public Meetings

If persons indicate to EPA that they wish to present oral comments on this proposed rule to EPA officials who are directly responsible for developing the rule and supporting analyses, EPA will hold a public meeting subsequent to the close of the public comment period in Washington, DC. Persons who wish to attend or to present comments at the meeting should call the TSCA Assistance Office (TAO): Toll Free: (800-424-9065); In Washington, DC: (544-1404); Outside the U.S.A. (Operator—202-554-1404), by (January 21, 1986. A meeting will not be held if members of the public do not indicate that they wish to make oral presentations. While the meeting will be open to the public, active participation will be limited to those persons who arranged to present comments and to designated EPA participants. Attendees should call the TAO before making travel plans to verify whether a meeting will be held.

Should a meeting be held, the Agency would transcribe the meeting and include the written transcript in the public record. Participants are invited, but not required, to submit copies of their statements prior to or on the day of the meeting. All such written materials will become part of EPA's record for this rulemaking.

### VII. Public Record

EPA has established a record for this rulemaking [Docket number (OPTS-42030B)] This record includes basic information considered by the Agency in developing this proposal and appropriate **Federal Register** notices. The Agency will supplement the record with additional information as it is received.

This record includes the following information:

*A. Supporting Documentation*

(1) **Federal Register** notices pertaining to this final rule consisting of:

(a) Notice containing the ITC designation of mesityl oxide to the Priority List (44 FR 31884; June 1, 1979).

(b) Notice of final rule requiring the submission of unpublished health and safety studies (47 FR 38780; September 2, 1982).

(c) Notice of proposed test rule for mesityl oxide (48 FR 30699; July 5, 1983).

(d) Notice adding mesityl oxide to the list of chemicals subject to the preliminary assessment information rule (49 FR 25859; June 25, 1984).

(e) Notice of final rule on EPA's TSCA Good Laboratory Practice Standards (48 FR 53922; November 29, 1983).

(f) Notice of final rule on test rule development and exemption procedures (49 FR 39774; October 10, 1984).

(g) Notice of final rule concerning data reimbursement (48 FR 41786; July 11, 1983).

(h) Notice of interim final rule on test rule development and exemption procedures (50 FR 20652; May 17, 1985).

(i) Notice of final rule on the $C_9$ Aromatic Hydrocarbon Fraction (50 FR 20662; May 17, 1985).

(j) Final Phase I rule on mesityl oxide.

(2) Support documents consisting of:

(a) Mesityl oxide technical support document for proposed rule.

(b) Economic impact analysis of NPRM for mesityl oxide.

(c) Economic impact analysis of final test rule for mesityl oxide.

(3) Communications consisting of:

(a) Written public comments.

(b) Transcription of public meeting.

(c) Summaries of phone conversations.

(d) Meeting summaries.

(4) Reports—published and unpublished contractor's reports.

Confidential Business Information (CBI), while part of the record, is not available for public review. A public version of the record, from which CBI has been deleted, is available for inspection from 8 a.m. to 4 p.m., Monday through Friday, except legal holidays, in Rm. E-107, 401 M St., SW., Washington, DC 20460.

### VIII. Other Regulatory Requirements

*A. Executive Order 12291*

Under Executive Order 12291, EPA must judge whether a regulation is "Major" and therefore subject to the requirements of a Regulatory Impact Analysis. This test rule is not major because it does not meet any of the criteria set forth in section 1(b) of the Order. The economic analysis of the testing of mesityl oxide is discussed in the final test rule which appears elsewhere in this issue of the **Federal Register.**

*B. Regulatory Flexibility Act*

Under the Regulatory Flexibility Act (15 U.S.C. 601 *et seq.*, Pub. L. 96-354, September 19, 1980), EPA is certifying that this test rule, if promulgated, will not have a significant impact on a substantial number of small businesses for the following reasons:

(1) There are no small manufacturers of this chemical.

(2) Small processors are not expected to perform testing themselves, or participate in the organization of the testing effort.

(3) Small processors will experience only very minor costs, if any, in securing exemption from testing requirements.

(4) Small processors are unlikely to be affected by reimbursement requirements.

*C. Paperwork Reduction Act*

The Office of Management and Budget (OMB) has approved the information collection requirements contained in the proposed rule under the provisions of the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*, and has assigned OMB control number 2070-0033. Comments on these requirements should be submitted to the Office of Information and Regulatory Affairs of OMB, marked "Attention: Desk Officer for EPA." The final rule package will respond to any OMB or public comments on the information collection requirements.

### List of Subjects in 40 CFR Part 799

Testing, Environmental protection, Hazardous substances, Chemicals.

Dated: December 13, 1985.

**John A. Moore,**

*Assistant Administrator for Pesticides and Toxic Substances.*

## PART 799—[AMENDED]

Therefore, it is proposed that Part 799 be amended as follows:

1. The authority citation for Part 799 continues to read as follows:

**Authority:** 15 U.S.C. 2603, 2611, 2625.

2. In § 799.2500 by adding paragraphs (c)(1)(ii) and (iii), (2)(ii) and (iii), (3)(ii) and (iii), and (4)(ii) and (iii) to read as follows:

**§ 799.2500 Mesityl oxide (MO)**

* * * * *

(c) * * *

(1) * * *

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(ii) *Test standard.* (A) Inhalation subchronic toxicity testing shall be conducted with MO in accordance with § 798.2450 of this chapter and modifications specified in paragraph (c)(1)(ii)(B) of this section.

(B) *Test standard modifications.* The requirement under § 798.2450 of this chapter is modified so that the rat is the required species.

(iii) *Reporting requirements.* (A) The subchronic testing shall be completed and the final results submitted to the Agency within 15 months of the effective date of the final test rule.

(B) Interim progress reports shall be provided quarterly beginning 90 days

after the effective date of the final Phase 2 test rule.

(2) * * *

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(ii) *Test standard.* (A)(*1*) The *in vitro* mammalian cytogenetic test shall be conducted with MO in accordance with § 798.5375 of this chapter and modifications specified in paragraph (c)(2)(ii)(A)(*2*) of this section.

(*2*) Test standard modifications. The following modifications to § 798.5375 of this chapter are required.

(*i*) The requirement under § 798.5375 of this chapter is modified so that MO shall be tested in established cell lines. The cell line or strain used shall be checked for *Mycoplasma* contamination and for karyotype stability.

(*ii*) The requirement under § 798.5375 of this chapter is modified so that MO shall be dissolved in DMSO prior to treatment of the cells.

(*iii*) The requirement under § 798.5375 of this chapter is modified so that at least 3 concentrations of the test substance over a range adequate to define the response shall be tested. The highest test concentration tested with and without metabolic activation shall be 5 mg/ml or that dose which shows evidence of cytotoxicity or reduced mitotic activity.

(B)(1) The *in vivo* mammalian bone marrow cytogenetics test: Chromosomal analysis shall be conducted with MO in accordance with § 798.5385 of this chapter and modifications specified in paragraph (c)(2)(ii)(B)(*2*) of this section.

(*2*) Test standard modifications. The following modifications to § 798.5385 of this chapter are required.

(*i*) The requirement under § 798.5385 of this chapter is modified so that the mouse is the required species.

(*ii*) The requirement under § 798.5385 of this chapter is modified so that three dose levels shall be used. The highest dose tested shall be the maximum tolerated dose or that producing some indication of cytotoxicity (e.g., partial inhibition of mitosis), or shall be the highest dose attainable.

(*iii*) The requirement under § 798.5385 of this chapter shall be modified so that the animals shall be exposed by inhalation for 6 hours/day for 5 consecutive days.

(C)(*1*) The rodent dominant lethal assay shall be conducted with MO in accordance with § 798.5450 of this chapter and modifications specified in paragraph (c)(2)(ii)(C)(*2*) of this section.

(*2*) Test standard modifications. The following modifications to § 798.5450 of this chapter are required.

(*i*) The requirement under § 798.5450 of this chapter is modified so that the mouse is the required species.

(*ii*) The requirement under § 798.5450 of this chapter is modified so that exposure shall be by inhalation for 5 days for 6 hours/day. Three dose levels shall be used. The highest dose shall produce signs of toxicity (e.g., slightly reduced fertility) or shall be the highest attainable.

(D)(*1*) The rodent heritable translocation test shall be conducted with MO in accordance with § 798.5460 of this chapter and modifications specified in paragraph (c)(2)(ii)(D)(*2*) of this section.

(*2*) Test standard modifications. The following modifications to § 798.5460 of this chapter are required.

(*i*) The requirement under § 798.5460 of this chapter is modified so that the mouse is the required species.

(*ii*) The requirement under § 798.5460 of this chapter is modified so that at least two dose levels shall be used. The highest dose shall result in toxic effects (which shall not produce an incidence of fatalities which would prevent a meaningful evaluation), or shall be the highest dose attainable.

(*iii*) The requirement under § 798.5460 of this chapter is modified so that animals shall be exposed by inhalation.

(iii) *Reporting requirements.* (A) The chromosomal aberration tests shall be completed and the final results submitted to the Agency as follows:

(*1*) The *in vitro* and *in vivo* (if required) tests within 1 year of the effective date of the final test rule.

(*2*) The dominant lethal assay (if required) within 2 years of the final test rule.

(*3*) The heritable translocation assay (if required) within 4 years of the final test rule.

(B) Interim progress reports shall be provided quarterly and beginning 90 days after the effective date of the final Phase 2 test rule.

(3) * * *

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(ii) *Test standard.* (A)(*1*) The *Salmonella typhimurium* mammalian microsomal reverse mutation assay (Ames assay) shall be conducted with MO in accordance with § 798.5265 of this chapter and modifications specified in paragraph (c)(3)(ii)(A)(*2*) of this section.

(*2*) Test standard modifications. The following modifications to § 798.5265 of this chapter are required.

(*i*) The requirement under § 798.5265 of this chapter is modified so that the direct plate incorporation method shall be used for this study.

(*ii*) The requirement under § 798.5265 of this chapter is modified so that strain-specific positive controls shall be included in the assay. The following controls are examples of those which may be used in the assay without metabolic activation: Strain TA 1535, sodium azide; strain TA 100, nitrofurantoin; TA 98, and TA 1537, 4-nitro-*o*-phenylenediamine.

(*iii*) The requirement under § 798.5265 of this chapter is modified so that test chemical and positive control reference substances shall be dissolved in DMSO and then further diluted in DMSO for use in the assay.

(*iv*) The requirement under § 798.5265 of this chapter is modified so that MO shall be tested up to 5 mg/plate or to the limits of solubility or toxicity. A suspected positive response not showing a clear-related response shall be confirmed by testing over a narrow range of concentrations.

(B)(*1*) The detection of gene mutations in somatic cells in culture shall be conducted with MO in accordance with § 798.5300 of this chapter and modifications specified in paragraph (c)(3)(ii)(B)(*2*) of this section.

(*2*) Test standard modifications. The following modifications to § 798.5300 of this chapter are required.

(*i*) The requirement under § 798.5300 of this chapter is modified so that MO shall be tested in L5178K mouse lymphoma cells.

(*ii*) The requirement under § 798.5300 of this chapter is modified so that MO shall be dissolved in DMSO prior to treatment of the cells. The final concentration of the vehicle shall not interfere with cell viability or growth rate.

(*iii*) The requirement under § 798.5300 of this chapter is modified so that the metabolic activation system shall be derived from the postmitochondrial fraction (S-9) of livers from rats pretreated with Aroclor 1254.

(*iv*) The requirement under § 798.5300 of this chapter is modified so that exposure shall be for 4 hours unless a different exposure time is justified by the investigator.

(C)(*1*) The sex-linked recessive lethal test in *Drosophila melanogaster* shall be conducted with MO in accordance with § 798.5275 of this chapter and modifications specified in paragraph (c)(3)(ii)(C)(*2*) of this section.

(*2*) Test standard modifications. The requirement under § 798.5275 of this chapter is modified so that exposure shall be by exposure to MO vapors.

(D)(*1*) The mouse visible specific locus test shall be conducted with MO in accordance with § 798.5200 of this chapter and modifications specified in paragraph (c)(3)(ii)(D)(*2*) of this section.

(2) Test standard modifications. The following modifications to § 798.5200 of this chapter are required.

(i) The requirement under § 798.5200 of this chapter is modified so that mice shall be used as the test species.

(ii) The requirement under § 798.5200 of this chapter is modified so that a minimum of two dose levels shall be tested.

(iii) The requirement under § 798.5200 of this chapter is modified so that animals shall be exposed to the test substance by inhalation. Exposure shall be for 6 hours a day. Duration of exposure shall be dependent upon accumulated total dose desired for each group.

(iii) *Reporting requirements.* (A) The gene mutation tests shall be completed and final results submitted to the Agency as follows:

(1) The *Salmonella typhimurium* mammalian microsomal reverse mutation assay and the gene mutation in somatic cells assay (if required) within 1 years of the effective date of the final test rule.

(2) The sex-linked recessive-lethal test in *Drosophila melanogaster* (if required) within 2 years of the effective date of the final test rule.

(3) The mouse specific-locus test (if required) within 4 years of the effective date of the final test rule.

(B) Interim progress reports shall be provided quarterly and beginning 90 days after the effective date of the final Phase 2 test rule.

(4) * * *

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(ii) *Test standard.* (A)(1) An oncogenicity bioassay shall be conducted by inhalation with MO in accordance with § 798.3300 of this chapter and modifications specified in paragraph (c)(4)(ii)(A)(2) of this section.

(2) Test standard modifications. The following modifications to § 798.3300 of this chapter are required.

(i) The requirement under § 798.3300 of this chapter is modified so that MO shall be tested in both rats and mice.

(ii) The requirement under § 798.3300 of this chapter is modified so that the animals shall be exposed to MO by the inhalation route for at least 6 hours per day on a 5-day per week basis.

(iii) *Reporting requirements.* (A) The oncogenicity tests shall be completed and final results submitted to the Agency 53 months after submission of the positive mutagenicity test results set forth in paragraphs (c)(2)(i) and (3)(i) of this section.

(B) Interim progress reports shall be provided quarterly and beginning 90 days after the submission of the study plan for this test.

[Approved by the Office of Management and Budget under control number 2070–0033.]

[FR Doc. 85–30173 Filed 12–19–85; 8:45 am]

BILLING CODE 6560–50–M

## FEDERAL COMMUNICATIONS COMMISSION

### 47 CFR Ch. I

[CC Docket No. 85–348]

### GTE Sprint Communications Corp. et al.; Correction

**AGENCY:** Federal Communications Commission.

**ACTION:** Proposed rule; correction.

**SUMMARY:** On December 10, 1985, the Commission published a Notice of Proposed Rule Making in this proceeding concerning GTE Sprint Communications Corporation, et al (50 FR 50316). In that document, the deadline for filing reply comments was referred to as being January 21, 1986. This document corrects that date to read: January 27, 1986.

**DATE:** The deadline for filing reply comments in this proceeding is January 27, 1986.

**ADDRESS:** Federal Communications Commission, Washington, DC 20554.

**FOR FURTHER INFORMATION CONTACT:** William Kirsch, Common Carrier Bureau, (202) 632–6363.

**William J. Tricarico,**

*Secretary, Federal Communications Commission.*

[FR Doc. 85–30015 Filed 12–19–85; 8:45 am]

BILLING CODE 6712–01–M

### 47 CFR Part 68

[CC Docket No. 81–216; RM–2845; et al.; CC Docket No. 84–490; RM–4458; FCC 85–591]

### Connection of Telephone Equipment, Systems and Protective Apparatus to the Telephone Network; etc.

**AGENCY:** Federal Communications Commission.

**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** The Commission is requesting comments in CC Docket 81–216 on the potential need for Part 68 standards for computer-controlled automatic dialing equipment. Part 68 of the Commission's rules sets forth the terms, conditions and technical standards for registration and connection to the telephone network of customer-provided telephone equipment. The Commission is asking for comments as to whether and how redialing controls can or should be imposed upon the manufacturers, distributors or users of modems and/or computers to prevent potential network harm such as excessive congestion potentially caused by computer controlled automatic dialing equipment. The Commission emphasizes that the focus of the inquiry on this issue will be limited to the minimum Part 68 standards necessary, if any, to prevent potential network harms.

**DATES:** Comments are due February 1, 1986 and replies March 1, 1986.

**ADDRESS:** Federal Communications Commission, Washington, DC 20554.

**FOR FURTHER INFORMATION CONTACT:** Patrick Donovan, Common Carrier Bureau, Federal Communications Commission, Washington, DC 20554 (202) 634–1832.

**SUPPLEMENTARY INFORMATION:**

### Fourth Notice of Proposed Rulemaking

In the Matter of Petitions Seeking Amendment of Part 68 of the Commission's Rules Concerning Connection of Telephone Equipment, Systems and Protective Apparatus to the Telephone Network; Notice of Inquiry into Standards for Inclusion of One and Two-Line Business and Residential Premises Wiring and Party Line Service in Part 68 of the Commission's Rules; CC Docket No. 81–216, RM–2845, RM–2930, RM–3195, RM–3206, RM–3227, RM–3283, RM–3316, RM–3329, RM–3348, RM–3501, RM–3526, RM–3530, RM–4054; and Petition to Amend Part 68 of the Commission's Rules to Permit Registration of Terminal Equipment for Connection to Voiceband Private Line Channels that Utilize Loop Start, Ringdown or Inband Signaling and Voiceband Metallic Private Line Channels; CC Docket No. 84–490, RM–4458.

Adopted October 30, 1985.

Released November 4, 1985.

By the Commission.

1. Part 68 of the Commission's rules, 47 CFR Part 68, sets forth the terms and conditions for registration and connection of customer-provided terminal equipment to the telephone network. In a report and order in the above-captioned proceeding adopted by the Commission this same date, the Commission has made diverse modifications, deletions and additions to Part 68.[1] *Petitions Seeking*

[1] The above-captioned proceeding was initiated by *Petitions Seeking Amendment of Part 68 of the Commission's Rules Concerning Connection of Telephone Equipment, Systems and Protective Apparatus to the Telephone Network; Notice of Inquiry into Standards for Inclusion of One and Two-Line Business and Residential Wiring and Party Line Service in Part 68 of the Commission's Rules (First Notice)*, CC Docket 81–216, 85 F.C.C.2d 868 (1981).

*Amendment of Part 68 of the Commission's Rules Concerning Connection of Telephone Equipment, Systems and Protective Apparatus to the Telephone Network; Notice of Inquiry into Standards for Inclusion of One and Two-Line Business and Residential Wiring and Party Line Service in Part 68 of the Commission's Rules* (*First Notice*), CC Docket 81–216, FCC 85–580, adopted October 30, 1985. These modifications to Part 68 include, *inter alia*, limitations on automatic dialing terminal equipment. Specifically, a new § 68.318(c) requires as a condition of registration that automatic dialing equipment terminate calls to a particular number after fifteen successive attempts. This limitation is intended to prevent potential network congestion at telephone company central offices, particularly during the peak network usage periods, caused by the proliferation of telephone devices incorporating circuitry that permits automatic redialing of telephone numbers. Devices such as alarm dialers, repertory dialers, computerized polling machines, and telephones capable of automatic number repetition could severely limit availability of customer trunks, causing delays in customers' access to the telephone network, *i.e.*, difficulty "getting dial tone." These delays occur when large numbers of calls are placed in a short period of time, such as in response to radio station contests, or during local emergency conditions, *e.g.*, power failures.

2. However, as indicated by the Commission, one issue has not been adequately explored in the record of this proceeding concerning automatic dialing, *i.e.*, potential network harms such as those enumerated above caused by computer assisted modems employed as automatic dialers. *Id.* para. 41. New § 68.318(c) will apply without question to terminal equipment such as alarm dialers, repertory dialers, computerized polling and telemarketing machines, and automatic redialing telephone instruments. Similarly, if a modem with automatic dialing capabilities itself detertmines when and how often a redial is to be performed, it is relatively simple to impose registration standards on how often such action may be done. However, as explained by the Commission in its concurrent report and order in this proceeding, many such devices used with personal or other computers do not themselves make this determination; rather the determination may be made by the computer itself. Imposition of redialing limitations through the registration process seemingly would necessitate redesign of the modem (so that it could limit the redialing capability) or a requirement for some form of control over the hardware, software or firmware resident in (or utilized with) the computer itself. With the increasing numbers of personal computers used with modems, the redialing and potential attendant network harm warrants further consideration of this matter. Accordingly, further comments are hereby solicited as to whether and how redialing controls can or should be imposed upon the manufacturers, distributors or users of modems and/or computers to prevent the kind of harm associated with repertory dialing. We emphasize that the focus of the Commission's inquiry on this issue will be limited to the minimum Part 68 standards necessary, if any, to prevent potential network harms. The Commission will not readdress the broader policy issues discussed in *In The Matter of Unsolicited Telephone Calls*, CC Docket 78–100, 77 F.C.C.2d 1023 (1980). Comments should provide proposed language for necessary Part 68 rule amendments. Comments will be due no later than February 1, 1986, and replies no later than March 1, 1986. We will then adopt a further order in this docket resolving Part 68 issues concerning the automatic dialing capabilities of modems and computer assisted modems.

**Regulatory Flexibility Act Initial Analysis**

3. The reason for the Commission issuing this notice of proposed rulemaking is the potential need to create Part 68 limitations on modems and other computer assisted automatic dialing equipment terminal equipment. The objective of this notice of proposed rulemaking is to seek public comment on, provide notice of, and ascertain the need for, Part 68 limitations on computer assisted automatic dialing equipment. The legal basis for the action proposed is Section 1 of the Communications Act of 1934, as amended. The description, potential impact and number of small entities affected is that Part 68 limitations on computer assisted automatic dialing equipment would require small entities manufacturing or employing such equipment to comply with the standards, if any, adopted by the Commission. It is impossible to estimate the number of such entities affected as such standards will be applicable only to those entities voluntarily choosing to register or employ such equipment. Additional paperwork and record keeping would be required by the Commission's adoption of Part 68 limitations on computer assisted automatic dialing equipment for those entities registering such equipment in that they would have to demonstrate compliance with Part 68 standards in their Part 68 registration application. There are no federal rules which overlap, duplicate or conflict with the Commission's proposed action. There are no significant alternatives minimizing impact on small entities and consistent with the Commission's stated objective above. Written comments are requested on this initial regulatory flexibility act analysis. These comments must be filed in accordance with the same filing deadline set for comments on the other issues in this notice of proposed rulemaking, but they must have a separate and distinct heading designating them as responses to the regulatory flexibility act analysis.

4. Accordingly, pursuant to 47 U.S.C. 151 154(i), 154(j), 201–205, 218, 220, 313, 403, 412, and 5 U.S.C. 553, that Part 68 of the Commission's Rules and Regulations, 47 CFR 68.1, *et seq.*, notice is herby provided of proposed rule changes in Part 68 of the Commission's rules, 47 CFR Part 68, in accordance with the discussion and delineation of issues herein.

5. It is further ordered, that the Secretary shall cause a copy of this document to be printed in the **Federal Register** and shall send a copy to the Counsel of Advocacy of the Small Business Administration in accordance with section 603(a) of the Regulatory Flexibility Act [5 U.S.C. 601 *et seq.* (1980).

Federal Communications Commission.

**William J. Tricarico,**

*Secretary.*

[FR Doc. 85–30009 Filed 12–19–85; 8:45 am]

BILLING CODE 6712–01–M

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## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

### 50 CFR Part 17

### Endangered and Threatened Wildlife and Plants; Public Hearing and Reopening of Comment Period on Proposed Endangered Status for Bruneau Hot Spring Snail (Family Hydrobiidae)

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule; notice of public hearing and reopening of comment period.

**SUMMARY:** The U.S. Fish and Wildlife Service gives notice that a public hearing will be held on the proposed determination of endangered status for the Bruneau hot spring snail and that the comment period on this proposal is reopened. This species occurs only in two small hot springs and their immediate outflows in Owyhee County, Idaho. The major threat to this species is the drastic and continuing reduction in spring flows. The hearing and the reopening of comment period will allow comments on this proposal to be submitted from all interested parties.

**DATES:** The comment period on the proposal is reopened December 20, 1985. The public hearing will be held at 7:30 p.m., on Wednesday, January 15, 1986, in Bruneau, Idaho. The comment period, which originally closed on October 21, 1985, now closes February 1, 1986.

**ADDRESSES:** The public hearing will be held at the Rimrock Junior-Senior High School on State Highway 78 between Bruneau and Grand View, Bruneau, Idaho. Written comments and materials should be sent to the Regional Director, U.S. Fish and Wildlife Service, Lloyd 500 Building, 500 NE. Multnomah St., Suite 1692, Portland, Oregon 97232. Comments and materials received will be available for public inspection during normal business hours, by appointment, at the Regional Endangered Species Division at the above Regional Office address.

**FOR FURTHER INFORMATION CONTACT:** Mr. Jay Gore, Division of Endangered Species, U.S. Fish and Wildlife, 4696 Overland Road, Room 576, Boise, Idaho 83705 (503/334–1806 or FTS 554–1806).

## Background

The first collections of this species were made in 1952 and 1953. Dr. Dwight W Taylor of Tiburon, California, has studied the anatomy of the species and determined that it represents a previously unknown genus and species of the snail family Hydrobiidae. The adults of this species reach only about 5 millimeters in length of the shell. The species occurs in only two small thermal springs or seep areas and their immediate outflows. The snails have been found in these habitats on rocks, gravel, mud, and algal film. The springs and proximal outflows, which constitute the most important habitat, are on land administered by the Bureau of Land Management (BLM). Downstream habitat is on private land.

Section 4(b)(5)(E) of the Endangered Species Act of 1973, as amended, requires that a public hearing be held, if requested within 45 days of the publication of a proposed rule. The Service held a public hearing on December 10, 1985 in Boise, Idaho. Based on statements given that not all interested parties could reach this location, another hearing has been organized. The Service has scheduled this hearing for January 15, 1986 at 7:30 at the Rimrock Junior-Senior High School on State Highway 78 between Bruneau and Grand View, Bruneau, Idaho. Those parties wishing to make statements for the record should have available a copy of their statements to be presented to the Service at the start of the hearing. Oral statements may be limited to 5 or 10 minutes, if the number of parties present that evening necessitates some limitation. There are no limits to the length of written comments presented at this hearing or mailed to the Service.

The comment period on the proposal originally closed on October 21, 1985. In order to accommodate the hearing, the Service also reopens the public comment period. Written comments may now be submitted for this proposal until February 1, 1986, to the Service office in the Addresses section.

## Author

The primary author of this notice is Ms. Carolyn Bohan, U.S. Fish and Wildlife Service, 500 N.E. Multnomah St., Suite 1692, Portland, Oregon 97232 (503/231–6131 or FTS 429–6131).

**Authority:** The authority for this action is the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*; Pub. L. 93–205, 87 Stat. 884; Pub. L. 94–359, 90 Stat. 911; Pub. L. 95–632, 92 Stat. 3751; Pub. L. 96–159, 93 Stat. 1225; Pub. L. 97–304, 96 Stat. 1411).

## List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Dated: December 16, 1985.

**Joseph R. Blum,**

*Acting Regional Director.*

[FR Doc. 85–29760 Filed 12–19–85; 8:45 am]

BILLING CODE 4310–55–M

# Notices

Federal Register
Vol. 50, No. 245
Friday, December 20, 1985

This section of the FEDERAL REGISTER contains documents other than rules or proposed rules that are applicable to the public. Notices of hearings and investigations, committee meetings, agency decisions and rulings, delegations of authority, filing of petitions and applications and agency statements of organization and functions are examples of documents appearing in this section.

## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

### National Advisory Committee on Ocean and Atmosphere; Meeting

December 17, 1985.

Pursuant to section 10(a)(2) of the Federal Advisory Committee Act, 5 U.S.C. App. 1 (1982), as amended, notice is hereby give that the National Advisory Committee on Oceans and Atmosphere (NACOA) will hold a meeting Monday and Tuesday, January 6–7, 1986. The meeting will be held at 2001 Wisconsin Avenue, NW., Page Building #1, Rooms 416 and B–100, Washington, DC. The meeting will commence at 9:00 a.m. and end at 4:30 p.m. on Monday and commence at 9:00 a.m. and end at 3:30 p.m. on Tuesday.

The Committee, consisting of 18 non-Fedeal members appointed by the President from academia, business and industry, public interest organizations, and State and local governments was established by Congress by Pub. L. 95–63 on July 5, 1977. Its duties are to (1) undertake a continuing review, on a selective basis, of national ocean policy, coastal zone management, and the status of the marine and atmospheric science and service programs of the United States; (2) advise the Secretary of Commerce with respect to the carrying out of the programs administered by the National Oceanic and Atmospheric Administration; and (3) submit an annual report to the President and to the Congress setting forth an assessment, on a selective basis, of the status of the Nation's marine and atmospheric activities, and submit such other reports as may from time to time be requested by the President or Congress.

The tentative agenda is as follows:

**Monday, January 6, 1986**

2001 Wisconsin Avenue, NW., Page Building #1, Rooms 416 and B–100, Washington, DC
9:00 a.m.–12:00 Noon Plenary
9:00 a.m.–9:15 a.m. Announcements
9:15 a.m.–9:30 a.m. Swering-In Ceremony: J. Curtis Mack II, Deputy Administrator, Natiaonal Oceanic and Atmospheric Administration
9:30 a.m.–11:30 a.m. Guest Speakers: Alad D. Hecht, Director, National Climate Program, Topic: The National Climate Program
10:30 a.m.–11:30 a.m. Charles L. Hosler, Jr. Chairman, Board on Atmospheric Sciences and Climate, National Reserach Council, Topic: Atmospheric Science Issues
1130 a.m.–12:30 p.m. Committee Discussion, NOAA Roles and Missions Study
12:30 p.m.–1:30 p.m. Lunch
1:30 p.m.–4:30 p.m. Panel meetings
Panel 1: Roles and Missions of the National Ocean Service/National Marine Fisheries Service, Room B–100, Topic: Panel Work Session, Speakers: TBA
Panel 3: Roles and Missions of the National Environmental Satellite, Data, and Information Service/ Office of Oceanic and Atmospheric Reserach, Room 416, Topic: Panel Work Session, Speakers: None
4:30 p.m. Recess

**Tuesday, January 7, 1986**

2001 Wisconsin Avenue, NW., Page Building #1, Rooms 416 and B–100, Washington, DC
9:00 a.m.–12:00 Noon Panel Meetings
Panel 2: Roles and Missions of the National Weather Service/National Climate Program, Room B–100, Topic: Panel Work Session, Speakers: None
Exclusive Economic Zone, Chairman: Lee C. Gerhard, Room 416, Topic: Panell Work Session, Speakers: None
12:00 Noon–1:00 p.m. Lunch
1:00 p.m.–3:30 p.m. Plenary
Old Business: Acid Rain Position Statement; Panel Reports; New Business Calendar; New Committee Topics
3:30 p.m. Adjourn

The public is welcome at the sessions and will be admitted to the extent that seating is available. Persons wishing to make formal statements should notify the Chairman in advance of the meeting. The Chairman retains the prerogative to place limits on the duration of oral statements and discussions. Written statements may be submitted before or after each session.

Additional information concerning these meetings may be obtained through the Committee's Acting Executive Director, Amor L. Lane, whose mailing address is: National Advisory Committee on Oceans and Atmosphere 3300 Whitehaven Street, NW., Page Building #1, Suite 438, Washington, DC 20235. The telephone number is 202/653–7818.

Date: December 17, 1985.

**Amor L. Lane,**

*Acting Executive Director.*

[FR Doc. 85–30164 Filed 12–19–85; 8:45 am]

BILLING CODE 3510–12–M

## COMMITTEE FOR THE IMPLEMENTATION OF TEXTILE AGREEMENTS

### Establishing an Import Limit for Certain Cotton Textile Products, Produced or Manufactured in Portugal

December 16, 1985.

The Chairman of the Committee for the Implementation of Textile Agreements (CITA), under the authority contained in E.O. 11651 of March 3, 1972, as amended, has issued the directive published below to the Commissioner of Customs to be effective on December 20, 1985. For further information contact Ann Fields, International Trade Specialist, Office of Textiles and Apparel, U.S. Department of Commerce (202) 377–4212.

**Background**

On July 11, 1985, a notice was published in the **Federal Register** (50 FR 28243) which announced that, on June 26, 1985, the Government of the United States had requested the Government of Portugal to enter into consultations concerning exports to the United States of women's, girls' and infants' cotton knitshirts in Category 339, produced or manufactured in Portugal and exported during the twelve-month period which began on June 26, 1985 and extends through June 25, 1986. Inasmuch as no solution has been reached in consultations on a mutually satisfactory limit for this category, the United States

Government has decided to control imports in Category 339, exported during the twelve-month period which began on June 26, 1985 at a level of 257,853 dozen. The level has not been adjusted to reflect any imports exported after June 25, 1985. Imports from July 1, 1985 through October 31, 1985 amounted to 39,040 dozen. As the data become available, further charges will be made.

The United States remains committed to finding a solution concerning this category. Should such a solution be reached in consultations with the Government of Portugal, further notice will be published in the **Federal Register.**

A description of the textile categories in terms of T.S.U.S.A. numbers was published in the **Federal Register** on December 13, 1982 (47 FR 55709), as amended on April 7, 1983 (48 FR 15175), May 3, 1983 (48 FR 19924), December 14, 1983 (48 FR 55607), December 30, 1983 (48 FR 57584), April 4, 1984 (49 FR 13397), June 28, 1984 (49 FR 26622), July 16, 1984 (49 FR 28754), November 9, 1984 (49 FR 44782), and in Statistical Headnote 5, Schedule 3 of the Tariff Schedules of the United States Annotated (1985).

**Walter C. Lenahan,**

*Chairman, Committee for the Implementation of Textile Agreements.*

Commissioner of Customs, Department of the Treasury, Washington, DC 20229.

Dear Mr. Commissioner: Under the terms of Section 204 of the Agricultural Act of 1956, as amended (7 U.S.C. 1854), and in accordance with the provisions of Executive Order 11651 of March 3, 1972, as amended, you are directed to prohibit, effective on December 20, 1985, entry into the United States for consumption and withdrawal from warehouse for consumption of cotton textile products in Category 339, produced or manufactured in Portugal and exported during the twelve-month period beginning on June 26, 1985 and extending through June 25, 1986, in excess of 257,853 dozen.[1]

Textile products in Category 339 which have been exported to the United States prior to June 26, 1985 shall not be subject to this directive.

Textile products in Category 339 which have been released from the custody of the U.S. Customs Service under the provisions of 19 U.S.C. 1448(b) or 1484(a)(1)(A) prior to the effective date of this directive shall not be denied entry under this directive.

A description of the textile categories in terms of T.S.U.S.A. numbers was published in the **Federal Register** on December 13, 1982 (47 FR 55709), as amended on April 7, 1983 (48 FR 15175), May 3, 1983 (48 FR 19924), December 14, 1983 (48 FR 55607), December 30, 1983 (48 FR 57584), April 4, 1984 (49 FR 13397), June 28, 1984 (49 FR 26622), July 16, 1984 (49 FR 28754), November 9, 1984 (49 FR 44782), and in Statistical Headnote 5, Schedule 3 of the Tariff Schedules of the United States Annotated (1985).

In carrying out the above directions, the Commissioner of Customs should construe entry into the United States for consumption to include entry for consumption into the Commonwealth of Puerto Rico.

The Committee for the Implementation of Textile Agreements has determined that this action falls within the foreign affairs exception to the rulemaking provisions of 5 U.S.C. 553.

Sincerely,

Walter C. Lenahan,

*Chairman, Committee for the Implementation of Textile Agreements.*

[FR Doc. 85-30112 Filed 12-19-85; 8:45 am]

BILLING CODE 3510-DR-M

[1] The level has not been adjusted to reflect any imports exported after June 25, 1985. Imports from July 1, 1985 through October 31, 1985 amounted to 39,040 dozen.

## COMMODITY FUTURES TRADING COMMISSION

### MidAmerica Commodity Exchange; Proposed Amendments Relating to Copper Futures Contracts

**AGENCY:** Commodity Futures Trading Commission.

**ACTION:** Notice of proposed contract market rule changes.

**SUMMARY:** Notice of proposed contract market rule changes.

**SUMMARY:** The MidAmerica Commodity Exchange ("MCE" or "Exchange") has submitted a proposal to amend its copper futures contract. The principal amendments would delete certain currently deliverable grades of copper and allow delivery only of high grade copper cathodes; revise the current list of Exchange-approved warehouses at U.S. delivery points and add warehouses located in Europe; and increase the contract size. The Director of the Division of Economic Analysis of the Commodity Futures Trading Commission "(Commission") has determined that this proposal is of major economic significance and that, accordingly, publication of the proposal is in the public interest, will assist the Commission in considering the views of interested persons, and is consistent with the purposes of the Commodity Exchange Act.

**DATE:** Comments should be received on or before January 21, 1986.

**ADDRESS:** Interested persons should submit their views and comments to Jean A. Webb, Secretary, Commodity Futures Trading Commission, 2033 K Street, NW., Washington, DC 20581. Reference should be made to the proposed amendments to the MCE rules in Chapter 28 regarding the copper futures contract.

**FOR FURTHER INFORMATION CONTACT:** Nancy McCabe, Division of Economic Analysis, Commodity Futures Trading Commission, 2033 K Street, NW., Washington, DC 20581, (202) 254-7303.

**SUPPLEMENTARY INFORMATION:** The most significant proposed amendments are as follows:

1. The MCE is proposing to amend its copper contract to provide that the only deliverable grade of copper will be high grade copper cathodes. To accomplish this, the official list of MCE-approved copper brands would be amended to specify only those brands which are currently approved for delivery on the high grade copper cathode contract of the London Metal Exchange ("LME"). The amended list would include 43 brands—24 brands of copper which are currently approved for MCE delivery as Grade 1 cathode and 19 new brands of high grade cathode not currently deliverable. The proposed amendments to the list of MCE-approved brands would delete 15 currently approved brands of Grade 1 cathode (those which are not approved for the LME contract) as well as all currently deliverable brands of Grade 2 electrolytic cathode, electrolytic wire bars and ingot bars, fire refined high conductivity copper ingot bars and other fire refined copper ingot bars.

2. A proposed amendment to the list of Exchange-approved warehouses and delivery points will allow delivery of copper at 10 warehouses located at 7 U.S. delivery points and 28 warehouses located at 5 European delivery points. The existing list includes 30 Exchange-approved warehouses located at 16 U.S. delivery points.

3. The MCE is proposing to increase the contract size of 55,000 pounds, plus or minus 2.2 percent. The current contract size is 12,500 pounds, plus or minus 2 percent.

4. The Exchange is proposing to reduce the speculative position limits for all months combined to 1,500 from 6,000 contracts and to reduce the spot month limit to 1,250 from 5,000 contracts.

5. The Exchange is proposing to increase the minimum price fluctuation to $0.0005 per pound from $0.0001 per pound.

6. Finally, the Exchange is proposing several changes in the delivery procedure to facilitate foreign delivery and changes in the list of Exchange-approved assayers and weighmasters.

The MCE submits that the proposed amendments to its copper futures contract reflect major structural changes

in the cash market for copper. The MCE submitted data that indicate that high grade copper cathode has become the principal copper produced and demanded since the development of continuous cast rod technology in 1965. The Exchange further provided information regarding the international nature of the copper market. In that regard, the Exchange provided evidence that the proposed contract size is established and accepted internationally and that the proposed domestic and European delivery facilities represent major cash market delivery points with access to major production, consumption and import centers.

The Exchange proposes to apply the amendments to all newly listed contracts subsequent to Commission approval.

In accordance with section 5a(12) of the Commodity Exchange Act, 7 U.S.C. 7a(12) (1982), and acting pursuant to the authority delegated by Commission Regulation 140.96, the Director of the Division of Economic Analysis, on behalf of the Commission, has determined that the proposal submitted by the MidAmerica Commodity Exchange relating to its copper futures contract is of major economic significance. Comments are requested concerning the proposed amendments and implementation procedure. The MCE proposal will be available for inspection at the Office of the Secretariat, Commodity Futures Trading Commision, 2033 K Street, NW., Washington, DC 20581. Copies can be obtained through the Office of the Secretariat by mail at the above address or by phone at (202) 254–6314.

Other material submitted by the MCE in support of the proposed amendment may be available upon request pursuant to the Freedom of Information Act (5 U.S.C. 552) and the Commission's regulations thereunder (17 CFR Part 145 (1984)), except to the extent that they are entitled to confidential treatment as set forth in 17 CFR 145.5 and 145.9. Requests for copies of such materials should be made to the FOI, Privacy and Sunshine Act Compliance Staff of the Office of the Secretariat at the Commission's headquarters in accordance with 17 CFR 145.7 and 145.8

Issued in Washington, DC on December 13, 1985.

**Paula A. Tosini,**

*Director, Division of Economic Analysis.*

[FR Doc. 85–30158 Filed 12–19–85; 8:45 am]

BILLING CODE 6351–01–M

## DEPARTMENT OF DEFENSE

### Defense Logistics Agency

### Privacy Act of 1974; Systems of Records

**AGENCY:** Defense Logistics Agency (DLA), Department of Defense (DoD).

**ACTION:** Notice of amendments to two DLA systems of records.

**SUMMARY:** The Defense Logistics Agency of the Department of Defense proposes to amend two systems of records subjects to the Privacy Act of 1974, as amended (5 U.S.C. 552a). The specific changes to the system notices being amended are set forth below followed by the record systems notices, as amended, published in their entirety.

**DATE:** The proposed actions shall be effective without further notice on or before January 21, 1986, unless comments are received which would result in a contrary determination.

**ADDRESS:** Send any comments to the System Manager identified in the particular applicable record system notice.

**FOR FURTHER INFORMATION CONTACT:** Mr. Merv Jones, DLA–XAM, Defense Logistics Agency, Cameron Station, Alexandria, VA 22304–6100, Telephone: 202/274–6234, Autovon 284–6234.

**SUPPLEMENTARY INFORMATION:** The Defense Logistics Agency systems of records as prescribed by the Privacy Act of 1974, as amended (5 U.S.C. 552a) have been published in the **Federal Register** at 50 FR 22897, May 29, 1985 (FR Doc. 85–10237). These amendments do not require an altered system report as set forth by 5 U.S.C. 552a (o).

**Linda M Lawson,**

*Alternate OSD Federal Liaison Officer, Department of Defense.*

December 16, 1985.

AMENDMENTS

*System Identification:*

S322.10 DLA–LZ

*System Name:*

Defense Manpower Data Center Base (50 FR 221916) May 29, 1985

*Changes:*

*Categories of Individuals Covered by the System:*

In the second paragraph after the phrase "Individuals receiving disability compensation from the Veterans Administration;" delete the semi-colon and add the phrase "or who are coverded by Veterans Administration insurance or benefit program;".

*Categories of Records in the System:*

After the final phrase of the first paragraph "military hospital records" add the phrase "and home and work addresses," and add in the second paragraph after the opening phrase "Champus claim records" add "containing enrollee, patient and provider data such as cause of treatment, amount of payment, name and social security or tax ID of providers or potential providers of care." Add to second paragraph "and credit or financial data as required for security investigations."

*Purpose:*

Add after the phrase "to assess manpower trends" add:", support personnel functions,".

*Routine Uses of Records Maintained in the System, Including Categories of Users and the Purposes of such Uses:*

Add to the phrase "Veterans Administration—To analyze the costs to the individual of military service connected disabilities" the phrase", to monitor the amount of coveage under the Veterans Group Life Insurance program, and to provide information on individual's eligibility for GI Bill education and training benefits."

Delete the 12th paragraph phrase starting with, "Veterans Administration."

Add to the end of the next to last paragrph, "To Federal agencies and State and Local governments to support personnel functions requiring data of prior military service credit for their employees or for job applications."

Add before the final paragraph: "To the Internal Revenue Service to obtain home addresses to contact Reserve component members for mobilization purposes and for debt collection." Internal Revenue Service (IRS): to conduct aggregate statistical analyses on the impact on DoD personnel of actual changes in the tax laws and to conduct aggregate statistical analyses of lifestream earnings of current and former military personnel to be used in studying the comparability of civilian and military pay and benefits.

Add to first paragraph: Veterans Administration and its contractor, the Purdential Insurance Company: To notify members of the individual Ready Reserve (IRR) of their right to apply for Veterans' Group Life Insurance coverage. To administer Veterans Administration and DoD programs for Reserve pay, VA compensation, military retired pay; and active duty separation payments.

Add: Credit Bureaus—Records may be referred to private contract organizations to comply with the provisions of the Debt Collection of 1982 and to comply with the requirements to update security clearance investigations.

S322.50DLA-LZ

*System Name:*

Defense Enrollment/Eligibility Reporting System (DEERS). (50 FR 22920) May 29, 1985.

*Changes:*

*Categories of Individuals Covered by the System:*

After the last word "dependents" add "; and any other individuals entitled to care under the health care program; providers and potential providers of health care; any individual who submits a health care claim."

*Categories of Records in the System:*

After the last word "sponsor" and "; and claim records of CHAMPUS claims containing enrollee, patient and provider data such as cause of treatment, amount of payment, name and social security or tax ID number of providers of care."

*Purposes:*

Add after the last word "amounts" add "and to detect fraud and abuse of the benefit program by claimants and providers."

*Routine Uses of Records maintained in the System, Including Categories of Users and the Purpose of Such Uses:*

Change the first sentence to read "Department of Health and Human Services; Veterans Administration; Federal Preparedness Agency; Commerce Department and Transportation Department for the Conduct of health care studies, for the planning and allocation of medical resources, for support of the DEERS enrollement process, and to identify individuals not entitled to health care."

In the Second sentence change the phrase "The data provided includes summary data * * * " to " the data provided includes data * * *"

Change the last sentence to the following: "To other federal agencies to identify fraud and abuse of the federal agency's programs and to identify * * *".

Following the last sentence add "State, local and territorial governments to help eliminate fraud and abuse in their benefits programs."

S322.10 DLA-LZ

**SYSTEM NAME:**

Defense Manpower Data Center Data Base.

**SYSTEM LOCATION:**

Primary location: W. R. Church Computer Center, Navy Postgraduate School, Monterey, CA 93920.

Back-up files maintained in a back vault in Hermann Hal, Naval Postgraduate School, Montercy, CA.

Decentralized segments—Portions of this file may be maintained by the military personnel and finance centers of the services; selected civilian contractors with research contracts in manpower area and other Federal agencies.

**CATEGORIES OF INDIVIDUALS COVERED BY THE SYSTEM:**

All officers and enlisted personnel who served on active duty from July 1, 1968 and later or who have been a member of a reserve component since July 1975; retired military personnel; participants in Project 100,000 and Project Transition and the evalution control groups for these programs. All individuals examined to determine eligibility for military service at an Armed Forces Entrance and Examining Station from July 1, 1970, and later. DoD civilian employees or DoD civilian employees separated since January 1, 1971. All veterans who have used GI Bill education and training entitlements, who visited a state employment service office since January 1, 1971, or who participated in a Department of Labor special training program since July 1, 1971. All individuals who ever participated in an educational program sponsored by the U.S. Armed Forces Institute, all individuals who participated in the Armed Force Vocational Aptitude Testing Programs at the high school level since September 1969. Individuals who responded to various paid advertising campaigns seeking enlistment information since July 1, 1973; participants in the Department of Health and Human Services, National Longitudianl Survey. Individuals responding to recruiting advertisements since January 1978; survivors of retired military personnel who are eligible for or currently receiving disability payments or disability income compensation from the Veterans Administration; surviving spouses of active or retired deceased military personnel; 100% disabled veterans and their survivors.

Individuals receving disability compensation from the Veterans Administration or who are covered by a Veterans Administration insurance or benefit program; civilian employees of the Federal Government; dependents of active duty military retirees, selective service registrants. Individuals receiving a security background investigation as identified in the Defense Central Index of Investigation.

**CATEGORIES OF RECORDS IN THE SYSTEM:**

Computerized records consisting of Name, Service Number, Selective Service Number, Social Security Account Number, demographic information such as home town, age, sex, and race, and education level; civilian occupational information, military personnel information such as rank, length of service, military occupation; aptitude scores, post-service education, training, and employment information for veterans; participation in various inservice education and training; programs, military hospitalization records and home and work addresses.

Champus claim records containing enrollee, patient and provider data such as cause of treatment, amount of payment, name and social security or tax ID of providers or potential providers of care, military compensation data, selective service registration data, Veterans Administration disability payment records, security clearance records and credit or financial data as required for security background investigations.

**AUTHORITY FOR MAINTENANCE OF THE SYSTEM:**

10 U.S.C. 136; Pub. L. 97-252.

**PURPOSE(S):**

The purpose of the system of records is to provide single central facility within the Department of Defense to assess manpower trends, support personnel functions, perform longitudinal statistical analysis, identify current and former DoD civilian and military personnel for purposes of detecting fraud and abuse of pay and benefit programs and to collect debts owed to the United States Government and state and local governments.

**ROUTINE USES OF RECORDS MAINTAINED IN THE SYSTEM, INCLUDING CATEGORIES OF USERS AND THE PURPOSES OF SUCH USES:**

Veterans Administration (VA): To administer Veterans Administration and DoD programs for Reserve pay, VA compensation military retired pay and active duty separation payments. To analyze the costs to the individual of military service connected disabilities, to monitor the amount of coverage under the Veterans' Group Life Insurance

program, and to provide information on individuals' eligibility for GI Bill education and training benefits. To Veterans Administration and its contractor, the Prudential Insurance Company, to notify members of the Individual Ready Reserve (IRR) of their right to apply for Veterans' Group Life Insurance coverage. To the Veterans Administration Management Sciences Staff for Reports and Statistics Services, Office of the Comptroller, for the purpose of selecting samples for surveys asking veterans about the use of veterans benefits and satisfaction with VA services, and to validate eligibility for VA benefits.

Internal Revenue Service (IRS): For the purpose of obtaining home addresses to contact Reserve component members for mobilization purposes and for debt collection. For the purpose of conducting aggregate statistical analyses on the impact on DoD personnel of actual changes in the tax laws and to conduct aggregate statistical analyses of lifestream earnings of current and former military personnel to be used in studing the comparability of civilian and military pay and benefits.

Department of Health and Human Services (DHHS): Disclosure of information from this system may be made to the Office of the Inspector General for the purpose of identification and investigation of DoD employees (military and civilian) who may be improperly receiving funds under the Aid for Families of Dependent Children Program. To the Office of Child Support Enforcement, pursuant to Pub. L. 93-647, to assist state child support offices in locating absent parents in order to establish and/or enforce child support obligations.

Social Security Administration (DHHS): To the Office of Research and Statistics for the purpose of conducting statistical analyses of impact of military service and use of GI Bill benefits on long term earning. To the Bureau of Supplemental Security Income for the purpose of verification and adjustment of payments made by the SSA to the active and retired military members under the Supplemental Security Income Program.

DoD Civilian Contractors: Disclosure of information may be made from this system to contractors for the purpose of performing research on manpower problems for statistical analyses.

Office of Personnel Management (OPM): Disclosure of information may be made from this system for the purpose of OPM carrying out its management functions. Records disclosed concern pay, benefits, retirement deductions, and other information necessary for those management functions.

Selective Service System (SSS): Information from this system may be disclosed to the Director of the Selective Service System for the purpose of facilitating compliance of members and former members of the Armed Forces, both active and reserve, with the provisions of the Selective Service System registration regulations.

Department of Education (DOE): Disclosure of information may be made from this system to DOE for the purpose of identifying individuals who appear to be in default on their guaranteed student loans so as to permit DOE to take action, where appropriate, to accelerate recoveries of defaulted loans.

Federal Government and Quasi-Federal Agencies: To identify military retirees employed in a civilian capacity whose civilian pay must be offset as a result of increases in military retiree pay pursuant to the Budget Reconciliation Act of 1982, Pub. L. 97-252.

To Federal Agencies, Territorial, State and Local Governments: To support personnel functions requiring data on prior military service credit for their employees or for job applications. To help eliminate fraud and abuse in their benefit programs and to collect debts and overpayments owed to those programs. Information released includes name, social security account number and mailing address of individuals.

Other Federal Agencies: To help eliminate fraud and abuse in the programs administered by agencies within the Federal government and to collect debts and overpayment owed to the Federal government. Information release may include aggregate data and/or individual records in the record system may be transferred to any other federal agencies having a legitimate need for such information and applying appropriate safeguards to protect data so provided. Records of debtors obligated to DoD, but currently employed by another federal agency may be referred to the employing agency under the provisions of the Debt Collection Act of 1982 for the purpose of the debt.

Consumer Reporting Agencies: Disclosures may be made from this system to consumer reporting agencies as defined in the Fair Credit Reporting Act (15 U.S.C. 1681a(f) or the Federal Claims Collection Act of 1966 (31 U.S.C. 3701(a)(3)).

Credit Bureaus and Debt Collection Agencies: Disclosures may be referred to private contract organizations to comply with the provisions of the Debt Collection Act of 1982 (10 U.S.C. 136) for non-payment of an outstanding debt, and to comply with requirements to update security clearance investigations.

Blanket Routine Uses: See also the blanket routine uses set forth at the beginning of the Defense Logistics Agency's listing of systems of records which are also applicable to this record system.

**POLICIES AND PRACTICES FOR STORING, RETRIEVING, ACCESSING, RETAINING AND DISPOSING OF RECORDS IN THE SYSTEM:**

**STORAGE:**

Magnetic computer tape.

**RETRIEVABILITY:**

Retrievable by name, Social Security Number, occupation, or any other data element contained in system.

**SAFEGUARDS:**

Primary location—At W. R. Church Computer Center, tapes are stored in a locked cage in machine room, which is a controlled access area; tapes can be physically accessed only by computer center personnel and can be mounted for processing only if the appropriate security code is provided.

Back-up location—tapes are stored in a bank type vault and buildings are locked after hours and only properly cleared and authorized personnel have access.

**RETENTION AND DISPOSAL:**

Files constitute a historical data base and are permanent.

**SYSTEM MANAGER(S) AND ADDRESS(ES):**

Deputy Director, Defense Manpower Data Center (DMDC), 550 Camino El Estero, Monterey, CA 93940.

**NOTIFICATION PROCEDURES:**

Information may be obtained from the System Manager.

**RECORD ACCESS PROCEDURES:**

Requests from individuals should be addressed to the System Manager.

Written requests for information should contain the full name, Social Security Number, date of birth, and current address and telephone number of the individual.

For personal visits, the individual should be able to provide some acceptable identification such as driver's license, or military or other identification card.

**CONTESTING RECORD PROCEDURES:**

The DLA rules for access to records and for contesting contents and appealing initial determinations may be obtained from the System Manager.

**RECORD SOURCE CATEGORIES:**

The Military Services, the Veterans Administration, the Department of Education, Department of Health and Human Services, from individuals via survey questionnaires, the Department of Labor, the Office of Personnel Management, federal and Quasi-federal agencies, Selective Service System, the U.S. Postal Service.

**SYSTEMS EXEMPTED FROM CERTAIN PROVISIONS OF THE ACT:**

None.

**S322.50DLA-LZ**

**SYSTEM NAME:**

Defense Enrollment/Eligibility Reporting System (DEERS).

**SYSTEM LOCATION:**

Primary location: W.R. Church Computer Center, Navy Postgraduate School, Monterey, CA 93940.

Decentralized segments—A support center and an elibility center are maintained and operated by a contractor in Monterey, CA and Alexandria, VA; two data processing centers in Sacramento, CA and Camp Hill, PA and the Processing Center for Automation of DoD Forms 1172 in Santa Barbara, CA.

Back-up files maintained at the Defense Manpower Data Center, 550 Camino El Estero, Monterey, CA 93940.

**CATEGORIES OF INDIVIDUALS COVERED BY THE SYSTEM:**

Active duty Armed Forces and reserve personnel and their dependents, retired Armed Forces personnel and their dependents; surviving dependents of deceased active duty or retired personnel; active duty and retired Coast Guard personnel; active duty and retired Public Health Service (PHS) personnel (Commissioned Corps) and their dependents; and active duty and retired National Oceanic and Atmospheric Administration (NOAA) employees (Commissioned Corps) and their dependents; and State Department employees employed in a foreign country and their dependents and any other individuals entitled to care under the health care program; providers and potential providers of health care; any individual who submits a health care claim.

**CATEGORIES OF RECORDS IN THE SYSTEM:**

Computer files containing beneficiary's name, Service or Social Security Number of sponsor, enrollment number, relationship of beneficiary to sponsor, residence address of beneficiary to sponsor, residence address of beneficiary (includes zip code), date of birth of beneficiary, sex of beneficiary, branch of service of sponsor, dates of beginning and ending eligibility, number of dependents of sponsor, primary unit duty location of sponsor, race and ethnic origin of beneficiary, occupation of beneficiary, rank/pay grade of sponsor; and claim records of CHAMPUS claims containing enrollee, patient and provider data such as cause of treatment, amount of payment, name and social security or tax ID number of providers of care.

**AUTHORITY FOR MAINTENANCE OF THE SYSTEM:**

10 U.S.C. 136; 1969 Pub. L. 91-121, Section 404(A)(2), 'Establishment of the Assistant Secretary of Defense for Health Affairs; the Presidentially Commissioned Department of Defense, Department of Health, Education and Welfare. Office of Management and Budget Report of the Health Care Study (completed December 1975)': DoD Directive 1341.1, Defense Enrollment/ Eligibility Reporting System, October 14, 1981; DoD Instruction 1341.2, DEERS Procedures.

**PURPOSE(S):**

The purpose of the system is to provide a data base for determining eligibility to receive health care benefits under the Uniformed Health Services Delivery System and CHAMPUS, to monitor the accuracy of payments and to identify and collect overpaid amounts and to detect fraud and abuse of the benefit program by claimants and providers.

**ROUTINE USES OF RECORDS MAINTAINED IN THE SYSTEM, INCLUDING CATEGORIES OF USERS AND THE PURPOSES OF SUCH USES:**

Department of Health and Human Services; Veterans Administration; Federal Preparedness Agency; Commerce Department and Transportation Department for the conduct of health care studies and for the planning and allocation of medical resources, for support of the DEERS enrollment process, and to identify individuals not entitled to health care. The data provided includes data on ages, sex, residence and other demographic parameters. To other federal agencies to identify fraud and abuse of the federal agency's programs and to identify debtors and collect debts and overpayments in the DoD health care programs. State and local and territorial governments to help eliminate fraud and abuse in their benefit programs.

**POLICIES AND PRACTICES FOR STORING, RETRIEVING, ACCESSING, RETAINING, AND DISPOSING OF RECORDS IN THE SYSTEM:**

**STORAGE:**

Records are maintained on magnetic tapes and discs are housed in a controlled computer media library.

**RETRIEVABILITY:**

Records about individuals are retrieved by an algorithm determined by contractor which uses name, enrollment number, Social Security Number, date of birth, rank and duty location as possible inputs. Retrievals are made on a summary basis by geographic characteristics and location and demographic characteristics. Information about individuals will not be distinguishable in such summary retrievals. Retrievals for the purposes of generating address lists for direct mail distribution of health care information may be made using selection criteria based on geographic and demographic keys.

**SAFEGUARDS:**

Computerized records are maintained in a controlled area accessible only to authorized personnel. Entry to these areas is resticted to those personnel with a valid requirement and authorization to enter. Physical entry is restricted by the use of locks, guards, administrative procedures (e.g., fire protection regulations). Exits used solely for emergency situations are secured to prevent unauthorized instrusion.

Personal data stored at a separate location for backup purposes is protected at least comparably to the protection provided at the primary location.

Requirements for protection of information are binding on contractors or their representative and are subject to the following minimum standards:

Access to personal information is restricted to those who require the records in the performance of their official duties, and to the individuals who are the subject of the record or their authorized representative. Access to personal information is further retricted by the use of passwords which are changed periodically.

All those officials whose duties require access to, or processing and maintenance of, personal information are trained in the proper safeguarding and use of the information.

**RETENTION AND DISPOSAL:**

Computerized records on an individual are maintained as long as the individual is legally eligible to receive health care benefits from the Uniformed

Health Sciences Delivery System. The records are maintained for two (2) years after termination of eligibility.

Records may be disposed of or destroyed only in accordance with DoD Component record management regulations which conform to the controlling disposition of such material as set forth in 44 U.S.C. 3301–3314. Non-record material containing personal information and other material of similar temporary nature is destroyed as soon as its intended purpose has been served under procedures established by the Head of the DoD Component consistent with the following requirement. Such material shall be destroyed by tearing, burning, melting, chemical deposition, pulping, pulverizing, shredding, or mutilation sufficient to preclude recognition or reconstruction of the information.

**SYSTEM MANAGER(S) AND ADDRESS(ES):**

Project Manager, DEERS, Defense Manpower Data Center, 2100 Garden Road, Suite J, Monterey, CA 93940.

**NOTIFICATION PROCEDURES:**

Information may be obtained from: Project Manager, DEERS, Defense Manpower Data Center, 2100 Garden Road, Suite J, Monterey, CA 93940.

**RECORD ACCESS PROCEDURES:**

Requests from individuals should be addressed to: Project Manager, DEERS, Defense Manpower Data Center, 2100 Garden Road, Suite J, Monterey, CA 93940, (408) 646–2126. Autovon: 878–2126.

Written requests for the information should contain full name of individual and sponsor, if applicable, and other attributes required by previously mentioned search algorithm.

For personal visits the individual should be able to provide a data element required to satisfy the previously mentioned algorithm.

Identification should be corroborated with a driver's license or other positive identification.

**CONTESTING RECORD PROCEDURES:**

The DLA rules for access to records and for contesting contents and appealing initial determinations are contained in 32 CFR Part 286b and OSD Administrative Instruction No. 81.

**RECORD SOURCE CATEGORIES:**

Personnel and financial pay systems of the Military Departments, the coast Guard, the Public Health Service, the National Oceanic and Atmospheric Administration and other Federal agencies having employees eligible for military medical care.

**SYSTEMS EXEMPTED FROM CERTAIN PROVISIONS OF THE ACT:**

None.

[FR Doc. 85–30123 Filed 12–19–85; 8:45 am]

BILLING CODE 3810-01-M

## Corps of Engineers, Department of the Army

### Intent To Prepare a Draft Environmental Impact Statement (DEIS) for Proposed Navigational Improvements on the Kvichak River Near Levelock, AK

**AGENCY:** U.S. Army Engineer Disrtict, Alaska.

**ACTION:** Notice of Intent to prepare a Draft Environmental Impact Statement.

**SUMMARY:** 1. The proposed action is to determine the feasibility of navigational improvements on the Kvichak Flat near the outlet of Iliamna Lake.

2.The navigational improvements will alleviate the grounding of barge traffic during the spring and early summer months. These barges supply goods to the communities along Iliamna Lake. Navigational improvements to be studied include, but are not limited to; dredging, channelization, and slough blocking.

3. Scoping for the DEIS will include coordination with interested local, State, and Federal agencies and other interested parties. Formal scoping meetings are not planned at this time.

Anticipated subjects to be addressed included: socio-economic impacts, cultural resources, water quality, fisheries, widlife, endangered species, and measures to minimize adverse impacts.

4. The expected completion date for the DEIS is February, 1987.

**ADDRESS:** Questions about the proposed action and the DEIS can be answered by: William D. Lloyd, Chief, Environmental Resources Section, U.S. Army Engineer District, Alaska, P.O. Box 898, Anchorage, Alaska 99506–0898.

Dated: December 11, 1985.

**Roy S. Carlson, Jr.,**

*Lieutenant Colonel, Corps of Engineers, Acting District Engineer.*

[FR Doc. 85–30099 Filed 12–19–85; 8:45 am]

BILLING CODE 3710-NL-M

# DEPARTMENT OF ENERGY

## University of Washington Grant Award

**AGENCY:** Department of Energy, Richland Operations Office.

**ACTION:** Notice of Restriction of Eligibility for Grant Award.

**SUMMARY:** The Department of Energy, Richland Operations Office, announces that it intends to award a grant to the University of Washington acting as fiscal and legal agent for the Northwest College and University Association for Science (NORCUS), in the amount of $450,000 for the first year of a five year project period for the "University—DOE Laboratory Cooperative Program." Funding during the next five years is expected to average $700,000 per year. Pursuant to the DOE Financial Assistance Rules, 10 CFR 600.7(b), DOE-Richland has determined that eligibility for this grant award shall be limited to the University of Washington on behalf of NORCUS.

Grant number: DE–FG06–86ER75235.

Scope of project: NORCUS proposes to facilitate the process of providing college and university science and engineering faculty and students with energy-related training and research experience in DOE Laboratory and contractor facilities in the Richland area. Activity will include the appointments and assignments of undergraduate students, graduate students, faculty, post doctoral research associates and some pre-college personnel; as well as the conduct of seminars, workshops, visits, and institutes under the University—DOE Laboratory Cooperative Program.

**FOR FURTHER INFORMATION CONTACT:** Marji Parker, U.S. Department of Energy, Richland Operations Office, P.O. Box 550, Richland, WA 99352 (509) 376–2029.

Issued in Richland, WA December 9, 1985.

**Michael J. Lawrence,**

*Manager.*

[FR Doc. 85–30140 Filed 12–19–85; 8:45 am]

BILLING CODE 6450-01-M

## Economic Regulatory Administration

**[ERA Docket No. 85–34–NG]**

### Amoco Energy Trading Corp.; Application To Import Natural Gas From Canada

**AGENCY:** Economic Regulatory Administration, DOE.

**ACTION:** Notice of Application for Blanket Authorization to Import Natural Gas from Canada for Short-Term and Spot Sales.

**SUMMARY:** The Economic Regulatory Administration (ERA) of the Department of Energy (DOE) gives notice of receipt

on December 4, 1985, of an application filed by Amoco Energy Trading Corporation (Amoco Energy) for blanket authorization to import from Canada up to 35 Bcf per year of natural gas over a two-year period beginning on the date of first delivery. The gas would be supplied by various Canadian pipelines and producers and sold to natural gas distributors and other U.S. purchasers. Amoco Energy proposes to file quarterly reports indicating, by month, whether sales have been made, and if so, giving the details of each transaction

The application is filed with the ERA pursuant to section 3 of the Natural Gas Act and Delegation Order No. 0204–111. Protests, motions to intervene, notices of intervention, and written comments are invited.

**DATE:** Protests, motions to intervene or notices of intervention, as applicable, and written comments are to be filed no later than 4:30 p.m. on January 21, 1986.

**FOR FURTHER INFORMATION CONTACT:**

Thomas Dukes, Natural Gas Division, Office of Fuels Programs, Economic Regulatory Administration, Forrestal Building, Room GA–076, 1000 Independence Ave., SW., Washington, DC 20585, (202) 252–9590

Diane Stubbs, Office of General Counsel, Natural Gas and Mineral Leasing, U.S. Department of Energy, Forrestal Building, Room 6E–042, 1000 Independence Ave., SW., Washington, DC 20585, (202) 252–6667

**SUPPLEMENTARY INFORMATION:** Amoco Energy, a Delaware corporation, is a wholly-owned subsidiary of Amoco Company, which is wholly owned by Amoco Corporation. Amoco Corporation is an integrated company engaged in exploration, production, refining, transportation and marketing of oil, natural gas and other hydrocarbons.

Amoco Energy seeks authorization to import up to a total of 35 Bcf per year of Canadian gas for a term of two years (for a total of up to 70 Bcf) for short-term or spot sales. The applicant states that it seeks the authorization on a self-implementing or blanket basis in order to eliminate regulatory delays which it asserts place the Canadian supplies at a competitive disadvantage in the U.S. spot market.

Amoco Energy states that it would act as a broker for U.S. purchasers, individual Canadian producer groups and associations, and Canadian pipelines. Amoco Energy may also act on its own behalf as an importer of natural gas for resale to U.S. purchasers. Amoco expects to sell the gas to industrial end-users, agricultural users, electric utilities, pipelines and distribution companies.

The applicant intends to purchase the gas from a number of Canadian suppliers whose identities, as well as those of the buyers, would not be known until the transactions are consummated. Amoco Energy indicates that the specific terms of each short-term or spot sale will be the product of negotiations and responsive to market conditions. Amoco Energy expects that the majority of short-term and spot sales would be used to displace higher priced domestic energy supplies. Amoco Energy proposes filing quarterly reports giving the specific terms for each sale, including the price paid by the purchaser, the volume, the duration of the agreement, transportation arrangements to deliver the gas from the U.S.-Canadian border and, where applicable, contract adjustments and take provisions.

Amoco Energy believes that approval and implementation of this gas import application would have a positive impact on the environment in instances where Amoco Energy's natural gas is displacing the consumption of high sulfur fuel oil and coal. When competitively priced in the market place, no adverse environmental impact is anticipated. In addition, Amoco states that it intends to use existing transmission systems and does not require the construction of new or separate facilities in order to import the gas.

In support of its application, Amoco Energy states that approval of its arrangement would be consistent with the public interest because of the beneficial competitive consequences inherent in freely negotiated spot and short-term sales. Thus, if Amoco Energy cannot obtain competitively priced Canadian gas or adjust the sales price to meet the market price, no sales would be made and no gas would be imported under the requested authorization.

This application is one of a number received by the ERA concerning the purchase of imported gas for spot and short-term blanket opportunities. The authorization would provide the applicant with blanket import approval to negotiate and transact individual short-term sales arrangements without further regulatory action. The requested authorization is similar to other blanket imports the ERA has recently approved.

The decision on this application will be made consistent with the DOE's gas import policy guidelines, under which the competitiveness of an import arrangement in the markets served is the primary consideration in determining whether it is in the public interest (49 FR 6684, February 22, 1984). The objective of this policy is to free commercial parties from undue government interference in determining contract terms and reflects the importance of buyer-seller negotiation. Parties that may oppose this application should comment in their responses on the issue of competitiveness as set forth in the policy guidelines. The applicant has asserted that this import arrangement is competitive. Parties opposing the arrangement bear the burden of overcoming this assertion.

**Other Iinformaion**

In response to this notice, any person may file a protest, motion to intervene, or notice of intervention, as applicable, and written comments. Any person wishing to become a party to the proceeding and to have written comments considered as the basis for any decision on the application must, however, file a motion to intervene or notice of intervention, as applicable. The filing of a protest with respect to this application will not serve to make the protestant a party to the proceeding, although protests and comments received from persons who are not parties will be considered in determining the appropriate procedural action to be taken on the application. All protests, motions to intervene, notices of intervention, and written comments must meet the requirements that are specified by the Natural Gas Division, Office of Fuels Programs, Economic Regulatory Administration, Room GA–076–A, RG–23, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585. They must be filed no later than 4:30 p.m., January 21, 1986.

The Administrator intends to develop a decisional record on the application through responses to the notice by parties, including the parties' written comments and replies thereto. Additional procedures will be used as necessary to achieve a complete understanding of the facts and issues. A party seeking intervention may request that additional procedures be provided, such as additional written comments, an oral presentation, a conference, or a trial-type hearing. Any request to file additional written comments should explain why they are necessary. Any request for an oral presentation should identify the substantial question of fact, law or policy at issue, show that it is material and relevant to a decision on the proceeding, and demonstrate why an oral presentation is needed. Any request for a conference should demonstrate why the conference would materially advance the proceeding. Any request for a trial-type hearing must show that there

are factual issues genuinely in dispute that are relevant and material to a decision and that a trial-type hearing is necessary for a full and true disclosure of the facts.

If an additional procedure is scheduled, the ERA will provide notice to all parties. If no party requests additional procedures, a final opinion and order may be issued based on the official record, including the application and responses filed by parties pursuant to this notice, in accordance with 10 CFR 590.316.

A copy of Amoco Energy's application is available for inspection and copying in the Natural Gas Division Docket Room, GA-076-A, at the above address. The docket room is open between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays.

Issued in Washington, DC., on December 16, 1985.

**Robert L. Davies,**

*Director, Office of Fuels Programs, Economic Regulatory Administration.*

[FR Doc. 85-30137 Filed 12-19-85; 8:45]

BILLING CODE 6450-01-M

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**[ERA Docket No. 85-37-NG]**

## National Gas Imports; Amtran Gas Transmission, Inc.; Application To Import Natural Gas From Canada for Short-Term and Spot Sales

**AGENCY:** Economic Regulatory Administration, DOE.

**ACTION:** Notice of Application for Blanket Authorization to Import Natural Gas from Canada for Short-Term and Spot Sales.

**SUMMARY:** The Economic Regulatory Administration (ERA) of the Department of Energy (DOE) gives notice of receipt on December 4, 1985, of an application from Amtran Gas Transmission, Inc. (Amtran) a wholly-owned subsidiary of Diamond Shamrock Exploration Company, for blanket authorization to import Canadian natural gas for individual short-term and spot sales. Authorization is requested to import up to 200 MMcf of Canadian natural gas a day and a maximum of 100 Bcf during a two-year term beginning on the date of first delivery of the import. Amtran intends to market the natural gas produced by its affiliate, Diamond Shamrock Exploration of Canada, as well as to act as a purchaser-reseller and a marketer of other gas supplies, acting as agent on behalf of both producers and purchasers. Amtran proposes to submit quarterly reports within 30 days following each calendar quarter.

The application was filed with the ERA pursuant to Section 3 of the Natural Gas Act and DOE Delegation Order No. 0204-111. Protests, motions to intervene, notices of intervention, and written comments are invited.

**DATE:** Protests, motions to intervene, or notices of intervention, as applicable, and written comments are to be filed no later than January 21, 1986.

**FOR FURTHER INFORMATION CONTACT:**

Edward J. Peters, Jr., Natural Gas Division, Office of Fuels Programs, Economic Regulatory Administration, Forrestal Building, Room GA-076, 1000 Independence Avenue, SW., Washington, DC 20585 (202) 252-8162

Diane Stubbs, Office of General Counsel, Natural Gas and Mineral Leasing, U.S. Department of Energy, Forrestal Building, Room 6E-042, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 252-6667

**SUPPLEMENTARY INFORMATION:** The decision on this application will be made consistent with the DOE's gas import policy guidelines, under which competitiveness of an import arrangement in the markets served is the primary consideration in determining whether it is in the public interest (49 FR 6684, February 22, 1984). Parties that may oppose this application should comment in their responses on the issue of competitiveness as set forth in the policy guidelines. The applicants assert that this import arrangement is competitive. Parties opposing the arrangement bear the burden of overcoming this assertion.

### Public Comment Procedures

In response to this notice, any person may file a protest, motion to intervene or notice of intervention, as applicable, and written comments. Any person wishing to become a party to the proceeding and to have the written comments considered as the basis for any decision on the application must, however, file a motion to intervene or notice of intervention, as applicable. The filing of a protest with respect to this application will not serve to make the protestant a party to the proceeding, although protests and comments received from persons who are not parties will be considered in determining the appropriate procedural action to be taken on the application. All protests, motions to intervene, notices of intervention, and written comments must meet the requirements that are specified by the regulations in 10 CFR Part 590. They should be filed with the Natural Gas Division, Office of Fuels Programs, Economic Regulatory Administration, Room GA-076, RG-23, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585. They must be filed no later than 4:30 p.m. January 21, 1986.

The Administrator intends to develop a decisional record on the application through responses to this notice by parties, including the parties' written comments and replies thereto. Additional procedures will be used as necessary to achieve a complete understanding of the facts and issues. A party seeking intervention may request that additional procedures be provided, such as additional written comments, an oral presentation, a conference, or a trial-type hearing. Any request to file additional written comments should explain why they are necessary. Any request for an oral presentation should identify the substantial question of fact, law, or policy at issue, show that it is material and relevant to a decision in the proceeding, and demonstrate why an oral presentation is needed. Any request for a conference should demonstrate why the conference would materially advance the proceeding. Any request for a trial-type hearing must show that there are factual issues genuinely in dispute that are relevant and material to a decision and that a trial-type hearing is necessary for a full and true disclosure of the facts.

If an additional procedure is scheduled, the ERA will provide notice to all parties. If no party requests additional procedures, a final opinion and order may be issued based on the official record, including the application and responses filed by parties pursuant to this notice, in accordance with 10 CFR § 590.316.

A copy of Amtran's application is available for inspection and copying in the Natural Gas Division Docket Room, GA-076-A at the above address. The docket room is open between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday, except holidays.

Issued in Washington, D.C., December 16, 1985.

**Robert L. Davies,**

*Director, Office of Fuels Programs, Economic Regulatory Administration.*

[FR Doc. 85-30136 Filed 12-19-85; 8:45 am]

BILLING CODE 6450-01-M

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**[ERA Docket No. 85-35-NG]**

## Natural Gas Imports; Frito-Lay, Inc.; Application To Import Natural Gas From Canada

**AGENCY:** Department of Energy, Economic Regulatory Administration.

**ACTION:** Notice of Application for Authorization to Import Natural Gas from Canada.

**SUMMARY:** The Economic Regulatory Administration (ERA) of the Department of Energy (DOE) gives notice of receipt on December 4, 1985, of the application of Frito-Lay, Inc. (Frito-Lay) to import on a best-efforts basis up to 2,000 MMBtu of Canadian natural gas per day and up to 1,460,000 MMBtu over a two-year period from December 31, 1985, to December 31, 1987, for use in its food processing plants in Vancouver, Washington, and Beaverton, Oregon. The imported volumes are to be purchased from Poco Petroleum Ltd. (Poco) at a border price of $2.25 (U.S.) per MMBtu and transported by Northwest Pipeline Corporation and Northwest Natural Gas Company. The contract contains a market-out provision which permits Frito-Lay to renegotiate or terminate the contract unless the delivered price remains less than or equal to competing gas prices of alternate suppliers.

The application is filed with the ERA pursuant to section 3 of the Natural Gas Act and DOE Delegation Order No. 0204–111. Protests, motions to intervene, notices of intervention, and written comments are invited.

**DATE:** Protests, motions to intervene or notices of intervention, as applicable, and written comments are to be filed no later than 4:30 p.m., on January 21, 1986.

**FOR FURTHER INFORMATION CONTACT:**

Norman Breckner, Natural Gas Division, Office of Fuels Programs, Economic Regulatory Administration, Forrestal Building, Room GA–076, 1000 Independence Avenue, SW., Washington, D.C. 20585, (202) 252–9482.

Diane Stubbs, Office of General Counsel, Natural Gas and Mineral Leasing, U.S. Department of Energy, Forrestal Building, Room 6E–042, 1000 Independence Avenue, SW., Washington, D.C. 20585, (202) 252–6667.

**SUPPLEMENTARY INFORMATION:** The decision on this application will be made consistent with the DOE's gas import policy guidelines, under which the competitiveness of an import arrangement in the markets served is the primary consideration in determining whether it is in the public interest (49 FR 6684, February 22, 1984). Parties that may oppose this application should comment in their responses on the issue of competitiveness as set forth in the policy guidelines. The applicant asserts that this import arrangement is competitive. Parties opposing the arrangement bear the burden of overcoming this assertion.

**Public Comment Procedures**

In response to this notice, any person may file a protest, motion to intervene, or notice of intervention, as applicable, and written comments. Any person wishing to become a party to the proceeding and to have the written comments considered as the basis for any decision on the application must, however, file a motion to intervene or notice of intervention, as applicable. The filing of a protest with respect to this application will not serve to make the protestant a party to the proceeding, although protests and comments received from persons who are not parties will be considered in determining the appropriate procedural action to be taken on the application. All protests, motions, to intervene, notices of intervention, and written comments must meet the requirements that are specified by the regulations in 10 CFR Part 590. They should be filed with the Natural Gas Division, Office of Fuels Programs, Economic Regulatory Administration, Room GA–076, RG–23, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585. They must be filed no later than 4:30 p.m., January 21, 1986.

The Administrator intends to develop a decisional record on the application through responses to this notice by parties, including the parties' written comments and replies thereto. Additional procedures will be used as necessary to achieve a complete understanding of the facts and issues. A party seeking intervention may request that additional procedures be provided, such as additional written comments, an oral presentation, a conference, or a trial-type hearing. Any request to file additional written comments should explain why they are necessary. Any request for an oral presentation should identify the substantial question of fact, law, or policy at issue, show that it is material and relevant to a decision in the proceeding, and demonstrate why an oral presentation is needed. Any request for a conference should demonstrate why the conference would materially advance the proceeding. Any request for a trial-type hearing must show that there are factual issues genuinely in dispute that are relevant and material to a decision and that a trial-type hearing is necessary for a full and true disclosure of the facts.

If an additional procedure is scheduled, the ERA will provide notice to all parties. If no party requests additional procedures, a final opinion and order may be issued based on the official record, including the application and responses filed by parties pursuant to this notice, in accordance with 10 CFR 590.316.

A copy of Frito-Lay's application is available for inspection and copying in the Natural Gas Division Docket Room, GA–076–A, at the above address. The docket room is open between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday, except holidays.

Issued in Washington, D.C. December 16, 1985.

**Robert L. Davies,**

*Director, Office of Fuels Programs, Economic Regulatory Administration.*

[FR Doc. 85–30138 Filed 12–19–85; 8:45 am]

BILLING CODE 6450–01–M

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**[ERA Docket No. 85–36–NG]**

## Natural Gas Imports; Yankee International Co.; Application To Import Natural Gas From Canada

**AGENCY:** Economic Regulatory Administration, DOE.

**ACTION:** Notice of Blanket Application To Import Natural Gas from Canada for Short-Term and Spot Sales.

**SUMMARY:** The Economic Regulatory Administration (ERA) of the Department of Energy (DOE) gives notice of receipt on December 4, 1985, of an application from Yankee International Company (Yankee) for blanket authorization to import for short-term, spot sales up to 400 MMcf of Canadian natural gas per day and a maximum of 296 Bcf over a period of two years beginning on the date of first delivery. Yankee proposes to import the gas both for its own account and for the accounts of the currently undesignated Canadian suppliers and U.S. purchasers. Yankee proposes to make quarterly reports to the ERA.

The application was filed with the ERA pursuant to Section 3 of the Natural Gas Act and DOE Delegation Order No. 0204–111. Protests, motion to intervene, notices of intervention and written comments are invited.

**DATES:** Protests, motions to intervene or notices of intervention, as applicable, and written comments are to be filed no later than 4:30 p.m., January 21, 1986.

**FOR FURTHER INFORMATION CONTACT:**

Olga T. Ronkovich, Natural Gas Division, Office of Fuels Programs, Economic Regulatory Administration, Forrestal Building, Room GA–076, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 252–9482;

Diane J. Stubbs, Office of General Counsel, Natural Gas and Mineral Leasing, Department of Energy, Forrestal Building, Room 6E–042, 1000

Independence Avenue, SW., Washington, DC 20585, (202) 252-6667.

**SUPPLEMENTARY INFORMATION:** The decision on this application will be made consistent with the Secretary of Energy's gas import policy guidelines, under which the competitiveness of an import arrangement in the markets served is the primary consideration in determining whether it is in the public interest (49 FR 6684, February 22, 1984). The objective of this policy is to free commercial parties from undue government interference in determining contract terms and reflects the importance of buyer-seller negotiation. Parties that may oppose this application should comment in their responses on the issue of competitiveness as set forth in the policy guidelines. The applicant has asserted that this import arrangement is competitive. Parties opposing the arrangement bear the burden of overcoming this assertion.

**Public Comment Procedures**

In response to this notice, any person may file a protest, motion to intervene, or notice of intervention, as applicable, and written comments. Any person wishing to become a party to the proceeding and to have written comments considered as the basis for any decision on the application must, however, file a motion to intervene or notice of intervention, as applicable. The filing of a protest with respect to this application will not serve to make the protestant a party to the proceeding although protests and comments received from persons who are not parties will be considered in determining the appropriate procedural action to be taken on the application. All protests, motions to intervene, notices of intervention, and written comments must meet the requirements that are specified by the Natural Gas Division, Office of Fuels Programs, Economic Regulatory Administration, Room GA-076-A, RG-23 Forrestal Building, 100 Independence Avenue, SW., Washington D.C. 20585. They must be filed no later than 4:30 p.m., January 21, 1986.

The Administrator intends to develop a decisional record on the application through responses to the notice by parties, including the parties' written comments and replies thereto. Additional procedures will be used as necessary to achieve a complete understanding of the facts and issues. A party seeking intervention may request that additional procedures be provided, such as additional written comments, an oral presentation, a conference, or a trial-type hearing. Any request to file additional written comments should explain why they are necessary. Any request for an oral presentation should identify the substantial question of fact, law or policy at issue, show that it is material and relevant to a decision on the proceeding, and demonstrate why an oral presentation is needed. Any request for a conference should demonstrate why the conference would materially advance the proceeding. Any request for a trial-type hearing must show that there are factual issues genuinely in dispute that are relevant and material to a decision and that a trial-type hearing is necessary for a full and true disclosure of the facts.

If an additional procedure is scheduled, the ERA will provide notice to all parties. If no party requests additional procedures, a final opinion and order may be issued based on the official record, including the application responses filed by parties pursuant to this notice, in accordance with 10 CFR § 590.316.

A copy of Yankee's application is available for inspection and copying in the Natural Gas Division Docket Room, GA-076-A, at the above address. The docket room is open between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays.

Issued in Washington, DC, on December 16, 1985.

**Robert L. Davies,**

*Director, Office of Fuels Programs Economic Regulatory Administration.*

[FR Doc. 85-30139 Filed 12-19-85; 8:45 am]

BILLING CODE 6450-01-M

## Energy Information Administration

### Publication of Alternative Fuel Price Ceilings and Incremental Price Threshold for High Cost Natural Gas

The Natural Gas Policy Act of 1978 (NGPA) (Pub. L. 95-621) signed into law on November 9, 1978, mandated a new framework for the regulation of most facets of the natural gas industry. In general, under Title II of the NGPA, interstate natural gas pipeline companies are required to pass through certain portions of their acquisition costs for natural gas to industrial users in the form of a surcharge. The statute requires that the ultimate costs of gas to the industrial facility should not exceed the cost of the fuel oil which the facility could use as an alternative.

Pursuant to Title II of the NGPA, section 204(e), the Energy Information Administration (EIA) herewith publishes for the Federal Energy Regulatory Commission (FERC) computed natural gas ceiling prices and the high cost gas incremental pricing threshold which are to be effective January 1, 1986. These prices are based on the prices of alternative fuels. For further information contact: Leroy Brown, Jr., Energy Information Administration, 1000 Independence Avenue, SW., room BE-034, Washington, DC 20585. Telephone: (202) 252-6077.

**Section I.**

As required by FERC Order No. 50, computed prices are shown for the 48 contiguous States. The District of Columbia's ceiling is included with the ceiling for the State of Maryland. FERC, by an Interim Rule issued on April 2, 1981, in Docket No. RM79-21, revised the methodology for calculating the monthly alternative fuel price ceilings for State regions. Under the revised methodology, the applicable alternative fuel price ceiling published for each of the contiguous States shall be the lower of the alternative fuel price ceiling for the State or the alternative fuel price ceiling for the multistate region in which the State is located.

The price ceiling is expressed in dollars per million British Thermal Units (BTU's). The method used to determine the price ceilings is described in Section III.

[Dollar amounts in millions]

| State | Btu's |
|---|---|
| Alabama[1] | $3.78 |
| Arizona[1] | 3.78 |
| Arkansas[1] | 3.52 |
| California | 3.69 |
| Colorado[1] | 3.53 |
| Connecticut[1] | 3.57 |
| Delaware[1] | 3.90 |
| Florida | 3.62 |
| Georgia[1] | 3.78 |
| Idaho[2] | 3.53 |
| Illinois[1] | 3.42 |
| Indiana | 3.41 |
| Iowa[1] | 3.25 |
| Kansas[1] | 3.25 |
| Kentucky[1] | 3.42 |
| Louisiana | 3.51 |
| Maine | 3.52 |
| Maryland[1] | 3.90 |
| Massachusetts[1] | 3.57 |
| Michigan | 3.24 |
| Minnesota | 3.21 |
| Mississippi[1] | 3.78 |
| Missouri[1] | 3.25 |
| Montana[2] | 3.53 |
| Nebraska[1] | 3.25 |
| Nevada[1] | 3.78 |
| New Hampshire[1] | 3.57 |
| New Jersey | 3.88 |
| New Mexico[1] | 3.52 |
| New York | 3.90 |
| North Carolina[1] | 3.78 |
| North Dakota[1] | 3.25 |
| Ohio | 3.14 |
| Oklahoma[1] | 3.52 |
| Oregon[1] | 3.78 |
| Pennsylvania | 3.86 |
| Rhode Island[1] | 3.57 |
| South Carolina[1] | 3.78 |
| South Dakota[1] | 3.25 |
| Tennessee[1] | 3.78 |
| Texas | 3.51 |
| Utah[1] | 3.53 |
| Vermont[1] | 3.57 |

[Dollar amounts in millions]

| State | Btu's |
|---|---|
| Virginia[1] | 3.68 |
| Washington[2] | 3.70 |
| West Virginia[1] | 3.42 |
| Wisconsin[2] | 3.42 |
| Wyoming[2] | 3.53 |

[1] Region based price as required by FERC Interim Rule, issued on April 2, 1981, in Docket No. RM-79-21.
[2] Region based price computed as the weighted average price of Regions E, F, G, and H.

**Section II—Incremental pricing Threshold for High Cost Natural Gas**

The EIA has determined that the volume-weighted average price for No. 2 distillate fuel oil landed in the greater New York City Metropolitan area during October 1985 was $32.87 per barrel. In order to establish the incremental pricing threshold for high cost natural gas, as identified in the NGPA, Title II, Section 203(a)(7), this price was multiplied by 1.3 and converted to its equivalent in millions of BTU's by dividing by 5.8. Therefore, the incremental pricing threshold for high cost natural gas, effective January 1, 1986, is $7.37 per million BTU's.

**Section III—Method Used to Compute Price Ceilings**

The FERC, by Order No. 50, issued on September 29, 1979, in Docket No. RM79-21, established the basis for determining the price ceilings required by the NGPA. FERC also, by Order No. 167, issued in Docket No. RM81-27 on July 24, 1981, made permanent the rule that established that only the price paid for No. 6 high sulfur content residual fuel oil would be used to determine the price ceilings. In addition, the FERC, by Order No. 181, issued on November 6, 1981, in Docket No. RM81-28, established that price ceilings should be published for only the 48 contiguous State on a permanent basis.

*A. Data Collected*

The following data were required from all companies identified by the EIA as sellers of No. 6 high sulfur content (greater than 1 percent sulfur content by weight) residual fuel oil: for each selling price, the number of gallons sold to large industrial users in the months of August 1985, September 1985, and October 1985.[3] All reports of volume sold and price were identified by the State into which the oil was sold.

[3] Large Industrial User—A person/firm which purchases No. 6 fuel oil in quantities of 4,000 gallons or greater for consumption in a business, including the space heating of the business premises. Electric Utilities, governmental bodies (Federal, State, or Local), and the military are excluded.

*B. Method Used to Determine Alternative Price Ceilings*

(1) *Calculation of Volume-Weighted Average Price.* The prices which will become effective January 1, 1986 (shown in Section I) are based on the reported price of No. 6 high sulfur content residual fuel oil, for each of the 48 contiguous States, for each of the 3 months, August 1985, September 1985, and October 1985. Reported prices for sales in August 1985 were adjusted by the precent change in the nationwide volume-weighted average price from August 1985 to October 1985. Prices for September 1985 were similarly adjusted by the percent change in the nationwide volume-weighted average price from September 1985 to October 1985. The volume-Weighted 3-month average of the adjusted August 1985 and September 1985, and the reported October 1985 prices were then computed for each State.

*(2) Adjustment for Price Variation.* States were grouped into the regions identified by the FERC (see Section III.C.). Using the adjusted prices and associated volumes reported in a region during the 3-month period, the volume-weighted Standard deviation of prices was calculated for each region. The volume-weighted 3-month average price (as calculated in Section III.B. (1) above) for each State was adjusted downward by two times this standard deviation for the region to form the adjusted weighted average price for the State.

(3) *Calculation of Ceiling Price.* The lowest selling price within the State was determined for each month of the 3-month period (after adjusting up or down by the percent change in oil prices at the national level as discussed in Section III.B(1) above). The products of the adjusted low price for each month times the State's total reported sales volume for each month were summed over the 3-month period for each State month were summed over the 3-month period for each State and divided by the State's total sales volume during the 3 months to determine the State's average low price. The adjusted weighted average price (as calculated in Section III.B.(2)) was compared to this average low price, and the higher of the values was selected as the base for determining the alternative fuel price ceiling for each State. For those States which had no reported sales during one or more months of the 3-month period, the appropriate regional volume-weighted alternative fuel price was computed and used in combination with the available State data to calculate the State alternative fuel price ceiling base. The State's alternative fuel price ceiling base was compared to the alternative fuel price ceiling base for the multistate region in which the State is located and the lower of these two prices was selected as the final alternative fuel price ceiling base for the State. The appropriate lag adjustment factor (as discussed in Section III.B.4) was then applied to the alternative fuel price ceiling base. The alternative fuel price (expressed in dollars per gallon) was multiplied by 42 and divided by 6.3 to estimate the alternative fuel price ceiling for the State (expressed in dollars per million BTU's).

There were insufficient sales reported in Region G for the months of August 1985, September 1985, and October 1985. The alternative fuel price ceilings for the States in Region G were determined by calculating the volume-weighted average price ceilings for Region E, Region F, Region G, and Region H.

(4) *Lag Adjustment.* The EIA has implemented a procedure to partially compensate for the two-month lag between the end of the month for which data are collected and the beginning of the month for which ceiling prices become effective. It was determined that *Platt's Oilgram Price Report* publication provides timely information relative to the subject. The prices found in *Platt's Oilgram Price Report* publication are given for each trading day in the form of high and low prices for No. 6 residual oil in 20 cities throughout the United States. The low posted prices for No. 6 residual oil in these cities were used to calculate a national and a regional lag adjustment factor. The national lag adjustment factor was obtained by calculating a weighted average price for No. 6. high sulfur residual fuel oil for the ten trading days ending December 13, 1985, and dividing that price by the corresponding weighted average price computed from prices published by Platt's for the month of October 1985. A regional lag adjustment factor was similarly calculated for four regions. These are: one for FERC Regions A and B combined; one for FERC Region C; one for FERC Regions D, E, and G combined; and one for FERC Regions F and H combined. The lower of the national or regional lag factor was then applied to the alternative fuel price ceiling for each State in a given region as calculated in Section III.B.(3).

**List of States by Region**

States were grouped by the FERC to form eight distinct regions as follows:

**Region A**

| | |
|---|---|
| Connecticut | New Hampshire |
| Maine | Rhode Island |
| Massachusetts | Vermont |

| | |
|---|---|
| **Region B** | |
| Delaware | New York |
| Maryland | Pennsylvania |
| New Jersey | |
| **Region C** | |
| Alabama | North Carolina |
| Florida | South Carolina |
| Georgia | Tennesse |
| Mississippi | Virginia |
| **Region D** | |
| Illinois | Ohio |
| Indiana | West Virginia |
| Kentucky | Wisconsin |
| Michigan | |
| **Region E** | |
| Iowa | Nebraska |
| Kansas | North Dakota |
| Missouri | South Dakota |
| Minnesota | |
| **Region F** | |
| Arkansas | Oklahoma |
| Louisiana | Texas |
| New Mexico | |
| **Region G** | |
| Colorado | Utah |
| Idaho | Wyoming |
| Montana | |
| **Region H** | |
| Arizona | Oregon |
| California | Washington |
| Nevada | |

Dated: December 18, 1985.

**L.A. Pettis,**

*Acting Deputy Administrator, Energy Information Administration.*

[FR Doc. 85-30262 Filed 12-18-85; 3:33 pm]

BILLING CODE 6450-01-M

## Federal Energy Regulatory Commission

**[Docket Nos. CP86-176-000, et al.]**

## Natural Gas Certification Filings; Midwestern Gas Transmission Co., et al.

December 13, 1985.

Take notice that the following have been made with the mission:

### 1. Midwestern Gas Transmission Company

[Docket No. CP86-176-000]

Take notice that on November 1, 1985, Midwestern Gas Transmission Company (Midwestern), P.O. Box 2511, Houston, Texas 77001, filed in Docket No. CP86-176-000 an application pursuant to section 7(c) of the Natural Gas Act for a certificate of public convenience and necessity authorizing the transportation of natural gas for Tenngasco Corporation (Tenngasco), acting as agent for certain companies, for a period through December 31, 1988, all as more fully set forth in the application which is on file with the Commission and open to public inspection.

Midwestern requests authorization to render a transportation service for Tenngasco pursuant to the terms of a gas transportation agreement (agreement) between Midwestern and Tenngasco, as agent for Northern Illinois Gas Company, Inland Steel Company, The Peoples Gas Light & Coke Company, Northern Indiana Public Service Company, Koppers Company, Inc. and Olin Corporation.

It is stated that pursuant to the Agreement, Midwestern has agreed to accept and receive daily on an interruptible basis, as determined in Midwestern's sole opinion, up to 938,000 Mcf of natural gas per day for the account of Tenngasco from various points of receipt.

It is said that Midwestern would, in turn, deliver a thermally equivalent quantity of gas, less volumes for Midwestern's fuel and uses, gas lost and unaccounted for and plant volume reduction (PVR) due to processing, to Tenngasco at the points of delivery.

Midwestern states that the term of the agreement expires December 31, 1988. As a consequence, Midwestern requests that the Commission issue Midwestern pre-granted abandonment authorization, to be effective 11:59 p.m. CST, December 31, 1988, at which time transportation service rendered by Midwestern pursuant to the Agreement would terminate.

It is stated that in accordance with the agreement, Midwestern would charge a rate for this transportation service, based upon Midwestern's Rate Schedules IT-1 or IT-2, as shown on Midwestern's effective Tariff sheet Nos. 5 or 6. It is further stated that the rates for transportation of PVR, if any, would also be based on Midwestern's Rate Schedules IT-1, or IT-2. It is also said that the rates for the transportation of liquids, if any, would be established pursuant to the provisions of the agreement.

*Comment date:* December 30, 1985, in accordance with Standard Paragraph F at the end of this notice.

### 2. Arkla Energy Resources, a division of Arka Inc.

[Docket No. CP81-400-001]

Take notice that on Decembe 2, 1985, Arkla Energy Resources, a division of Arkla Inc. (Petitioner), P.O. Box 21734, Shreveport, Louisiana 71151, filed in Docket No. CP81-400-001 a petition to amend the order issued on March 3, 1982, in Docket No. CP81-81-400-000 pursuant to section 7(c) of the Natual Gas Act as to reflect the January 1, 1985, modifications of the contract between Petitioner and the Electric Division of Central Louisiana Electric Company, Inc. (CLECO), all as more fully set forth in the petition to amend which is on file with the Commission and open to public inspection.

Petitioner states that it requests authorization to modify the original proposal authorized by the March 3 order, which authorized construction of facilities and transportation in connection with a direct interruptible sale to CLECO. Specifically, Petitioner proposes to sell a portion of the contract volumes on a firm basis and to reclassify that portion of CLECO requirements from Priorty 7 to Priority 6 under Petitioner's currently effective curtailment plan. In addition, Petitioner states that CLECO would have a right to reduce the volume it takes by 20 percent annually in the years 1986 through 1988, if Petitioner and CLECO cannot reach agreement on the price of gas which would be negotiated before each year begins. Further, Petitioner states that for the years 1989 and beyond, if price negotiations are unsuccessful the contract would terminate at the end of that year. Petitioner states that it reserves the right to continue the contract if it meets the price that CLECO is willing to pay another supplier for a substitute supply.

*Comment date:* December 30, 1985, in accordance with the first subparagraph of Standard Paragraph F at the end of this notice.

### 3. Mountain Fuel Resources, Inc.

[Docket No. CP86-215-000]

Take notice that on November 26, 1985, Mountain Fuel Resources, Inc. (Applicant), 79 South State Street, P.O. Box 11450, Salt Lake City, Utah 84147, filed in Docket No. CP86-215-000 an application pursuant to section 7(c) of the Natural Gas Act for a certificate of public convenience and necessity authorizing it to transport natural gas on behalf of Pacific Gas and Electric Corporation (PG&E) and to add and delete related unspecified receipt points, all as more fully set forth in the application which is on file with the Commission and open to public inspection.

Applicant proposes to transport, on a best efforts basis, up to 25,000 Mcf of natural gas per day from Uintah, Carbon, and Duchesne Counties, Utah, and Moffat County, Colorado, (Uintah Basin area) on behalf of PG&E, pursuant to a fifteen year transportation agreement dated May 19, 1983, as amended.

It is explained that such gas would be received by Applicant at various existing points of interconnection on its system in Utah and Colorado and redelivered to Northwest Pipeline Corporation (Northwest), less fuel used and unaccounted for, at existing interconnections with Northwest in Sweetwater County, Wyoming and Uintah County, Utah. Applicant proposes to charge PG&E its current system-wide three-part transportation rate for the proposed transportation service.

Applicant states that is is currently transporting a portion of the proposed transportation gas under a temporary service arrangement with Northwest under Applicant's Rate schedule X-36.

Inconnection with the proposed transportation service, Applicant also requests that it be granted flexible authority to add and delete unspecified receipt points in the Uintah Basin area. Applicant states that such receipt points would be subject to certificated volumetric limitations, appropriate abandonment authorization, and annual reporting requirements.

*Comment date:* December 30, 1985, in accordance with Standard Paragraph F at the end of this notice.

**4. Northwest Central Pipeline Corporation**

[Docket No. CP86-218-000]

Take notice that on November 27, 1985, Northwest Central Pipeline Corporation (Northwest Central), P.O. Box 3288, Tulsa, Oklahoma 74101, filed in Docket No. CP86-218-000 a request pursuant to § 157.205 of the Regulations under the Natural Gas Act (18 CFR 157.205) for authorization to reclaim The Kansas Power and Light Company (KPL Gas Service) Belle Plaine, Western Alfalfa, Augusta and Leon town border delivery points and construct new measuring, regulating and appurtenant facilities to serve Belle Plaine/Western Alfalfa in Sumner County, Kansas and Augusta/Leon in Butler County, Kansas under the authorization issued in Docket No. CP82-489-000, all as more fully set forth in the request which is on file with the Commission and open to public inspection.

Northwest Central states that by combining the facilities serving Belle Plaine and Western Alfalfa and Augusta and Leon, there would be less overall maintenance of facilities and the proposed replacements in conjunction with other planned maintenance, would enable Northwest Central to modernize this portion of its pipeline system to bring it into compliance with other Federal agency rquirements. The cost to reclaim the existing facilities is $2,100 with an estimate salvage value of $5,060. The estimated cost of construction is $75,180 which would be paid from treasury cash.

Northwest Central states that this change is not prohibited by an existing tariff had it has sufficient capacity to accomplish the deliveries specified without detriment or disadvantage to its other customers.

*Comment date:* January 27, 1986, in accordance with Standard Paragraph G at the end of this notice.

**5. Panhandle Eastern Pipe Line Company**

[Docket No. CP86-216-000]

Take notice that on November 27, 1985, Panhandle Eastern Pipe Line Company (Panhandle), P.O. Box 1642, Houston, Texas 77001, filed in Docket No. CP86-216-000 an application pursuant to sections 7(b) and 7(c) of the Natural Gas Act for a certificate of public convenience and necessity authorizing the transportation of natural gas on behalf of Keystone Steel and Wire Company (Keystone) and for permission and approval to abandon such services on June 30, 1986, all as more fully set forth in the application which is on file with the Commission and open to public inspection.

Panhandle requests authority to implement a transportation agreement between it, Central Illinois Light Company (CILCO) and Keystone dated November 26, 1985. Panhandle proposes to transport up to 6,500 Mcf of natural gas per day on behalf of Keystone from various existing points of receipt located in Baca County, Colorado, Woodward and Hansford Counties, Texas and Kingfisher, Alfalfa, Dewey and Woods Counties, Oklahoma to the existing point of interconnection between Panhandle and CILCO at the Peoria sales station, Tazewell County, Illinois. It is explained that CILCO is an existing sales customer of Panhandle and would make ultimate delivery to Keystone for its ultimate end-use.

Panhandle states that the proposed transportation rate is the currently effective Rate Schedule OST rate. Panhandle also requests authority to add points of receipt and delivery subject to annual reporting requirements for construction activity pursuant to its blanket certificate in Docket No. CP83-83-000.

*Comment date:* December 30, 1986, in accordance with Standard Paragraph F at the end of this notice.

**6. Panhandle Eastern Pipe Line Company**

[Docket No. CP86-217-000]

Take notice that on November 27, 1985, Panhandle Eastern Pipe Line Company (Panhandle), P.O. Box 1642, Houston, Texas 77001, filed in Docket No. CP86-217-000 an application pursuant to sections 7(b) and 7(c) of the Natural Gas Act for a certificate of public convenience and necessity authorizing the transportation of natural gas on behalf of certain low-priority end-users and for permission and approval to abandon such services on June 30, 1986, all as more fully set forth in the application which is on file with the Commission and open to public inspection.

Panhandle requests authority to implement certain transportation agreements among Panhandle, its local distribution companies (LDC), and certain low-priority end-users with various execution dates. The transportation authorization requested is under the same terms as previously authorized by the Commission pursuant to § 157.209 of the Commission's Regulations. The following table lists the end-user and LDC's involved and the transportation quantity requested.

| End user | LDC | Proposed transportation volumes (Mcf/d) |
|---|---|---|
| Wagner Castings | Illinois Power Co | 2,500 |
| Broderick | Indiana Gas Co | 2,000 |
| A.B. Chance Co | Union Electric Co | 1,100 |
| DiversiTech General, Inc. | Indiana Gas Co | 2,000 |
| B.F. Goodrich Co | Central Illinois Light Co | 4,200 |
| Witco Chemical Corp | Citizens Gas & Coke Utility | 1,000 |
| Sherex Chemical Co., Inc. | Central Illinois Light Co | 1,200 |
| Rock-Tenn Co., Mill Division, Inc. | Indiana Gas Co | 1,500 |
| Borg-Warner Automotive, Inc. | Indiana Gas Co | 2,000 |
| Pekin Energy Co | Central Illinois Light Co | 2,000 |
| Midwest Solvents Co | Central Illinois Light Co | 2,900 |
| General Motors Corp | Direct | 15,000 |
| PPG Industries, Inc | Illinois Power Co | 5,200 |
| RCA Corp | Indiana Gas Co | 3,200 |

It is explained that the transportation rate is based on Panhandle's presently effective Rate Schedule OST. Panhandle also requests authority to add points of receipt and delivery subject to certain reporting requirements, and authority to construct new points of receipt subject to the annual reporting requirements for construction activity pursuant to its blanket certificate in Docket No. CP83-83-000.

*Comment date:* December 30, 1985, in accordance with Standard Paragraph F at the end of this notice.

**7. Tennessee Gas Pipeline Company, a Division of Tenneco Inc.**

[Docket No. CP86-179-000]

Take notice that on November 1, 1985, Tennessee Gas Pipeline Company, a Division of Tenneco Inc. (Tennessee), P.O. Box 2511, Houston, Texas 77001, filed in Docket No. CP86-179-000 an application pursuant to section 7 of the National Gas Act for a certificate of public convenience and necessity requesting authorization for the transportation of natural Gas for Tenngasco Corporation (Tenngasco), acting as agent for The United Illuminating Company (United Illuminating), and for permission and approval to abandon such transportation service, all as more fully set forth in the application which is on file with the Commission and open to public inspection.

Tennessee requests authorization to render a transportation service for Tenngasco pursuant to the terms of a gas transportation agreement (agreement) between Tennessee and Tenngasco, acting as agent for United Illuminating, dated October 30, 1985.

Pursuant to the agreement, Tennessee states that it has agreed to receive daily on an interruptible basis, as determined in Tennessee's sole opinion, up to 40,000 Mcf of natural gas per day for the account of Tenngasco from certain points of receipt. Tennessee indicates that it would, in turn, deliver a thermally equivalent quantity of gas, less volumes for Tennessee's fuel and uses, gas lost and unaccounted for and plant volume reduction (PVR) due to processing, to Tenngasco at certain points of delivery.

It is stated that the term of the agreement expires December 31, 1988. As a consequence, Tennessee requests herein that the Commission issue Tennessee pre-granted abandonment authorization, to be effective 11:59 p.m. CST, December 31, 1988, at which time transportation service rendered by Tennessee pursuant to the agreement would terminate.

In accordance with the agreement, Tennessee states that it would charge a rate for this transportation service, based upon Tennessee's Rate Schedule IT, as shown on its effective FERC Gas Tariff Sheet No. 22. It is indicated that the rates for transportation of PVR, if any, would also be based on Tennessee's Rate Schedule IT and the rate for the transportation of liquids, if any, wold be established pursuant to the provisions of the agreement.

*Comment date:* December 30, 1985, in accordance with Standard Paragraph F at the end of this notice.

**8. Tennessee Gas Pipeline Company, a Division of Tenneco Inc.**

[Docket No. CP86-180-000]

Take notice that on November 1, 1985, Tennessee Gas Pipeline Company, a Division of Tenneco Inc. (Tennessee), P.O. Box 2511, Houston, Texas 77001, filed in Docket No. CP86-180-000 an application pursuant to section 7 of the National Gas Act for a certificate of public convenience and necessity authorizing the transportation of natural Gas for Tenngasco Corporation, acting as agent for Consolidated Gas Transmission Corporation and for permission and approval to abandon the transportation service, all as more fully set forth in the application which is on file with the Commission and open to public inspection.

Tennessee proposes to transport gas for Tenngasco pursuant to a gas transportation agreement (Agreement) between Tennessee and Tenngasco Corporation, as agent for Consolidated Gas Transmission Corporation, dated October 30, 1985. Tennessee states that it has agreed to receive up to 300,000 Mcf of natural gas per day on an interruptible basis for the account of Tenngasco from the various points of receipt. It is stated that Tennessee would, in turn, deliver a thermally equivalent quantity of gas, less volumes for Tennessee's fuel and uses, gas lost and unaccounted for and plant volume reduction (PVR) due to processing, to Tenngasco at various points of delivery.

Tennessee states that it would charge a rate for this transportation service, based upon Rate Schedule IT, of its FERC Gas Tariff, Sheet No. 22. The rates for transportation of PVR, if any, would also be based on Tennessee's Rate Schedule IT, it is stated. In addition, the rates for transportation of liquids, if any, would be established pursuant to the provisions of the Agreement, it is asserted.

It is indicated that the term of the Agreement expires December 31, 1988. Tennessee requests abandonment authorization, to be effective 11:59 p.m. CST, December 31, 1988, at which time transportation service rendered by Tennessee pursuant to the Agreement would terminate.

It is claimed that the proposed transportation service would be in the public interest because it would assist Consolidated Gas Transmission Corporation in obtaining gas supplies at market-clearing prices, enabling it to maintain its business operations on a profitable basis.

*Comment date:* December 30, 1985, in accordance with Standard Paragraph F at the end of this notice.

**9. Tennessee Gas Pipeline Company, a Division of Tenneco Inc.**

[Docket No. CP86-181-000]

Take notice that on November 1, 1985, Tennessee Gas Pipeline Company, a Division of Tenneco Inc. (Tennessee), P.O. Box 2511, Houston, Texas 77001, filed in Docket No. CP86-181-000 an application pursuant to section 7 of the National Gas Act for a certificate of public convenience and necessity authorizing the transportation of natural Gas for Tenngasco Corporation, acting as agent for various companies and for permission and approval to abandon the transportation service, all as more fully set forth in the application which is on file with the Commission and open to public inspection.

Tennessee proposes to transport gas for Tenngasco pursuant to a gas transportation agreement (Agreement) between Tennessee and Tenngasco Corporation, as agent for various companies, dated October 30, 1985. Tennessee states that it has agreed to receive up to 1,091,000 Mcf of natural gas per day on an interruptible basis for the account of Tenngasco from the various points of receipt. It is stated that Tennessee would, in turn, deliver a thermally equivalent quantity of gas, less volumes for Tennessee's fuel and uses, gas lost and unaccounted for and plant volume reduction (PVR) due to processing, to Tenngasco at various points of delivery.

Tennessee states that it would charge a rate for this transportation service, based upon Rate Schedule IT, of its FERC Gas Tariff, Sheet No. 22. The rates for transportation of PVR, if any, would also be based on Tennessee's Rate Schedule IT, it is stated. In addition, the rates for transportation of liquids, if any, would be established pursuant to the provisions of the Agreement, it is asserted.

It is indicated that the term of the Agreement expires December 31, 1988. Tennessee requests abandonment authorization, to be effective 11:59 p.m. CST, December 31, 1988, at which time transportation service rendered by Tennessee pursuant to the Agreement would terminate.

It is claimed that the proposed transportation service would be in the public interest because it would assist various companies in obtaining gas supplies at market-clearing prices, enabling it to maintain its business operations on a profitable basis.

*Comment date:* December 30, 1986, in accordance with Standard Paragraph F at the end of this notice.

**10. Transcontinental Gas Pipe Line Corporation**

[Docket No. CP86-220-000]

Take notice that on December 3, 1985, Transcontinental Gas Pipe Line Corporation (Transco), P.O. Box 1396, Houston, Texas 77251, filed in Docket No. CP86-220-000 an application pursuant to section 7(c) of the Natural Gas Act for a certificate of public convenience and necessity authorizing the transportation of natural gas on behalf of Tennessee Gas Pipeline Company, a Division of Tenneco Inc. (Tennessee), all as more fully set forth in the application which is on file with the Commission and open to public inspection.

Transco proposes to transport for Tennessee on an interruptible basis, up to 150,000 Mcf of natural gas per day, such quantity being equivalent to Tennessee's capacity in the Central Texas Gathering System (CTGS), offshore Texas, and from time to time quantities in excess of such capacity, pursuant to a transportation agreement between Transco and Tennessee.

It is stated that pursuant to the transportation agreement, Transco would receive quantities moved within Tennessee's capacity in the CTGS at the terminus of the CTGS located near the inlet side of Transco's compressor station No. 30 (Wharton receipt point), and would receive gas in excess of Tennessee's capacity in the CTGS at existing points of interconnection between Tennessee's facilities and Transco's facilities in the Brazos area, Blocks A-1, A-22, A-104 and 538, offshore Texas (Brazos area receipt points). It is further stated that Transco would redeliver, on an interruptible basis, equivalent quantities (less quantities retained for compressor fuel and line loss make-up, less fuel for dehydration, and less a reduction in volume and Btu due to processing, if any) to Tennessee at Louise, Wharton County, Texas (Louise delivery point), at Crowley, Acadia Parish, Louisiana (Crowley delivery point), and at the tailgate of the Markham plant in Matagorda County, Texas (Markham delivery point).

It is explained that for the proposed transportation service, Transco would initially retain for compressor fuel and line loss make-up 2.4 percent of the quantities received for delivery at the Crowley delivery point, 0.6 percent of the quantities received for delivery at the Louise delivery point and none of the quantities received for delivery at the Markham delivery point. Transco also proposes to charge Tennessee the following rates for the transportation service:

| Delivery points | Rates |
|---|---|
| Within Tennessee's capacity in the CTGS: | |
| Markham | |
| Louise | 4.3 cents per dt. |
| Crowley | 17.6 cents per dt. |
| In excess of Tennessee's capacity in the CTGS: | |
| Markham | 7.3 cents per dt. |
| Louise | 11.6 cents per dt. |
| Crowley | 25.8 cents per dt. |

It is explained that the transportation agreement would remain in effect for a primary term of 10 years from the date of initial deliveries, and year to year thereafter unless and until terminated by either party giving proper notice.

*Comment date:* December 30, 1985, in accordance with Standard Paragraph F at the end of this notice.

**11. Transcontinental Gas Pipe Line Corporation**

[Docket Nos. CP63-222-000 and CP70-193-000]

Take notice that on November 25, 1985, Transcontinental Gas Pipe Line Corporation (Applicant), P.O. Box 1396, Houston, Texas 77251, filed in Docket Nos. CP63-222 and CP70-193 a petition, pursuant to section 7 of the Natural Gas Act, to amend the order issued February 17, 1965 in Docket No. CP63-222 and the order issued May 5, 1970 in Docket No. CP70-193, all as more fully set forth in the petition to amend which is on file with the Commission and open to public inspection.

Transco states that pursuant to the aforementioned orders, it has been transporting for Texaco Inc. (Texaco) from specified receipt points in the Gulf Coast area to Texaco's Eagle Point Refinery near Westville, New Jersey (Eagle Point Refinery) up to 10,000 Mcf of gas per day on a firm basis and up to 16,000 Mcf of gas per day on an interruptible basis for use by Texaco as fuel at the Eagle Point Refinery. It is explained that such transportation is rendered pursuant to the agreement between Transco and Texaco, dated December 1, 1969, as amended (Agreement), on file with the Commission as Rate Schedule X-42 to Transco's FERC Gas Tariff, Original Volume No. 2.

Transco further states that Texaco has advised that on May 20, 1985 Texaco sold the Eagle Point Refinery to Coastal Eagle Point Oil Company (Coastal), that Coastal would process crude oil for Texaco at such refinery, and that Texaco would furnish the gas necessary for such processing.

Transco also states that pursuant to orders issued March 24, 1971 and September 21, 1983 in Transco Docket No. CP71-30-000, it has been transporting for Getty Refining and Marketing Company (Getty Refining), on a firm basis, up to the dt equivalent of 9,300 Mcf of gas per day from specified producing properties, offshore Texas, of parent Getty Oil Company (Getty Oil), to Eastern Shore Natural Gas Company (Eastern Shore) at two delivery points in Chester County, Pennsylvania designated as Parkesburg and Hockessin. Eastern Shore, in turn, has redelivered such gas to Getty Refining at the Delaware City Refinery. It is explained that such transportation by Transco takes place under an agreement between Getty Refining and Transco, dated August 7, 1970, as amended, on file with the Commission as Rate Schedule X-52 to Transco's FERC Gas Tariff, Original Volume No. 2. The instant petition does not propose any changes in the service rendered under Rate Schedule X-52.

Transco states that Texaco has further advised that during 1984 Getty Oil became a subsidiary of Texaco, and that, as a part of a corporation reorganization of Texaco and subsidiary companies, the name of the owner of the Delaware City Refinery, Getty Refining, was changed to Texaco Refining and Marketing Inc. (Texaco Refining). Texaco has requested that its rights under the agreement be assigned to Texaco Refining and that its obligations under the agreement be delegated to Texaco Refining, thereby making the latter the shipper under the agreement. It is indicated that this assignment would correspond to Texaco's corporate reorganization which would make Texaco Refining the company that benefits from the subject transportation.

It is stated that Texaco desires that additional points of delivery be added to the agreement in order that Texaco Refining can utilize its transportation capacity for Transco's delivery of gas to Eastern Shore for the account of Texaco Refining, for redelivery by Eastern Shore at the Delaware City Refinery. These new points of delivery would be Transco's above-mentioned Hoeckessin and Parkesburg points of delivery to Eastern Shore. Transco states that it has been advised by Texaco Refining that Eastern Shore would render its part of the transportation pursuant to authority granted to Eastern Shore in Docket No. CP85-89-000.

It is stated that pursuant to an amendment to the agreement, dated October 23, 1985, Transco would not be obligated to deliver to all delivery points a total quantity of firm transportation gas in excess of the dt equivalent of

10,000 Mcf of gas per day or a total quantity of interruptible transportation gas in excess of the dt equivalent of 16,000 Mcf per day. Transco states that Texaco Refining may apportion the firm and interruptible gas among the delivery points as it determines is necessary, subject to the limitations above described.

No additional facilities would be required by Transco to accomodate the changes described in the instant petition.

In addition, Transco states that in the amendment the parties have agreed to several other substantive modifications to the Rate Schedule X–42 transportation arrangement. It is explained that a provision has been added to the agreement which allows Transco to charge for interruptible transportation under Rate Schedule X–42 its charge per dt in effect from time to time for similar transportation under Transco's Rate Schedule T–I and that the amendment also provides that the agreement would be changed from a volumetric basis (Mcf) to a heating value basis (dt).

Transco states that, by filing the instant petition, it is not election non-discriminatory access as such term is described and defined in § 284.8(b) of the Commission's Regulations promulgated in Order No. 436.

*Comment date:* December 30, 1985, in accordance with the first subparagraph of Standard Paragraph F at the end of this notice.

**12. Transwestern Pipeline Company**

[Docket No. CP86–212–000]

Take notice that on November 22, 1985, Transwestern Pipeline Company (Transwestern), 1200 Travis Street, P.O. Box 1188, Houston, Texas 77001, filed in Docket No. CP86–212–000 an application pursuant to section 7(c) of the Natural Gas Act for a certificate of public convenience and necessity for authorization (1) to construct and operate approximately 357.91 miles of 30-inch diameter pipeline and related facilities, extending various loop lines at eleven locations on Transwestern's system from Pyote, Texas, to a point near Needles, California, and (2) to transport on a contract basis, primarily for shippers who are involved in enhanced oil recovery operations in central California, the dekatherm equivalent of maximum daily quantities up to 320,000 Mcf of natural gas, plus applicable shrinkage, from variouis points of receipt of Transwestern's pipeline system to the proposed interconnection of Transwestern and Mojave Pipeline Company at a location near Needles, California, all as more fully set forth in the application which is on file with the Commission and open to public inspection.

Transwestern proposes to expand the capacity of its existing system in Texas, New Mexico and Arizona. It is explained that two new pipeline loops, totaling approximately 4.1 and 10.5 miles of new 30-inch diameter pipeline along Transwestern's West Texas lateral between Pyote, Texas, and Rosewell, New Mexico, would be required. These facilities would loop the remaining unlooped portions of Transwestern's system along this lateral and would be in parallel to the existing line. Additionally, Transwestern proposes to construct nine loop segments of 30-inch pipeline totaling approximately 343 miles on portions of its mainline from Rosewell to a location near Needles, California. It is stated that approximately 47 percent of Transwestern's mainline is already looped and that the new facilities proposed herein would loop the remaining portion. The loops to be constructed on the existing right-of-way would range in length from 26 to 50 miles.

Transwestern states that the eleven existing compressor stations along its system between Pyote, Texas, and the Needles meter station would not need to be expanded. Transwestern further states that no additional horsepower is proposed; however, certain modifications would be required to give each gas compressor and the station piping the ability to handle the additional volume of gas. The estimated total cost of the proposed facilities is $230 million.

Transwestern states that it would initially finance the cost of construction through revolving credit arrangements, short-term loans and funds onhand, with permanent financing being undertaken as part of Transwestern's overall long-term financing program at a later date.

Transwestern also seeks authorization to render firm transportation service on a contract basis of the dekatherm equivalent of a maximum daily quantity of up to 320,000 Mcf per day, as set forth in the application, plus applicable shrinkage, of natural gas from its system to the interconnection of the Mojave Pipeline with the existing Transwestern line near Needles, California. It is explained that transportation would be provided for contract shippers who have acquired title to the gas at or upstream of the various points of receipt and who would use such gas primarily in connection with EOR and associated cogeneration projects. Transwestern does not propose to buy or sell any of the natural gas transported by the pipeline. Gas to be used for compressor station fuel and other utility purposes, as well as line losses in the operation of the pipeline, would be provided in kind by the shippers, it is said. The terms and conditions of the proposed transportation service are incorporated in a form of service agreement and a new Rate Schedule CDT–1 as set forth in the application.

Transwestern states that since it would not own any of the gas it transports and since the capacity to be constructed is incremental capacity to be utilized solely to make incremental deliveries to California, the proposed transportation service would be firm and not subject to curtailment due to shortages of the system supply to Transwestern. However, it is stated that some curtailment of service might occur from time to time for the purpose of making necessary alterations or repairs and for other reasons for *force majeure*, and that to the extent any such capacity curtailment might occur, the procedures for such curtailment would be established in the service agreements executed with shippers.

Transwestern states that its position at this time is that its existing customers should not bear any of the costs associated with the new facilities and that any new customers should be only the costs associated with the facilities which create the incremental capacity utilized to provide the new service. Accordingly, it is stated that the new CDT–1 transportation rate is proposed to recover the costs associated with only the new facilities. Transwestern states that the rate being proposed for firm transportation service consists of a capacity reservation charge to recover all fixed costs associated with providing the new firm transportation service including but not limited to, depreciation, return, income taxes, and operation and maintenance expenses. Further, Transwestern explains that the capacity reservation charge is calculated by dividing the annual cost of service by 131,851,600 dekatherms. In addition, Transwestern is proposing to institute an authorized overrun charge equal to the capacity reservation charge and unauthorized overall charge equal to one-hundred fifty percent of the capacity reservation charge.

The incremental cost of service of the proposed expansion, at a throughput level of the dekatherm equivalent of 312,000 Mcf per day, is estimated to be $.4455 per dekatherm.

Transwestern is proposing to charge a levelized capacity reservation charge

based on a levelized fixed cost of service to be achieved by deferring recovery of its investment. No depreciation expense is charged for the first year of service, it is said. Thereafter Transwestern states it would charge depreciation only to the extent that the capacity reservation charge remains fixed. It is indicated that the fixed capacity reservation charge would remain in effect until the earlier of (i) the first year in which the expanded facilities can be depreciated at a straight line rate without increasing the cost-of-service on a levelized basis (estimated at approximately nine years); (ii) the in-serice date of a system expansion which would impact the facilities herein; or (iii) a filing by Transwestern to change the rates to be charged for service through the expanded services.

Transwestern is proposing to retain 1.2 percent of gas received as compensation for gas used in utility operations.

Transwestern requests authority to negotiate with potential shippers and to adopt such variations from the proposed rate structure as may be required to respond to changing economic conditions in the markets to be served.

*Comment date:* December 30, 1985, in accordance with Standard Paragraph F at the end of this notice.

**13. Western Gas Interstate Company**

[Docket No. CP86-173-000]

Take notice that on November 1, 1985, Western Gas Interstate Company (Western), 900 United Bank Tower, 400 West 15th Street, Austin, Texas 78701, filed in Docket No. CP86-173-000 an application pursuant to section 7(c) of the Natural Gas Act for a blanket certificate of public convenience and necessity authorizing Western to effectuate on a best efforts, limited term basis, an Incremental Sales Program (ISP) and authorizing Western to construct, under certain conditions, sales taps and other facilities necessary to implement the proposed program, all as more fully set forth in the application which is on file with the Commission and open to public inspection.

Western states that this program would consist of best efforts, flexibly priced gas sales available from Western's Northern Division general system supplies which exceed the requirements of Western's principal on-system customer, Southern Union Gas Company (Southern Union Gas). It is stated that the gas would be offered to new and existing customers on a nondiscriminatory basis. Western states that its proposed ISP is a response to a series of events including the settlement in Docket No. RP84-77-000, *et al.*, and a decline in its sales.

Western submits that the following features taken together form the basis of an ISP designed to allow Western to compete in the marketplace.

Western states that the ability to commence a sale on a self-implementing basis, without time-consuming regulatory review, would be crucial. It is stated that the many producer Special Marketing Programs (SMP) and the pipeline transportation programs approved by the Commission Orders No. 319, 319-A and 235-B were all self-implementing because the Commission recognized that effective competition requires the ability to respond quickly when agreement is reached. Western further states that more recently the Commission reaffirmed the importance of a quick response by authorizing a variety of self-implementing transactions in Order No. 436, issued in Docket No. RM85-1. Without the ability to act quickly, Western claims that it would be condemned to losing sales to producers and intrastate pipelines who can start gas moving almost immediately through already authorized programs.

Western states that its proposed ISP would be on a nondiscriminatory basis. Western states that it recognizes this requirement as inherent in the public interest standard of the Natural Gas Act.

Western states that since it is attempting to achieve incremental sales over and above those made possible by its below-cost settlement rate, the criterion of eligiblity is that the sale truly be incremental. It is stated that this criterion would be implemented, on a nondiscriminatory basis, by means of three rate schedules: ISP-1, ISP-2, and ISP-3.

Western states that Rate Schedule ISP-1 would be available to new customers, defined as any person who did not have a contractural right to purchase gas from Western in the twelve months ended September 30, 1985 (the twelve most recent months of actual experience). Thus the criterion of being truly incremental would be satisfied because any such customer would be a new customer, and all sales would be incremental sales, it is stated.

It is stated that Rate Schedules ISP-2 and ISP-3 would be available to existing customers, defined as any person who had a contractural right to purchase gas from Western at any time during the twelve months ended September 30, 1985. Thus, it is stated, the principal purchaser under ISP-2 would probably be Southern Union Gas, but the other customers who had the right to buy gas from any of Western's Divisions on that date would also be able to purchase gas under Rate Schedule ISP-2. Western indicates that these additional eligible purchasers would be Colorado Interstate Gas Company, Gas Company of New Mexico, and Panhandle Eastern Pipe Line Company.

Western states that Rate Schedule ISP-2 would cover "Excess Volume Service" and provides that purchases in excess of the monthly base volumes set forth in section 8 of the rate schedule would be treated as Rate Schedule ISP-2 purchases. It is stated that base volumes would be set forth separately for each purchaser by month and division (if applicable). Thus, Western explains that since all volumes sold in excess of the base volumes would be incremental sales, Rate Schedule ISP-2 would provide for true incremental service, and would therefore be nondiscriminatory with respect to existing customers. It is further stated that, as a result, it would also be consistent with the goal of the Commission Order 436 to provide yet another competitive, nondiscriminatory market option.

It is indicated that Rate Schedule ISP-3 would cover "Displacement Service," and would provide that an existing customer would be able to purchase ISP-3 gas for a particular market if it certifies to Western, in writing: (a) Either that it is currently purchasing gas from another supplier for all or part of a particular market previously served by Western or that it would cease purchasing gas from Western for all or part of that market unless it can purchase gas under Rate Schedule ISP-3; and (b) that the reason for the change in suppliers is price; and (c) that the availability of gas under Rate Schedule ISP-3 would allow the customer to resume or continue purchasing gas from Western for all or part of the particular market. It is stated that the certification would be filed with the Commission as an exhibit to the executed Service Agreement covering the particular ISP-3 sale. Western states that no threshold level of purchases under any other rate schedule or section of a rate schedule would be necessary in order to purchase gas under Rate Schedule ISP-3. By permitting sales which would otherwise be lost to Western, Rate Schedule ISP-3 would clearly be incremental in relation to the sales otherwise remaining and would therefore be nondiscriminatory, it is stated. Accordingly, like Rate Schedule ISP-2, Western claims that it would provide another competitive market option to these customers

consistent with the Commission's current goals.

Another aspect of Western's proposed ISP would be flexible pricing, it is stated. In order to assure Western's ability to compete with producer SMP programs, Western states that it must have pricing flexibility similar to that enjoyed by such producers. Western also recognizes that its primary obligation would be to protect its existing customers. Western therefore proposes that its ISP sales be subject to a floor price applicable to all sales and a ceiling price applicable to sales for resale in interstate commerce.

It is stated that the floor price, applicable to all sales, would vary each month, and would be the sum of the following: (1) The weighted average cost of purchased gas for the Northern Division in the three most recent months for which actual data are available; (2) an increment of 8 cents per Mcf (representing system average variable cost); (3) any directly assignable variable costs above the 8-cent level; and (4) any third-party downstream transportation charges paid by Western.

Western states that it has chosen to utilize the three-month "rolling average" cost of purchased gas for the Northern Division to provide what it believes would be the closest possible approximation of its curent average gas costs. By utilizing the most recent three months for which actual data are available as opposed, for example, to the preceding month, Western indicates that it would avoid the problem of having to carry forward adjustments from the preceding month to the next month's floor calculation. It is further stated that more importantly, the use of a three month average would have the advantage of leveling out any significant month-to-month fluctuations that would possibly occur.

It is indicated that the ceiling price, applicable only to sales for resale in interstate commerce, would be equivalent to Western's then-effective Rate Schedule G–S rate, currently 378.76 cents per Mcf. For nonjurisdictional direct sales to an end user, Western states that it would be free to charge the market price, based on its negotiations with the purchaser. Western cites an example that for the month of November 1985, the applicable ceiling price for ISP sales for resale (Western's G–S rate) would be 390.12 cents per Mcf, and the floor price would be 234.51 cents Mcf (assuming no incremental variable or transportation costs).

Western states that the actual effective price of all ISP sales would be negotiated contract price, with a provision in the service agreement or contract that the actual price could not exceed the ceiling price, if applicable, nor be less than the applicable floor price. It is further stated that the price would be subject to increase or reduction as necessary to stay within the applicable floor-ceiling range. Western indicates that the parties would also be free to renegotiate the price as necessary, but always within the range set by floor and ceiling prices, as applicable.

Western states that all such sales would be fully interruptible and subordinate to the requirements of Western's principal Northern Division customer, Southern Union Gas. Western proposes that the term for such sales would not exceed a single, one-year initial term plus a single, one-year extension. In addition, Western proposes that its right to commence new sales under this ISP would expire when the rates in effect pursuant to the settlement in Docket No. RP84–77–000 are superseded by either a general system rate case under Section 4 of the Natural Gas Act or by new rates ordered into effect by the Commission under section 5.

Western states that this is consistent with Article IX of the settlement which allows Western to retain the revenues from off-system sales as long as the Settlement is still in effect.

It is indicated that existing sales already in progress when such rate changes occur would be allowed to continue to the end of their initial one-year terms, if they are in the initial term, or until the end of their one-year extension terms if they are already in the extension term. Western states that it would reserve the right to seek to amend its certificate herein to extend the life of the ISP if that should be appropriate in light of new rates put into effect upon termination of the Settlement.

Western also seeks blanket authority to construct sales taps and appurtenant facilities if the total cost of each such facility does not exceed $15,000. Western states that for example, if a particular contract would require deliveries at three different points, this authorization would allow construction of a total of $45,000 of facilities, although no single facility could cost more than $15,000.

Western submits that blanket authorization to construct sales taps is consistent with the public interest, given the small size of Western's system and the need to respond expeditiously to meet competition.

In order to prevent subsidization of these incentive sales by Western's regular customers, Western agrees not to include in its next rate case any costs related to facilities installed hereunder, unless such facilities are projected to remain in service after termination of sales made under this ISP.

*Comment date:* December 30, 1985, in accordance with Standard Paragraph F at the end of this notice.

**14. Williston Basin Interstate Pipline Company**

[Docket No. CP–86–110–000]

Take notice that on October 31, 1985, Williston Basin Interstate Pipeline Company (Williston Basin), Suite 200, 304 East Rosser Avenue, Bismarck, North Dakota 58051, filed in Docket No. CP86–110–000 an application pursuant to section 7(c) of the Natural Gas Act for a certificate of public convenience and necessity authorizing Williston Basin to sell or transport natural gas, on a firm or interruptible basis, under Williston Basin's proposed sales and transportation tariffs, all as more fully set forth in the application which is on file with the Commission and open to public inspection.

Williston Basin requests a certificate of public convenience and necessity authorizing it to initiate new sales and transportation tariffs available to natural gas purchasers and non-owner shippers. Specifically, Williston Basin requests authority to (1) Establish FERC Gas Tariff, First Revised Volume No. 1, consisting of *inter alia*, new sales rate schedules (SGS–1, Small General Service and E–1 Emergency Service), generall terms and conditions, and pro forma service agreements. (2) Establish FERC Gas Tariff, Original Volume No. 1–A, consisting of, *inter alia*, new transportation rate schedules (SDT–1), Sales Displacement Transportation—Firm; SDT–2, Sales Displacement Transportation—Interruptible; TF–1, New Transportation—Firm; TI–1, New Transportation—Interruptible), existing transportation rate schedules (S–2, T–3, S–3, T–4) general terms and conditions, and pro forma service agreements. (3) Convert existing sales and transportation agreements to the applicable proposed rate schedules up to execution of new sales or transportation service agreements.

Williston Basin indicates that the following are the major aspects of the proposed sales rate schedules in first Revised Volume No. 1:

(1) It is stated that Rate Schedule SGS–1 (Small General Service) would apply to small distributor costomers desiring full or partial requirements firm sales service. It is indicated that this rate would be offered as an option to any customer who would otherwise

purchase under Rate Schedule G–1 and whose monthly maximum daily quantity (MDQ) does not exceed 1,000 Mcf. Williston Basin states that it would consist of (a) a commodity non-gas charge specified in dollars and cents per dekatherm of gas purchased and (b) a commodity-gas charge specified in dollars and cents per dekatherm of gas purchased.

(2) It is stated that Rate Schedule E–1 (Emergency Service) would apply to any customer who desires service on an emergency basis and would feature a straight line rate which would be set at the unit average charge under the SGS–1 rate schedule plus $.10 per dekatherm. It is indicated that service under this rate schedule would be firm, but subservient to the firm requirements of regular customers. Williston Basin states that it would have sole discretion to determine whether it has sufficient gas supply and pipeline capacity to render the service.

With regard to Original Volume No. 1–A, Williston Basin indicates the major aspects of the proposed transportation rate schedules are as follows:

(1) It is indicated that Rate Schedule SDT–1 (Sales Displacement Transportation—Firm) would apply to any party that desires a firm transportation service in order to serve an end-user or distributor who was a sales customer of Williston Basin since September 22, 1980 (the date that Williston Basin's predecessor, MDU, lifted its gas supply curtailment) or for gas requirements that would otherwise be purchased, directly or indirectly, from Williston Basin. It is stated that the service agreement would require the specification of a monthly MDQ and a monthly annual entitlements quantity (AEQ) and would provide that a concomitant release (volume reduction) of sales MDQ and AEQ may be effectuated so that Williston Basin would not be obligated to provide more capacity than was originally authorized for the sales service. Williston Basin indicates that the SDT–1 rate would feature the following components specified at a level equivalent to that associated with G–1 sales: (a) A monthly MDQ charge specified in dollars and cents per Mcf of MDQ; (b) a monthly AEQ demand charge specified in cents per Mcf of AEQ and applied each month to the AEQ; (c) the commodity non-gas charge specified in cents per dekatherm of gas transported. It is stated that additionally, the shipper would have to arrange for a waiver of Williston Basin's potential take-or-pay liability associated with the displaced sales volumes. A minimum bill equivalent to the two demand charge components is proposed. All transportation service would be provided on a thermally balanced basis and all imbalances would be eliminated every 12 months, it is stated.

(2) It is indicated that Rate Schedule SDT–2 (Sales Displacement Transportation—Interruptible) would apply to any party that desires interruptible transportation service in order to serve an end-user or distributor who, since September 22, 1980, was a Williston Basin sales customer purchasing gas for interruptible purposes. It is stated that the SDT–2 rate would be a straight line rate equivalent to the commodity non-gas component of the G–1 rate. The thermal balancing and take-or-pay waiver provisions of the SDT–1 rate would also apply, it is indicated.

(3) It is stated that Rate Schedule TF–1 (New Transportation—Firm) would apply to any party that desires a firm transportation service in order to serve any customer who has not been a direct or indirect sales costomer of Williston Basin since September 22, 1980, or for gas requirements that would not otherwise be purchased, directly or indirectly, from Williston Basin. It is indicated that the rate would require the specification of a MDQ and AEQ. It is stated the rate would feature the same basic structure as the SDT–1 rate, however, at a lower level since no production or products extraction costs would be included. A minimum bill equivalent to the two demand charge components is proposed for this service.

(4) Williston Basin states the Rate Schedule TI–1 (New Transportation Interruptible) would be the interruptible counterpart of the TF–1 rate and would apply to any party that desires an interruptible transportation service in order to serve any customer who has not been a direct or indirect sales customer of Williston Basin since September 22, 1980, or for gas requirements that would not otherwise be purchased, directly or indirectly, from Williston Basin. It is stated that this rate would feature a volumetric structure and would be established at a rate level that gives due consideration to the marketability of the service, but no more than a level equivalent to the commodity non-gas component of the TF–1 rate, exclusive of storage costs. Williston Basin states that as to imbalances, the TI–1 rate would be thermally balanced, but would require the elimination of all imbalances every 60 days so as to avoid the implicit use of storage. If a storage service is desired, Williston Basin proposes to provide it pursuant to its S–3 Rate Schedule.

It is stated that following certification, Williston Basin would timely file its FERC Gas Tariff, First Revised Volume No. 1 and Original Volume No. 1–A, as contained pro forma in Exhibit P, herein.

*Comment date:* December 30, 1986, in accordance with Standard Paragraph F at the end of this notice.

**Standard Paragraphs**

F. Any person desiring to be heard or make any protest with reference to said filing should on or before the comment date file with the Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington, DC 20426, a motion to intervene or a protest in accordance with the requirements of the Commission's Rules of Practice and Procedure (18 CFR 385.211, 385.214) and the Regulations under the Natural Gas Act (18 CFR 157.10). All protests filed with the Commission will be considered by it in determining the appropriate action to be taken but will not serve to make the protestants parties to the proceeding. Any person wishing to become a party to the proceeding or to participate as a party in any hearing therein must file a motion to intervene in accordance with the Commission's Rules.

Take further notice that, pursuant to the authority contained in and subject to jurisdiction conferred upon the Federal Energy Regulatory Commission by sections 7 and 15 of the Natural Gas Act and the Commission's Rules of Practice and Procedure, a hearing will be held without further notice before the Commission or its designee on this filing if no motion to intervene is filed within the time required herein, if the Commission on its own review of the matter finds that a grant of the certificate is required by the public convenience and necessity. If a motion for leave to intervene is timely filed, or if the Commission on its own motion believes that a formal hearing is required, further notice of such hearing will be duly given

Under the procedure herein provided for, unless otherwise advised, it will be unnecessary for the applicant to appear or be represented at the hearing.

G. Any person or the Commission's staff may, within 45 days after the issuance of the instant notice by the Commission, file pursuant to Rule 214 of the Commission's Procedural Rules (18 CFR 385.214) a motion to intervene or notice of intervention and pursuant to § 157.205 of the Regulations under the Natural Gas Act (18 CFR 157.205) a protest to the request. If no protest is filed within the time allowed therefor, the proposed activity shall be deemed to

be authorized effective the day after the time allowed for filing a protest. If a protest is filed and not withdrawn within 30 days after the time allowed for filing a protest, the instant request shall be treated as an application for authorization pursuant to Section 7 of the Natural Gas Act.

**Kenneth F. Plumb,**

*Secretary.*

[FR Doc. 85-30126 Filed 12-19-85; 8:45 am]

BILLING CODE 6717-01-M

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**[Docket Nos. QF86-305-000 et al.]**

## Small Power Production and Cogeneration Facilities; Qualifying Status; Certificate Applications, etc; Joseph Martin Keating et al.

Comment date: Thirty days from publication in the **Federal Register**, in accordance with Standard Paragraph E at the end of this notice.

Take notice that the following filings have been made with the Commission.

### 1. Joseph Martin Keating

[Docket No. QF86-305-000]

December 13, 1985.

On November 20, 1985, Joseph Martin Keating (Applicant), of 847 Pacific Street, Placerville, California 95667 submitted for filing an application for certification of a facility as a qualifying small power production facility pursuant to § 292.207 of the Commission's regulations. No determination has been made that the submittal constitutes a complete filing.

The 22.1 megawatt hydroelectric facility (P. 3581) will be located on the Merced River near the Town of El Portal, in Mariposa County, California.

A separate application is required for a hydroelectric project license, preliminary permit or exemption from licensing. Comments on such applications are requested by separate public notice. Qualifying status serves only to establish eligibility for benefits provided by PURPA, as implemented by the Commission's regulations, 18 CFR Part 292. It does not relieve a facility of any other requirements of local, State or Federal law, including those regarding siting, construction, operation, licensing and pollution abatement.

### 2. Seadrift Cogeneration and Union Carbide Corporation

[Docket No. QF85-15-001]

December 12, 1985.

On November 27, 1985, Seadrift Cogeneration and Union Carbide Corporation (Applicants), of 10375 Richmond, 3rd Floor, Houston, Texas 77042, submitted for filing an application for recertification of a facility as a qualifying cogeneration facility pursuant to § 292.207 of the Commission's regulations. No determination has been made that the submittal constitutes a complete filing.

The topping-cycle cogeneration facility will be located at the Union Carbide chemical plant at Seadrift, Texas. The facility will consist of combustion turbine-generators, heat recovery boilers (HRB), and steam turbine-generators. Steam from the HRB and condensed steam as hot condenseate will be utilized for process application at the chemical plant. The initial net electric power production capacity will be 94.5 MW, which may be expanded to approximately 312 MW after 1989. The primary energy source will be natural gas. The installation of the facility commenced in the third quarter of 1985.

### 3. Boulder County Public Works Department

[Docket No. QF86-319-000]

December 13, 1985.

On November 18, 1985, Boulder County Works Department, (Applicant), of P.O. Box 471, Boulder, Colorado 80306 submitted for filing an application for certification of a facility as a qualifying cogeneration facility pursuant to § 292.207 of the Commission's regulations. No determination has been made that the submittal constitutes a complete filing.

The topping-cycle cogeneration facility will be located at the Boulder County Justice Center, 1777 6th Street, Boulder, Colorado 80302. The plant will consist of a natural gas fired reciprocating engine generator set and necessary heat recovery equipment. The heat recovered from the facility will be used for domestic hot water and space heating and cooling at the Boulder County Justice Center. The net electric power production capacity will be 301 kilowatts. The installation date of the facility will be February 1, 1986.

### 4. Dade County Aviation Department

[Docket No. QF86-335-000]

December 12, 1985.

On December 2, 1985, Dade County Aviation Department (Applicant), of P.O. Box 592075 AMF, Miami, Florida 33159, submitted for filing an application for certification of a facility as a qualifying cogeneration facility pursuant to § 292.207 of the Commission's regulations. No determination has been made that the submittal constitutes a complete filing.

The topping-cycle cogeneration facility will be located at the Miama International Airport, Miami, Florida. The facility will consist of a combustion turbine generating unit with a heat recovery steam generator. High-pressure steam generated by the facility will be used for chilled water production for air conditioning. The electric power production capacity of the facility will be 3.3 MW. The primary energy source will be natural gas. The facility is expected to be in service in June, 1988

### Standard Paragraphs

E. Any person desiring to be heard or to protest said filing should file a motion to intervene or protest with the Federal Energy Regulatory Commission, 825 North Capitol Street, NE., Washington, DC 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211, 385.214). All such motions or protests should be filed on or before the comment date. Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a motion to intervene. Copies of this filing are on file with the Commission and are available for public inspection.

**Kenneth F. Plumb,**

*Secretary.*

[FR Doc. 85-30125 Filed 12-19-85; 8:45 am]

BILLING CODE 6717-01-M

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## Office of Hearings and Appeals

## Implementation of Special Refund Procedures

**AGENCY:** Office of Hearings and Appeals, Department of Energy.

**ACTION:** Notice of implementation of special refund procedures.

**SUMMARY:** The Office of Hearings and Appeals of the Department of Energy announces the procedures for disbursement of $5,615.95 (plus accrued interest) obtained as a result of a Consent Order which the DOE entered into with Conlo Service, Inc. of East Farmingdale, New York (Case No. HEF-0053). The fund will be available to customers who purchase motor gasoline from Conlo during the consent order period.

**DATE AND ADDRESS:** Applications for refund of a portion of the consent order fund must be postmarked within 90 days of publication of this notice in the Federal Register and should be addressed to: Conlo Consent Order

Refund Proceeding, Office of Hearings and Appeals, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585. All applications should conspicuously display a reference to Case No. HEF-0053.

**FOR FURTHER INFORMATION CONTACT:** Richard W. Dugan, Associate Director, Office of Hearings and Appeals, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 252-2860.

**SUPPLEMENTARY INFORMATION:** In accordance with § 205.282(c) of the procedural regulations of the Department of Energy, 10 CFR 205.282(c), notice is hereby given of the issuance of the Decision and Order set out below. The Decision and Order relates to a Consent Order entered into by Conlo Service, Inc. of East Farmingdale, New York. The Consent Order settled possible pricing violations with respect to the firm's sales of motor gasoline to customers during the April 1, 1979 through September 30, 1979 consent order period.

The Office of Hearings and Appeals previously issued a Proposed Decision and Order which tentatively established a two-stage refund procedure and solicited comments from interested parties concerning the proper disposition of the consent order fund. The Proposed Decision and Order discussing the distribution of the consent order funds was issued on May 31, 1985. 50 FR 24301 (June 10, 1985).

As the Decision and Order indicates, applications for refunds from the consent order fund may now be filed. Applications will be accepted provided they are postmarked no later than 90 days after publication of this Decision and Order in the Federal Register. Applications will be accepted from reseller customers who purchased motor gasoline from Conlo during the consent order period. The specified information required in an application for refund is set forth in the Decision and Order. The Decision and Order reserves the question of the proper distribution of any remaining consent order funds until the first-stage claims procedure is completed.

Dated: December 13, 1985.

George B. Breznay,

*Director, Office of Hearings and Appeals.*

**Decision and Order of the Department of Energy**

*Special Refund Procedures*

Name of Firm: Conlo Service, Inc.
Date of Filing: October 13, 1983.
Case Number: HEF-0053.

In accordance with the procedural regulations of the Department of Energy (DOE), 10 CFR Part 205, Subpart V, the Economic Regulatory Administration (ERA) of the DOE filed a Petition for the Implementation of Special Refund Procedures with the Office of Hearings and Appeals (OHA) on October 13, 1983. The petition requests that the OHA formulate and implement procedures for the distribution of funds received pursuant to a Consent Order entered into by the DOE and Conlo Service, Inc. (Conlo) of East Farmingdale, New York.

**I. Background**

Conlo is a "reseller-retailer" of motor gasoline, as this term was defined in 10 CFR 212.31. An ERA audit of Conlo's operations during the period April 1, 1979 through September 30, 1979 (the audit period) revealed possible violations of the Mandatory Petroleum Price Regulations with respect to the firm's sales of motor gasoline to both its commercial end-user customers and its reseller customers, i.e., retailers and wholesalers. In order to settle all claims and disputes between Conlo and the DOE regarding these sales, Conlo entered into a Consent Order with the DOE on March 20, 1981. The Consent Order refers to the ERA's allegations of overcharges, but notes that no findings of violation were made. In addition, it states that Conlo does not admit that it committed any such violations.

Under the terms of the Consent Order, Conlo agreed to make direct refunds totalling $15,168 to its commercial end-user customers and remit $4,854 to the DOE for deposit in an interest-bearing escrow account. This Decision and Order concerns the distribution of the funds that were deposited in the escrow account, plus accrued interest.[1]

On May 31, 1985, we issued a Proposed Decision and Order (PD&O) setting forth a tentative plan for the distribution of the consent order fund. 50 FR 24301 (June 10, 1985). We stated in the PD&O that the basic purpose of a special refund proceeding is to make restitution for injuries that were suffered as a result of alleged or adjudicated violations of the DOE regulations. In order to effect restitution in this proceeding, we proposed to establish a claims procedure whereby applications for refund would be accepted from customers who can demonstrate that they are eligible to receive a refund from the monies remitted by Conlo. We noted that the ERA audit files identify the reseller customers who purchased motor gasoline from Conlo and specify the amounts these customers were allegedly overcharged.

A copy of the PD&O was published in the Federal Register on June 10, 1985 and comments were solicited regarding the proposed refund procedures. In addition, a copy of the PD&O was sent to those customers whose names and addresses were listed in the ERA audit files. We have received no comments with respect to the proposed procedures.

**II. Jurisdiction and Authority**

The procedural regulations of the DOE set forth general guidelines by which the Office of Hearings and Appeals may formulate and implement a plan of distribution for funds received as a result of an enforcement proceeding. 10 CFR Part 205, Subpart V. It is DOE policy to use the Subpart V process in order to distribute such funds. For a more detailed discussion of Subpart V and the authority of the Office of Hearings and Appeals to fashion procedures to distribute refunds obtained as part of settlement agreements *See Office of Enforcement*, 9 DOE ¶ 82,553 (1982); *Office of Enforcement*, 9 DOE ¶ 82,508 (1981); Office of Enforcement, 8 DOE ¶ 82,597 (1981) (hereinafter cited as *Vickers*). As we stated in the PD&O, we have reviewed the record in the present case and have determined that a Subpart V proceeding is an appropriate mechanism for distributing the Conlo consent order fund. We will therefore grant the ERA's petition and assume jurisdiction over this fund.

**III. Refund Procedures**

Since we have not received any adverse comments regarding our proposed refund procedures, we have determined that those procedures should be adopted.

The distribution of refunds will take place in two stages. In the first stage refund monies will be refunded to those customers who purchased motor gasoline from Conlo during the consent order period and who demonstrate that they were injured by Conlo's alleged overcharges.[2] Such purchasers must file claims and document their purchases in order to be eligible for a portion of the consent order fund.

After meritorious claims are paid in the first stage, a second stage may become necessary to distribute any remaining funds. *See generally Office of Special Counsel*, 10 DOE ¶ 85,048 (1982). However, we will not discuss second-

[1] Conlo remitted a total of $5,615.95 to the DOE. This amount includes interest on Conlo's installment payments of the consent order amount to the DOE.

[2] The consent order period is the same as the audit period, April 1, 1979 through September 30, 1979.

stage refund procedures in this Decision and Order.

*A. Refund Claimants*

During the first stage of the refund process, the Conlo consent order fund will be distributed to claimants who satsfactorily demonstrate that they were injured by the firm's alleged regulatory violations and have not already received direct refunds from Conlo. As indicated earlier, Conlo's end-user customers received direct refunds from Conlo pursuant to the Consent Order. They will therefore not be eligible for refunds in this proceeding. Only resellers of Conlo regular and unleaded motor gasoline will be eligible for refunds in this proceeding, since these customers did not receive refunds directly from Conlo. The twelve reseller customers identified in the ERA audit file and the amounts which they were allegedly overcharged are listed in the Appendix to this Decision and Order. Although these identified reseller customers are most likely the only eligible refund claimants in this proceeding, we recognize that there may be other resellers of Conlo motor gasoline who were not listed in the ERA audit files and who may have been injured by the firm's pricing practices during the consent order period. We will therefore accept applications from any reseller customer that can show injury resulting from Conlo's alleged overcharges.

*B. Showing of Injury*

In order to qualify for a refund in Subpart V proceedings, resellers generally are required to show that during the consent order period, market conditions would not permit them to increase their prices to pass through the additional costs associated with the alleged overcharges. *Office of Enforcement*, 10 DOE ¶ 85,056 (1983); *Office of Enforcement*, 10 DOE ¶ 85,029 (1982).

As proposed in the PD&O, however, we will adopt a small claims presumption of injury. This presumption will permit claimants to participate in the refund process without incurring disproportionate expenses, and will enable the OHA to consider the refund applications in the most efficient way possible in view of the limited resources available. *See* 10 CFR 205.282(e).

1. Applicants Claiming a Refund of $5,000 or Less

As stated in the PD&O, we recognize that making a detailed showing of injury may be too complicated and burdensome for resellers who purchased relatively small amounts of motor gasoline from the consent order firm. For example, such firms may have limited accounting and data-retrieval capabilities and may therefore be unable to produce the records necessary to prove that they did not pass on the alleged overcharges to their own customers. We also are concerned that the cost to the applicant and to the government of compiling and analyzing information sufficient to make a detailed showing of inury not exceed the amount of the refund to be gained. In the past we have adopted a small claims presumption to assure that the costs of filing and processing refund applications do not exceed the benefits. *See, e.g., Aztex Energy Co.*, 12 DOE ¶ 85,116 (1984); *Marion Corp.* 12 DOE ¶ 85,014 (1984). We will adopt such a presumption in this case. Therefore, any reseller applicant claiming a refund of $5,000 or less need not make a detailed showing of injury in order to be eligible to receive a refund.[3]

2. Spot Purchasers

Resellers that made spot purchases from Conlo will be ineligible to receive a refund, even a refund below the threshold level, unless they can make a showing that rebuts the presumption that they were not injured. As we have previously noted, a spot purchaser would not have made spot market purchases of a firm's product at increased prices unless it was able to pass through to its customers the full amount of the firm's selling price. *See Vickers*, 8 DOE at 85,396–97. In order to overcome the rebuttable presumption that it was not injured, a spot purchaser must show that it absorbed the alleged overcharges and should submit additional evidence to establish that it would be inappropriate to presume that it had discretion as to where and when to make the purchase(s) upon which the refund claim is based.

*C. Calculation of Refund Amounts*

We must further determine the proper method for dividing the consent order fund among successful applicants. In the PD&O, we proposed that the maximum refund for the customers listed in the Appendix be based on the amount they were allegedly overcharged as indicated by the ERA audit files. Although we recognize that these files do not provide conclusive evidence as to the identity of all injured parties or the amount of money they should receive in a Subpart V proceeding, we believe it is appropriate to use this information in the present case. Specifically, we note that the Consent Order underlying this proceeding is limited to the same product and time period as the audit, and that Conlo had relatively few reseller customers. Because of these factors, the information contained in the ERA audit files can be used for guidance in fashioning a refund plan which is likely to correspond closely to the injuries experienced. *See, e.g., Marion.* To calculate the maximum refund amount for each identified customer listed in the Appendix, we will therefore multiply the alleged overcharge amounts for each firm by a pro rata factor, determined by dividing the applicable consent order amount ($5,615.95) by the total alleged overcharges in sales to resellers ($13,390.34). This yields a pro rata factor of 0.4194. The interest which has accrued on the money in the escrow account will be added to the refund of each successful claimant in proportion to the size of its refund.

We shall also adopt our proposal to establish a minimum amount of $15 for refund claims. We have found through our experience in prior refund cases that the cost of processing claims in which refunds are sought for amounts less that $15 outweighs the benefits of restitution in those situations. See, *e.g., Uban Oil Co.*, 9 DOE ¶ 82,541 at 85,225 (1982). *See also* 10 CFR 205.286(b).

**IV. Application for Refund Procedures**

We have determined that the procedures described in the PD&O are the most equitable and efficacious means of distributing the Conlo consent order fund. Accordingly, we shall now accept applications for refund from eligible customers who purchased motor gasoline from Conlo during the consent order period. There is no official application form. Applications for Refund should be written or typed on business letterhead or personal stationery. The following information should be included in all Applications for Refund:

1. The name of the consent order firm, Conlo Service, Inc., the case number HEF–0053, and the applicant's name should be prominently displayed on the first page.

2. The name, position title, and telephone number of a person who may be contacted by us for additional information concerning the Application.

3. The manner in which the applicant used Conlo motor gasoline, i.e., whether it was a retailer or wholesaler.

4. The volume of Conlo motor gasoline that the applicant purchased in each month of the period of time for which it

[3] Under the refund methodology set forth in Part IIIC of this Decision, all of Conlo's identified eligible customers would be below this threshold.

is claiming it was injured by the alleged overcharges.

5. A statement of whether the applicant was in any way affiliated with Conlo. If so, the applicant should state the nature of the affiliation.

6. A statement of whether there has been any change in ownership of the entity that purchased motor gasoline from Conlo since the end of the consent order period. If so, the name and address of the current (or former) owner should be provided.

7. A statement of whether the applicant is or has been involved as a party in any DOE or private section 210 enforcement actions. If these actions have been terminated, the applicant should furnish a copy of any final order issued in the matter. If the action is ongoing, the applicant should describe the action and its current status. The applicant is under a continuing obligation to keep the OHA informed of any chance in status during the pendency of its Application for Refund. *See* 10 CFR 205.9(d).

8. The following signed statement:

I swear (or affirm) that the information submitted is true and accurate to the best of my knowledge and belief.

All Applications for Refund must be filed in duplicate and must be received within 90 days after publication of this Decision and Order in the **Federal Register.** A copy of each Application will be available for public inspection in the Public Docket Room of the Office of Hearings and Appeals, Forrestal Building, Room 1E–234, 1000 Independence Avenue, SW, Washington, DC. Any applicant that believes that its Applications contains confidential information must so indicate on the first page of its Application and submit two additional copies of its Applications from which the material alleged to be confidential has been deleted, together with a statement specifying why the information is alleged to be privileged or confidential.

All Applications should be sent to: Office of Hearings and Appeals, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585.

It Is Therefore Ordered That:

(1) Applications for Refund from the funds remitted to the Department of Energy by Conlo Service, Inc. pursuant to the Consent Order executed on March 20, 1981 may now be filed.

(2) All applications must be filed no later than 90 days after publication of this Decision and Order in the **Federal Register.**

George B. Breznay,

*Director, Office of Hearings and Appeals.*

Dated: December 13, 1985.

## Appendix

*Conlo Service, Inc.*

Conklin St. & Locust Ave., East Farmingdale, NY 11735.

Consent Order Period: 4/1/79–9/30/79.

Product Covered: Motor Gasoline.

Consent Order Amount: $5,615.95.

Pro Rata Factor ($5,615.95 divided by $13,390.34): 0.4194.

| Identified customers | Alleged overcharges | Potential refunds [1] |
|---|---|---|
| Frank's Auto,[2] 661 Burnside Avenue, Lawrence, NY 11559 | $107.12 | $45.00 |
| Jimmy's, 105 Putnam Avenue, Atlantic Beach, NJ 11509 | 8,379.67 | 3,514.00 |
| Queen Bee,[2] Veteran's Hwy & Long Island Expressway, Holbrook, NY 11741 | 1,401.97 | 588.00 |
| S & J Service,[2] Hempstead Avenue, Hempstead, NY 11552 | 121.85 | 51.00 |
| Malverne Park Service,[2] Ocean Avenue, Malvern, NY 11565 | 877.07 | 368.00 |
| John & Kenney's, 234 Route 109, West Babylon, NY 11704 | 772.63 | 324.00 |
| Milex, 1286 Route 110, Farmingdale, NY 11735 | 378.95 | 159.00 |
| Super Car Clinic,[2] Conklin ST. & Denton Ave., Farmingdale, NY 11735 | 253.08 | 106.00 |
| W & C,[2] 3821 Veteran's Hwy, Ronkonkoma, NY 11779 | 117.83 | 49.00 |
| Acme Marine,[2] Lawrence Basin, Lawrence, NY 11559 | 384.30 | 161.00 |
| Nat Park Gulf,[2] Austin Boulevard, Island Park, NY 11558 | 361.54 | 152.00 |
| B & W Auto,[2] Route 109, Lindenhurst, NY 11757 | 234.33 | 98.00 |

[1] These figures are rounded to the nearest dollar and do not include interest which has accrued since the consent order funds were remitted to the DOE.

[2] We sent copies of the PD&O to all of the customers listed above. The PD&Os sent to the firms designated with a double asterisk were returned to this Office, however, because of incorrect addresses. These customers remain eligible for refunds and may contact this Office to receive a copy of this Decision. We may enlist the help of the consent order firm and/or contact local newspapers in order to locate these customers.

[FR Doc. 85–30141, Filed 12–19–85; 8:45 am]

BILLING CODE 6450–01–M

## Implementation of Special Refund Procedures

**AGENCY:** Office of Hearings and Appeals, Department of Energy.

**ACTION:** Notice of implementation of special refund procedures.

**SUMMARY:** The Office of Hearings and Appeals of the Department of Energy solicits comments concerning the appropriate procedures to be followed in refunding to adversely affected parties $9,361.13 obtained as a result of a consent order which the DOE entered into with O'Connell Oil Company (O'Connell), a reseller-retailer of motor gasoline located in Pittsfield, Massachusetts. The money is being held in escrow following the settlement of enforcement proceedings brought by the DOE's Economic Regulatory Administration.

**DATE AND ADDRESS:** Comments must be filed within 30 days of publication of this notice in the **Federal Register** and should be addressed to the Office of Hearings and Appeals, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585. All comments should conspicuously display a reference to case number HEF–0141.

**FOR FURTHER INFORMATION CONTACT:** Sharon Dennis, Office of Hearings and Appeals, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 252–6602.

**SUPPLEMENTARY INFORMATION:** In accordance with § 205.282(b) of the procedural regulations of the Department of Energy, 10 CFR 205.282(b), notice is hereby given of the issuance of the Proposed Decision and Order set out below. The Proposed Decision sets forth procedures and standards that the DOE has tentatively formulated to distribute to adversely affected parties $9,361.13 plus accrued interest obtained by the DOE under the terms of a concent order entered into with O'Connell Oil Company. The funds were provided to the DOE by O'Connell to settle all claims and disputes between the firm and the DOE regarding the manner in which the firm applied the federal price regulations with respect to its sales of motor gasoline during the period April 1, 1979, through April 30, 1980.

OHA proposes that a two-stage refund process be followed. In the first stage, OHA has tentatively determined that a portion of the consent order funds should be distributed to individuals who purchased motor gasoline from O'Connell. In order to obtain a refund, a claimant will be required to submit a schedule of its monthly purchases from O'Connell and to demonstrate that it was injured by O'Connell's pricing practices. Applicants must submit specific documentation regarding the date, price and volume of product purchased, whether the increased costs were absorbed by the claimant or passed through to other purchasers, and the extent of any injury alleged to have been suffered. An applicant claiming $5,000 or less, however, will be required to document only its purchase volumes

Applications for refund should not be filed at this time. Appropriate public notice will be given when the submission of claims is authorized.

Some residual funds may remain after all meritorious first-stage claims have been satisified. OHA invites interested parties to submit their views concerning alternative methods of distributing any remaining funds in a subsequent proceeding.

Any member of the public may submit written comments regarding the proposed refund procedures. Commenting parties are requested to submit two copies of their comments. Comments should be submitted within 30 days of publication of this notice. All comments received in these proceedings will be available for public inspection between 1:00 and 5:00 p.m., Monday through Friday, except federal holidays, in the Public Docket Room of the Office of Hearings and Appeals, located in Room 1E-234, 1000 Independence Avenue, SW., Washington, DC 20585.

Dated: December 13, 1985.

**George B. Breznay,**

*Director, Office of Hearings and Appeals.*

**Proposed Decision and Order of the Department of Energy**

*Implementation of Special Refund Procedures*

Name of Firm: O'Connell Oil Company.

Date of Filing: October 13, 1983.

Case Number: HEF-0141.

Under the procedural regulations of the Department of Energy (DOE), the Economic Regulatory Administration (ERA) may request that the Office of Hearings and Appeals (OHA) formulate and implement special procedures to distribute funds received as a result of an enforcement proceeding in order to remedy the effects of actual or alleged violations of the DOE regulations. *See* 10 CFR Part 205, Subpart V. In accordance with the provisions of Subpart V, on October 13, 1983, ERA filed a Petition for the Implementation of Special Refund Procedures in connection with a consent order entered into with O'Connell Oil Company (O'Connell).

I. Background

O'Connell is a "reseller-retailer" of motor gasoline as that term was defined in 10 CFR § 212.31 and is located in Pittsfield, Massachusetts. A DOE audit of O'Connell's records revealed possible violations of the Mandatory Petroleum Price Regulations, 10 CFR Part 212, Subpart F. The audit indicated that between April 1, 1979, and April 30, 1980, O'Connell committed possible pricing violations amounting to $9,361.13 with respect to its sales of motor gasoline.

In order to settle all claims and disputes between O'Connell and the DOE regarding the firm's sales of motor gasoline during the period covered by the audit, O'Connell and the DOE entered into a consent order on December 1, 1980. The consent order refers to ERA's allegations of overcharges, but notes that there was no finding that violations occurred. The consent order also states that O'Connell does not admit that it violated the regulations. On September 4, 1981, pursuant to the terms of the consent order, O'Connell deposited $9,361.13 into an interest-bearing escrow account for ultimate distribution by the DOE.[1]

II. Proposed Refund Procedures

The procedural regulations of the DOE set forth general guidelines to be used by OHA in formulating and implementing a plan of distribution for funds received as a result of an enforcement proceeding. 10 CFR Part 205, Subpart V. The Subpart V process may be used in situations where the DOE is unable to identify readily those persons who likely were injured by alleged overcharges or to ascertain readily the amount of such persons' injuries. For a more detailed discussion of Subpart V and the authority of OHA to fashion procedures to distribute refunds, *see Office of Enforcement*, 9 DOE ¶ 82,508 (1981), and *Office of Enforcement*, 8 DOE ¶ 82,597 (1981) (*Vickers*).

As in other Subpart V cases, we believe that the distribution of refunds in this proceeding should take place in two stages. In the first stage, we will attempt to provide refunds to identifiable purchasers of refined petroleum products that were injured by O'Connell's alleged pricing practices between April 1, 1979, and April 30, 1980 (the consent order period). Any funds that remain after all meritorious first-stage claims have been paid may be distributed in a second-stage proceeding. *See, e.g., Office of Special Counsel*, 10 DOE § 85,048 (1982) (*Amoco*).

*A. Refunds to Identifiable Purchasers*

Identification of first purchasers is only the first step in the distribution process. We must also determine whether the first purchasers were injured or were able to pass through the alleged overcharges. To aid us in our assessment of a purchaser's injury, we propose the adoption of certain presumptions. Presumptions in refund cases are specifically authorized by applicable DOE procedural regulations. Section 205.282(e) of those regulations states that:

> [i]n establishing standards and procedures for implementing refund distributions, the Office of Hearings and Appeals shall take into account the desirability of distributing the refunds in an efficient, effective and equitable manner and resolving to the maximum extent practicable all outstanding claims. In order to do so, the standards for evaluation of individual claims may be based upon appropriate presumptions.

10 CFR 205.282(e). The presumptions we plan to adopt in this case are used to permit claimants to participate in the refund process without incurring inordinate expenses and to enable OHA to consider the refund applications in the most efficient way possible in view of the limited resources available.

The first presumption we plan to use is that claimants seking small refunds were injured by the pricing practices of the company from which they purchased products. There are a number of bases for such a presumption. *See e.g., Uban Oil Co.*, 9 DOE ¶ 82,541 (1982). The firms that will be eligible for refunds are purchasers that were in the chain of distribution of the products to which the alleged overcharges attached. These purchasers therefore experienced some impact of the alleged overcharges. Without some presumptions as to injury, in order to support a specific claim of injury, a claimant would have to compile and submit very detailed factual information regarding the impact of alleged overcharges which occurred many years ago. This procedure is generally time-consuming and expensive. In the case of relatively small claims, the cost to the firm of gathering the necessary information and the cost to OHA of analyzing it could certainly exceed the expected refund and whatever benefits are derived from any additional precision. Consequently, without simplified procedures, some potential claimants would be effectively denied an opportunity to seek a refund since it would be uneconomic to do so. As a result, we intend to adopt a small claims presumptionwhich will eliminate the need for a claimant to submit and OHA to analyze extensive, detailed proof of what resulted from the initial impact of the alleged overcharges.

Under the small claims presumption, a claimant who is a reseller or retailer will not be required to submit any additional evidence of injury beyond purchase volumes if its refund claim is based on

[1] As of November 30, 1985, the O'Connell escrow account contained $16,082.87, representing $9,361.13 in priacipal, and $6,721.74 in accured interest. O'Connell had previously deposited funds into an escrow account pursuant to an earlier consent order regarding sales of motor gasoline during the period November 1, 1973 through March 31, 1974. Those sales and that escrow account are not involved in this Proposed Decision.

purchases below a certain level. Several factors determine the value of this threshold. Principal among these factors is the concern that the cost to the applicant and to the government of compiling and analyzing information sufficient to show injury not exceed the amount of the refund to be gained. In this case, where the refund amount is fairly low and the consent order period is many years past, $5,000 is a reasonable value for the threshold.

*See Texas Oil and Gas Corp.*, 12 DOE ¶85,069 (1984); *Office of Special Counsel*, 11 DOE ¶85,226 (1984) (*Conoco*), and cases cited therein.

However, a reseller or retailer which seeks a refund of more than $5,000 will be required to provide a detailed demonstration of injury. A reseller will be required to demonstrate that it maintained a "bank" of unrecovered product costs in order to show that it did not pas along the alleged overcharges to its own customers.[2] In addition, a reseller claimant must show that market conditions would not permit it to pass through those increased costs. *See, e.g., Triton Oil and Gas Corporation/Cities Service Company*, 12 DOE ¶85,107 (1984); *Tenneco Oil Company/Mid-Continent Systems, Inc.*, 10 DOE ¶85,009 (1982).

In addition, we propose that the type of demonstration of injury to be made by retailer claimants will be different than that of reseller applicants. This is proposed because, unlike resellers, for most of the 13 month consent order period (the 9½ month period from July 16, 1979 until April 30, 1980), retailers were not required to compute MLSPs with reference to May 15, 1973 selling prices and increased costs. *See* 10 CFR 212.93; 45 FR 29546 (1980). Instead, effective July 16, 1979, a retailer was required to calculate its MLSP under a fixed-margin approach set forth in the new rule. Unrecouped increased product costs could no longer be banked for later recovery. *Id.* Consequently, retailers were not required to maintain or compute cost banks during the 9½ month period. As a result, any requirement that a retailer claimant make a demonstration of injury like that contemplated for resellers, *i.e.*, based upon unrecovered cost banks, would probably eliminate all retailer claimants for the bulk of the consent order period. Therefore, in this proceeding, we propose that retailers which lack banks subsequent to July 16, 1979 may still file a claim for a refund which exceeds the small claim threshold. Retailers should, however, submit bank calculations from April 1, 1979 through July 16, 1979.[3] Like resellers, retailers will be required for the entire consent order period to show that market conditions prevented them from recovering those increased costs, *i.e.*, through a demonstration of lowered profit margins, decreased market shares, or depressed sales volumes.[4]

If a reseller or retailer made only spot purchases, we propose that it should not receive a refund since it is unlikey to have been injured. As we have previously stated with respect to spot purchasers:

> [T]hose customers tend to have considerable discretion in where and when to make purchases and would therefore not have made spot market purchases of [the firm's product] at increased prices unless they were able to pass through the full amount of [the firm's] quoted selling price at the time of purchase to their own customers.

*Vickers*, 8 DOE at 85,396–97. We believe the same rationale holds true in the present case. Therefore, we propose that firms which made only spot purchases from O'Connell not receive refunds unless they present evidence which rebuts the spot purchaser presumption and establishes the extent to which they were injured as a result of their purchases of motor gasoline from O'Connell during the consent order period.

In addition, we are making a proposed finding that end users whose business operations are unrelated to the petroleum industry were injured by the alleged overcharges. These entities were not subject to the DOE regulations during the relevant period, and are thus outside our inquiry concerning pass-through of injury. *See Office of Enforcement, Economic Regualtory Administration; in the matter of PVM Oil Associates, Inc.*, 10 DOE ¶85,072 (1983); *see also /Texas Oil & Gas Corp.*, 12 DOE at 88,209[5] Therefore, we propose that for end users of motor gasoline sold by O'Connell, documentation of purchase volumes will provide a sufficient showing of injury.

We propose that firms whose prices for goods and services are regulated by a governmental agency or by the terms of a cooperative agreement not be required to provide a detailed demonstration that they absorbed the alleged overcharges. *See e.g., Office of Special Counsel*, 9 DOE ¶82,538 (1982) (*Tenneco*), and *Office of Special Counsel*, 9 ¶82,545 at 85,244 (1982) (*Pennzoil*). Those firms should provide with their applications a full explanation of the manner in which refunds would be passed through to their customers and of how the appropriate regulatory body or membership group will be advised of the applicant's receipt of any refund money. Sales by cooperatives to nonmembers, however, will be treated the same as sales by any other reseller.

As in previous cases, only claims for at least $15 will be processed. In prior refund cases we have found that the cost of processing claims for smaller amounts outweighs the benefits of restitution. *See, e.g., Uban Oil Co.*, 9 DOE at 85,225. *See also* 10 CFR 205.386(b). The same principle applies here.

### *B. Calculation of Refund Amount*

We must further determine the proper method for dividing the consent order funds among successful applicants. In cases involving "global" consent orders, or cases where information is minimal, we have generally adopted a "volumetric" allocation of the funds as an equitable way of allocating the proceeds of the consent order among eligible firms. In these situations, the allocation is calculated by multiplying the number of gallons purchased by a claimant by a volumetric factor, using the amount of the relevant consent order fund as the numerator and the total gallons of product covered by the consent order as the denominator. In addition, the volumetric refund presumption generally presumes that alleged overcharges committed by a consent order firm were spread equally over all gallons of product marketed by that firm. However, in cases such as this where more detailed information exists, we have used a different approach to best achieve restitution. *See, e.g.,*

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[2] This injury requirement reflects the nature of the petroleum price regulations in effect beginning on August 19, 1973, and ending on July 16, 1979 for retailers, and on May 1, 1980 for resellers. Under the original rules, a reseller or retailer of motor gasoline was required to calculate its maximum lawful selling price (MLSP) by summing its selling price on May 15, 1973, with increased costs incurred since that time. A firm which was unable to charge its MLSP in a particular month could "bank" any unrecovered increased product costs, so that those costs could be recouped in a later month, if possible. *See* 10 CFR 212.93; 45 FR 29546 (1980).

[3] The cost bank requirement has been relaxed in other instances regarding the change in the pricing regulations for motor gasoline. *See* Tenneco Oil Company/United Fuels Corporation, 10 DOE ¶85,005 at 88,017 n.1 (1982) (Tenneco).

[4] Resellers or retailers who claim a refund in excess of $5,000 but who cannot establish that they did not pass through the price increases will be eligible for a refund of up to the $5,000 threshold, without being required to submit further evidence of injury. Firms potentially eligible for greater refunds may choose to limit their claims to $5,000. *See* Vickers, 8 DOE at 85,396. *See also* Office of Enforcement, 10 DOE ¶85,029 at 88,122 (1982) (Ada).

[5] If a firm is both a spot purchaser and an end user, it will be treated as an end user and will not be required to make any showing of injury beyond that required of other end users.

*Marion Corporation* 12 DOE ¶ 85,014 (1984) at 88,031.

A modified volumetric approach makes the refunds ordered correspond more closely to the actual injuries experienced by O'Connell's reseller and end user customers. The information contained in the consent order indicates that fewer gallons were sold and more of the alleged overcharges occurred on the volumes of motor gasoline which O'Connell sold to resellers than on the volumes sold at retail. We note, however, that the audit files do not identify either the allegedly injured parties, or the dollar amount of alleged overcharges paid by each. Also, while the record does indicate that O'Connell's reseller purchasers bore a disproportionate share of the alleged overcharges, there is nothing in the record to rebut the presumption that, within these separate categories of purchaser, overcharges were spread equally over O'Connell's sales of motor gasoline. Therefore, we propose the use of separate volumetric factors for O'Connell's different purchasing classes, which will be used in determining the most equitable refund amounts for each.[6]

The consent order documents the exact breakdown of the settlement funds according to the amounts due to the two classes of purchaser, *i.e.*, $7,407.49 to resellers and $1,953.64 to end users. We propose to use these figures in calculating the separate volumetric factors, *i.e.*, we will use the relevant portion of the consent order funds assigned to each particular class of purchaser as the numerator, and the total gallons of motor gasoline sold to each class during the consent order period as the denominator. For applicants who purchased motor gasoline from O'Connel for resale, the volumetric factor is $.004223. For purchases from O'Connell's retail stations, the volumetric factor is $.000589. In addition, successful applicants will receive a proportionate share of the accrued interest.[7]

[6] The volumetric presumption is rebuttable, however. A claimant which beleives that it incurred a disproportionate share of the alleged overcharges within its class may submit evidence providing this claim. *See* Sid Richardson Carbon and Gasoline Co. and Richardson Products Co./Siouxland Propane Co., 12 DOE at 88,164.

[7] The volumetric factors have been calculated from information contained in ERA's audit workpapers. The audit examined wholesale sales made during June, July and August 1979, and retail sales made between April and August 1979. From these figures we extrapolated O'Connell's wholesale sales for the entire consent order period (1,754,036 gallons). We then divided this amount into the portion of consent order funds applicable to the alleged overcharges to wholesale customers ($7,407.49) to obtain the volumetric factor of $.004223. Similarly, for retail gallons we extrapolated from the number of retail gallons sold during the five month audit period to arrive at an estimate of 3,317,933 gallons sold during the entire consent order period. We than divided the consent order funds applicable to retail sales ($1,953.64) by our estimate of O'Connell's total retail sales (3,317,933 gallons) to obtain the volumetric factor of $.000589.

*C. Applications for Refund*

Any purchaser claiming a portion of the consent order funds should file an Application for Refund pursuant to 10 C.F.R. § 205.283. In its application, a claimant must include a schedule of its monthly purchases form O'Connell. Applicants should also provide all relevant information necessary to support their claim in accordance with the presumptions stated above. A claimant must also state whether it has previously received a refund, from any source, with respect to the alleged evercharges underlying these proceedings. Each applicant must also state whether there has been a change in ownership of the firm since the audit period. If there has been a change in ownership, the applicant must provide the names and addresses of the other owners, and should either state the reasons why the refund should be paid to the applicant rather than to the other owners or provide a signed statement from the other owners indicating that they do not claim a refund. Finally, an applicant should report whether it is is or has been involved as a party in any DOE enforcement or private, section 210 actions. If these actions have been concluded the applicant should furnish a copy of any final order issued in the matter. If the action is still in progress, the applicant should briefly describe the action and its current status. The applicant must keep OHA informed of any change in status while its Application for Refund is pending. *See* 10 CFR 205.9(d).

*D. Distribution of Remaining Consent Order Funds*

In the event that money remains after all meritorious claims have been satisfied, residual funds could be distributed in a number of ways in a subsequent proceeding. However, we will not be in a position to decide what should be done with any remaining funds until the initial stage of this refund proceeding has been completed. We encourage the submission by interested parties of proposals which address alternative methods of distributing any remaining funds.

It is therefore ordered that:

The refund amount remitted to the Department of Energy by O'Connell Oil Company pursuant to the consent order executed on December 1, 1980, will be distributed in accordance with the foregoing decision.

[FR Doc. 85-30142 Filed 12-19-85; 8:45 am]

BILLING CODE 6450-01-M

## Implementation of Special Refund Procedures

**AGENCY:** Office of Hearings and Appeals, Department of Energy.

**ACTION:** Notice of implementation of special refund procedures.

**SUMMARY:** The Office of Hearings and Appeals of the Department of Energy annotnces the procedures for filing Applications for Refund from funds obtained from Conoco Inc. in settlement of all issues regarding the firm's application of the federal petroleum price and allocation regulations during the period January 1, 1973 through January 27, 1981.

**DATE AND ADDRESS:** Applications for refund must be postmarked by March 20, 1986, should conspicuously display a reference to case numbers HEF-0010 and HEF-0484, and should be addressed to: Office of Hearings and Appeals, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585.

**FOR FURTHER INFORMATION CONTACT:** Nancy Kestenbaum, Office of Hearings and Appeals, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 252-6602.

**SUPPLEMENTARY INFORMATION:** In accordance with § 205.282(c) of the procedural regulations of the Department of Energy, 10 CFR 205.282(c), notice is hereby given of the issuance of the Decision and Order set forth below.The Decision and Order establishes procedures to distribute funds obtained as a result of a consent order between the DOE and Conoco Inc. (Conoco) on July 2, 1982. The consent order settled all disputes between the DOE and Conoco concerning possible violations of DOE price and allocation regulations relating to transactions by Conoco involving the production, refining, processing, reselling, and marketing of crude oil and petroleum products during the period January 1, 1973 through January 27, 1981. Under the terms of the consent order, Conoco has remitted $14,000,000 which is being held in an interest bearing escrow account pending determination of its proper distribution.

Any members of the public who believe that they are entitled to a refund in this proceeding may file Applications

for Refund. The specific information to be included in an Application for Refund is set forth below. All Applications should be postmarked by March 20, 1986, and should be sent to the address set forth at the beginning of this notice. Applications for refunds must be filed in duplicate, and these applications will be made available for public inspection between the hours of 1:00 and 5:00 p.m., Monday through Friday, except federal holidays, in the Public Docket Room of the Office of Hearings and Appeals, located in Room 1E-234, 1000 Independence Avenue, SW., Washington, DC 20585.

Dated: December 12, 1985.

George B. Breznay,

*Director, Office of Hearings and Appeals.*

**Decision and Order of the Department of Energy**

*Special Refund Procedures*

Name of Firm: Conoco Inc.

Dates of Filing: December 23, 1982, November 14, 1983.

Case Numbers: HEF-0010, HEF-0484.

The regulations of the Department of Energy (DOE) permit the Economic Regulatory Administration's Office of Special Counsel (OSC) to request the Office of Hearings and Appeals (OHA) to formulate and implement procedures for distributing funds received as a result of an enforcement proceeding involving alleged violations of the DOE regulations. *See* 10 CFR Part 205, Subpart V. In accordance with those regulatory provisions, the OSC filed two Petitions for the Implementation of Special Refund Procedures in connection with a consent order entered into with Conoco Inc. (Conoco). The first Petition involves $3 million in settlement of alleged violations of the refiner pricing regulations, and was filed on December 23, 1982. The second Petition involves $11 million in settlement of alleged violations of the crude oil producer regulations, and was filed on November 14, 1983. Each of the petitions concerns funds received from Conoco pursuant to different provisions of that consent order, *i.e.*, paragraphs 402 and 403. Under the terms of the consent order, Conoco agreed to make refunds for alleged violations of the DOE price and allocation regulations in the following amounts: (i) $3 million to be paid to DOE for disposition according to DOE's determination (¶ 402), and (ii) a quantity of foreign crude oil valued at $11 million to be delivered to the Strategic Petroleum Reserve of the United States or, in the alternative, to pay to DOE the amount of $11 million in lieu of delivering crude oil to the Strategic Petroleum Reserve (¶ 403). On November 24, 1982, Conoco remitted to DOE $3 million in accordance with ¶ 402 of the consent order. On October 26, 1983, Conoco elected to pay $11 million in funds directly to DOE in accordance with ¶ 403 of the consent order. These funds, totalling $14 million, are now being held in an escrow account under the jurisdiction of the DOE pending receipt of instructions from the OHA regarding their final distribution.[1]

**I. Background**

Conoco is a "producer" of crude oil and a "refiner" as those terms were defined in 10 CFR 212.31. During the relevant time periods, Conoco was engaged in the production, refining, processing, reselling, and marketing of crude oil and petroleum products, and was subject to the Mandatory Petroleum Price Regulations set forth at 10 CFR Part 212.

As a part of its enforcement activities, the OSC audited Conoco's price and allocation practices, including the manner in which the firm applied the federal petroleum price and allocation regulations with respect to its importation, refining, and sale of crude oil and covered petroleum products during the period January 1, 1973 through January 27, 1981 (hereinafter referred to as the "consent order period"). In order to settle all claims and disputes between the parties concerning this period, Conoco and DOE entered into a Proposed Consent Order whereby Conoco agreed to remit $3 million to the DOE, and to deliver $11 million worth of foreign crude oil to the Strategic Petroleum Reserve. The consent order refers to the DOE's allegations of regulatory violations, but notes that no findings of violations were made. In addition, the consent order states that Conoco does not admit that it violated the federal petroleum price and allocation regulations during the consent order period. Notice of the Proposed Consent Order was published in the **Federal Register** at 47 FR 30563 (July 14, 1982), and interested persons were invited to submit comments and written notification of potential claims against the settlement funds. After comments were received from numerous parties, the Proposed Consent Order was finalized without modification and published in the **Federal Register** at 47 FR 49700 (November 2, 1982). OSC subsequently filed the two Petitions which are the subject of this refund proceeding.

On August 13, 1984, the OHA issued a Proposed Decision and Order (PD&O) setting forth a tentative plan for the distribution of the funds that had been deposited with the DOE by Conoco. In the PD&O we described a two-stage process for the distribution of the funds made available by the Conoco consent order. The first stage will distribute refunds to identifiable purchasers of covered products who may have been injured by the consent order firm's pricing practices during the applicable consent order period.

This decision discusses the comments that were received, implements the refund process, and describes the information that purchasers of Conoco's refined products or crude oil should submit in order to demonstrate eligibility for a portion of the consent order funds. After meritorious claims are paid, a second-stage refund proceeding may become necessary to distribute any remaining funds. *See generally Office of Special Counsel*, 10 DOE ¶ 85,048 (1982).

**II. Jurisdiction**

We have considered OSC's two Petitions for the Implementation of Special Refund Procedures and determined that it is appropriate to establish such a proceeding with respect to the Conoco consent order funds. In our Proposed Decision and in other recent decisions, we have discussed at length our jurisdiction and authority to fashion special refund procedures. *See, e.g., Office of Enforcement*, 9 DOE ¶ 82,553 (1982). We have received no comments challenging our jurisdiction in this case, and we will grant OSC's petitions and assume jurisdiction over the distribution of the Conoco consent order funds.

**III. Comments on Proposed Decision**

Comments were solicited regarding the proposed refund procedures outlined in the PD&O. Thirteen states[2] and nine other parties[3] filed comments in response to the PD&O. To the extent each of the states and the National Consumer Law Center, Inc. commented on the distribution of residual funds in a second-stage proceeding, we shall defer addressing these issues. It would be

[1] As of November 30, 1985, the $14 million principal deposited in Conoco's escrow account had accrued $3,182,631.97 in interest, bringing the total amount at that time to $17,182,631.97.

[2] Comments were filed by the following states or their representatives: Arkansas, Delaware, Florida, Iowa, Kansas, Louisiana, New Mexico, North Carolina, North Dakota, Rhode Island, Texas, Utah, and West Virginia.

[3] Comments were also filed on behalf of several Indian tribes, Air Transport Association, Farmland Industries, Inc., Bill Keeling Oil Co., Inc., Marathon Petroleum Company, Mobil Oil Corporation, National Consumer Law Center, Inc., National Council of Farmer Cooperatives, and Petroleum Marketers Association of America.

premature to discuss at this time the disposition of second-stage funds, particularly since the disposition of any funds remaining after meritorious claims have been paid will necessarily depend on the size of the fund. *See Office of Enforcement*, 9 DOE ¶ 82,508 (1981). All other comments are discussed in the following presentation of the procedures we are adopting.

## IV. Refund Procedures

The Conoco consent order resolves the firm's alleged violations for the DOE petroleum price and allocation regulations. As provided in the consent order, Conoco paid $3 million to the DOE and, in lieu of delivering to the Strategic Petroleum Reserve a quantity of foreign crude oil valued at $11 million, also paid $11 million to the DOE for its disposition. In the PD&O we concluded that $3 million of the Conoco Consent Order funds should be made available to those claimants who purchased refined petroleum products, and $11 million should be set aside into a separate crude oil pool of refunds. The determination to allocate in this manner the $14 million in consent order funds between refined petroleum product and crude oil claimants was based on representations made by the Economic Regulatory Administration (ERA). *See* Memorandum from Leslie W. Adams, Deputy Solicitor of ERA, dated July 26, 1984.

The Petroleum Marketers Association of America (PMAA) filed comments disagreeing with this apportionment. PMAA argues that refined product purchasers should be able to claim refunds from the entire $14 million settlement fund, and that ERA's comments should be ignored.[4]

We do not agree. ERA states that the negotiations underlying the $3 million cash payment and $11 million in kind payment of crude oil were separate and segregated between refiner pricing and crude oil violations. ERA maintains that there were different litigation risks associated with the operation of the regulations in each of these two areas, and that the $11 million remedy specifically reflected the litigation history and factual background associated with the crude oil issues. Nor is there evidence in the record which suggests a different basis for the two settlement amounts ultimately obtained. Accordingly, we will divide the consent order funds in the manner previously proposed.

### *A. Refunds to Refined Product Purchasers*

The Conoco refined product pool of $3 million shall be distributed to claimants that satisfactorily demonstrate that they have been adversely affected by alleged overcharges in sales of covered products. As in many prior special refund cases, we will adopt certain presumptions. First, we will adopt a presumption that the alleged overcharges were dispersed equally in all sales of refined petroleum products made by the consent order firm. We will therefore calculate refunds based on a per-gallon, volumetric refund amount. Second, we will adopt a presumption of injury with respect to small claims.

Presumptions in refund cases are specifically authorized by applicable DOE procedural regulations. Section 205.282(d) of those regulations states that:

> [i]n establishing standards and procedures for implementing refund distributions, the Office of Hearings and Appeals shall take into account the desirability of distributing the refunds in an efficient, effective and equitable manner and resolving to the maximum extent practicable all outstanding claims. In order to do so, the standards for evaluation of individual claims may be based upon appropriate presumptions.

10 CFR 205.282(e). The presumptions adopted in this case will permit claimants to participate in the refund process without incurring disproportionate expenses, and will enable the OHA to consider refund applications in the most efficient way possible in view of the limited resources available.

A claimant will be eligible to receive a refund equal to the documented number of gallons of covered products it brought from Conoco during the applicable consent order period, multliplied by a volumetric percentage. This percentage is computed by dividing the amount of the refined product pool by the total number of gallons of covered petroleum products sold by Conoco during the consent order period.[5] The calculation of the volumetric percentage for Conoco results in a per gallon volumetric refund amount of $.0001, exclusive of interest.[6] In addition, interest which has accrued on the consent order funds will be applied to each refund on a pro rata basis.

In the PD&O we tentatively determined that resellers and retailers seeking refunds based on purchases of 50,000 gallons per month, or 600,000 gallons annually, would not be required to demonstrate further any injury resulting from the alleged overcharges. The State of North Carolina filed comments opposing adoption of *any* presumption, arguing that first-stage refunds should only be paid to resellers that can prove that they did not pass on the alleged overcharges, regardless of the amount of the claim. We have considered this comment but will adopt the proposed small claims presumption in the interest of fairness and efficiency.

The adoption of a presumption of injury for smaller claims is based on a number of important considerations. First, because of the complexity of the pricing issues involved and the time elapsed since the alleged overcharges took place, attempts at restitution to deserving parties necessarily will be inexact. *See Flash Oil Co. v. United States*, No. 85-436C(B), mem. opinion (E.D. Mo. Sept. 26, 1985). It is our experience in similar refund proceedings that the presumption of injury enables parties who likely were injured to claim refunds. We note that in past refund proceedings the OHA has analyzed extensively the issue of cost absorption by smaller purchasers of petroleum products. *See, e.g., Economic Regulatory Administration: In the Matter of Standard Oil Co. (Indiana)*, 10 DOE ¶ 85,048 (1982) (*Amoco*) at 88,205-209. After careful analysis of the available

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[4] PMAA directs OHA to a determination in the *Amoco* proceeding, Office of Special Counsel, 10 DOE ¶ 85,048 (1982), where we attributed little weight to the testimony of a former DOE official regarding the apportionment of the *Amoco* consent order funds among various classes of claimants. In that decision, however, we noted the absence of any relevant restriction or limitation in either the consent order or the petitions invoking our jurisdiction. In contrast, the Conoco consent order—by its own terms—provided an in-kind remedy involving crude oil valued at $11 million. In addition, OSC's petition to OHA expressly stated that the $11 million payment "resolved alleged violations by Conoco in its first sales of domestic crude oil." Petition for the Implementation of Special Refund Procedures, filed November 14, 1983, at 2. These facts, together with ERA's representations to OHA in a memorandum filed July 26, 1984, clearly distinguish this proceeding from *Amoco*, where both the consent order and subsequent petitions were silent on the apportionment issue regarding the consent order funds.

[5] PMAA asserts that the pre-entitlements portion of the crude oil settlement funds should be included in calculating the refined product per gallon rate of refund, presumably arguing that any overcharges for this period were passed through to customers in the form of increased prices for refined petroleum products. Comments, filed November 9, 1984, at 14. No sufficient basis is given, however, for transferring monies attributable to crude oil violations—regardless of when they allegedly took place—to the refined product pool for purposes of calculating refund amounts.

[6] According to information provided by Conoco, the firm sold 32,709,030,338 gallons of covered petroleum products during the consent order period. Dividing the $3 million refined product pool by this amount equals $.0000917 per gallon. For simplicity, the volumetric amount will be rounded to the nearest 1/100 of a cent, *i.e.*, $.0001.

data, we have found that in cases of alleged overcharges by refiners, retailers were probably injured to some degree in that they were unable to pass along all cost increases to their customers. *Amoco* at 88,206; *Mobile Oil Corp.*, 6 Fed. Energy Guidelines ¶ 90,058 at 90,118 (1985) (Proposed Decision and Order). We cannot expect individual purchasers to be capable of producing similar findings, since our analysis was complex and involved data from many different sources. In view of the conclusion that small claimants bore some impact of the alleged overcharges, and the fact that failure to allow simplified application procedures for small claims would deprive injured parties of the opportunity to receive refunds, we conclude that the small claims presumption should be adopted.

The PMAA objects, however, to the use of a small claims presumption based on a gallon threshold amount. It argues that, after estimating the amount of gallons sold by Conoco during the consent order period, the volumetric refund amount would be so small as to discourage a large number of claimants from participating in this proceeding.

We agree. Use of a gallon threshold as described in the PD&O may not enable us to effectuate our goal of facilitating disbursements to claimants applying for relatively small refunds. Consequently, we have decided that an adjustment in that approach is warranted.

Several factors determine the value of the threshold below which a claimant is not required to submit any further evidence of injury beyond volumes pruchased. One of these factors is the concern that the cost to the applicant and the government of compiling and analyzing information sufficient to show injury not exceed the amount of the refund to be gained. In this proceeding, where the volumetric refund amount is fairly low and early months of the consent order periods are many years past, $5,000 is a resonable value for the threshold. *See Texas Oil & Gas Corp.*, 12 DOE ¶ 85,069 (1984); *Office of Special Counsel: In the Matter of Conoco, Inc.*, 11 DOE ¶ 85,226 (1984), and cases cited therein. Therefore, applicants who are claiming a refund of $5,000 or less will not be required to provide a separate, detailed showing that they were injured by the alleged overcharges.

In the PD&O, we also tentatively determined that although we would grant smaller refunds without requiring claimants to demonstrate injury, resellers and retailers claiming refunds above a certain level would be required to show that the firm was injured by the alleged overcharges. The Bill Keeling Oil Company, Inc. (Keeling) filed comments objecting to the requirement that claimants demonstrate injury. Keeling argues that it would be difficult for a small business to prove lower profit margins or lower market shares from records which may be impossible to produce, and that a fair and equitable solution would be a refund based on total gallons purchased during the consent order period.

Keeling's comments do not convince us that we should pay all refund claims regardless of amount without requiring a showing of injury. As stated *supra*, the presumption of injury for smaller claims takes into consideration the factors raised by Keeling. Larger claimants are better equipped to prove injury because as a rule they have greater resources and maintain better records. Furthermore, many claimants in past refund proceedings seeking refunds above the threshold have been unable to prove injury despite their attempts to do so. *See, e.g., Standard Oil Co. (Indiana)/ Ashland Oil, Inc.*, 13 DOE ¶ 85,018 (1985). This experience suggests that allowing claimants to receive large refunds based solely on purchase volumes without requiring a detailed showing of injury would potentially enrich these claimants beyond the impact of the alleged overcharges. We therefore have determined that claims above a threshold level must be accompanied by a detailed showing of injury, as outlined below.[7]

A reseller or retailer which claims a refund in excess of $5,000 therefore, will be required to document its injury. While there are a variety of means by which a claimant can make such a showing, a firm is generally required to show that market conditions would not permit it to pass through the increased costs associated with the alleged overcharges. In addition, a reseller or retailer of petroleum products must show that it maintained a "bank" of unrecovered costs, in order to demonstrate that it did not subsequently recover these costs by increasing its prices. *See, e.g., Triton Oil & Gas Corp./ Cities Service Co.*, 12 DOE ¶ 85,107 (1984); *Tenneco Oil Co./Mid-Continent Systems, Inc.* 10 DOE ¶ 85,009 (1982).[8]

The PMAA filed comments suggesting that the cost bank showing required of claimants seeking larger refunds is prohibitively expensive and too difficult for medium-sized resellers. It suggests that the OHA adopt an alternative showing of injury, without a cost bank requirement, which would require less expense of potential claimants. This proposed method would compare a firm's historical profit margin in a pre-regulation base period with its realized profits during the period for which it requests a refund. PMAA contends that this method would demonstrate the presence of cost banks—for instance, in months where the firm's profit margin is lower than the base period margin—without requiring an actual calculation of cost banks from the firm's old records. Alternatively, the PMAA proposes that if the OHA is unable to change its standards for demonstrating injury, then the $5,000 threshold level should be raised so that firms not wishing to incur the expense of calculating cost banks may receive refunds more commensurate with the injury they suffered.

The PMAA proposal regarding a new standard of injury has serious limitations. The profit margin comparison, standing alone, would not be reliable evidence of injury and absorbed costs. Because cost banks are cumulative, a firm's ability to pass through some of the increased costs it had previously incurred had the effect of drawing down the cost banks tabulated in previous months. A firm which ultimately was able to recoup its cost therefore was not "injured" by the alleged overcharges, would no longer have cost banks, and would not be eligible for a refund under the cost bank requirement used by the OHA in past proceeding. *See Bayou State Oil Corp.*, 12 DOE ¶ 85,197 (1985) at 88,622. However, under PMAA's alternate proposal, such a firm would be eligible for refunds for all months in which it realized lower than base period profits, regardless of whether it eventually was able to recoup fully its increased costs. Although this method would reduce the cost and effort required of claimants, it would also permit refunds to be paid to parties which may not have been injured by the alleged overcharges and therefore would not be acceptable as a standard of injury in this refund proceeding.

However, the OHA is not wedded in every case to a requirement that firms submit their actual, contemporaneous cost banks to show that they were unable to recoup alleged overcharges. In a case in which a firm did not

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[7] We are also not convinced that any particular injury to Conoco's jobbers should be presumed to have occurred with the purchase of every gallon. *See* PMAA Comments, filed November 9, 1984, at 9.

[8] Resellers or retailers of Conoco products who claim a refund in excess of $5,000 but who cannot establish that they did not pass through the price increases will be eligible for a refund up to the $5,000 threshold, without being required to submit further evidence of injury. Firms potentially eligible for greater refunds may choose to limit their claims to $5,000 in order to avoid having to submit detailed documentation of their injury. *See Office of Enforcement*, 8 DOE ¶ 82,597 (1981) at 85,396.

contemporaneously calculate banks and there are specific circumstances which make calculation of banks at this time prohibitively expensive, we will accept monthly profit margin data. The claimant, however, will have the burden of demonstrating how this data proves the existence of cost banks during the consent order period. The firm also must explain why any increases in its profits above base period levels should not be taken to indicate that increased costs associated with alleged overcharges were later recouped. In addition the firm will still be obliged to show that market conditions would not permit it to pass through the alleged overcharges. *See Bayou State Oil Corp.*, 12 DOE at 88,623.

With regard to PMAA's other suggestions, we will not raise the threshold level to be used for the presumption of injury in this proceeding. As stated above, we believe the $5,000 figure to be a reasonable level based on the competing factors in this case. Moreover, we are providing an alternative to presenting contemporaneously compiled cost banks to the extent that profit margin analysis may be employed to show the presence of cost banks in certain cases. Therefore, the cost of demonstrating injury may be lowered. Nor are we convinced that the cost of calculating cost banks is as high as PMAA contends, *i.e.*, greater than $20,000 for a middle-sized reseller. After all, these firms were required to compile and maintain records regularly from which cost banks could be readily calculated. *See* 10 CFR 210.92 and 212.93(a). In view of all of these factors, we will adopt the $5,000 threshold in this proceeding.

We will also presume that end-user purchasers and ultimate consumers that were not regulated petroleum firms were injured by the alleged overcharges settled in the consent order. Unlike regulated firms in the petroleum industry, members of this group generally were not subject to price controls during the consent order period, and they were not required to keep records which justified selling price increases by reference to cost increases. For these reasons, an analysis of the impact of the increased cost of petroleum products on the final prices of non-petroleum goods and services would be beyond the scope of this special refund proceeding. *See Office of Enforcement, Economic Regulatory Administration: In the matter of PVM Oil Associates, Inc.*, 10 DOE ¶ 85,072 (1983); *see also Texas Oil & Gas Corp.*, 12 DOE at 88,209, and cases cited therein. We have therefore concluded that downstream end-user purchasers of Conoco petroleum products need only document their purchase volumes in order to make a sufficient showing that they were injured by the alleged overcharges.

In addition, refund applications from firms that purchased refined products and were regulated by a governmental agency or by the terms of a cooperative agreement will not be required to demonstrate that the firm absorbed the alleged overcharges. In the case of regulated firms, *e.g.*, public utilities, any overcharges incurred as a result of Conoco's alleged violations of the DOE regulations would routinely be passed through to their customers. Similarly, any refunds received by such firms would be reflected in the rates they are allowed to charge their customers. Refunds to agricultural cooperatives will likewise directly influence the prices charged to member customers. Consequently, these firms to need only document their purchase volumes of refined products from Conoco to make an adequate showing of injury. *See Office of Special Counsel*, 9 DOE ¶ 82,538 (1982). However, along with their applications these firms should provide a full, detailed explanation of the manner in which refunds would be passed through to customers and how the appropriate regulatory body or membership group will be advised of the applicant's receipt of a refund.

As in previous cases, we will presume that there is a class of potential claimants who may have suffered no injury form Conoco's alleged overcharges. Those parties are firms that made spot purchases of Conoco petroleum products.[9] *See Office of Special Counsel*, 10 DOE ¶ 85,048 (1982); *Office of Enforcement*, 8 DOE ¶ 82,597 (1981) (hereinafter cited as *Vickers*). As we stated in *Vickers:*

> [T]hese customers tend to have considerable discretion in where and when to make purchases and would therefore not have made spot market purchases of Vickers motor gasoline at increased prices unless they were able to pass through the full amount of Vickers' quoted selling price at the time of purchase to their own customers.

8 DOE at 85,396–97. The same rationale applies in this case. Consequently, we will establish a rebuttable presumption that spot purchasers were not injured by the pricing practices resolved by the consent order. Thus, a spot purchasers claimant will be required to submit additional evidence sufficient to establish that it was unable to recover the prices it paid to Conoco.

As in previous cases, a minimum refund amount will be established for potential claimants. In prior refund cased, refunds for less than $15.00 have not been granted in view of the cost to the government of issuing such refunds in comparison to the restitutionary benefits which may be achieved. *See Amoco* at 88,214. We will adopt the same minimum refund limitation in this case.

*B. Refunds to Crude Oil Purchasers*

In the PD&O we stated that, in order to receive a refund from the crude oil refund pool, an applicant must demonstrate that it bore the burden of the alleged overcharges. *See A. Johnson & Co.*, 12 DOE ¶ 85,102 (1984) (*Johnson*); *Office of Enforcement*, 9 DOE ¶ 82,521 (1982) (*Alkek*); *Office of Enforcement*, 9 DOE ¶ 82,553(1982) (*Adams*). We also noted in the PD&O that certain identifiable parties might be able to show demonstrable injury from the alleged crude oil violations, *e.g.*, resellers or refiners that obtained crude oil directly from Conoco in which an improper base price for crude oil was alleged, refiners who purchased crude oil from Conoco prior to implementation of the Entitlements Program, or end-users who used crude oil directly as industrial boiler fuel.

Several parties filed comments in response to the proposed procedures for crude oil claimants. The Air Transport Association, whose members consist of large end-users that made purchases directly from major refiners, concurs with OHA's preliminary assessment "that it would be extremely difficult for refiners to demonstrate that they absorbed, rather than passed through, the injurious effects of [the crude oil] violations." Mobil Oil Corporation, on the other hand, objects to any presumption that refiners passed through increased crude oil costs resulting from certification violations, and maintains that there is "virtually no provision for applications for refunds by Entitlements Program participants." The National Council of Farmers

[9] We will except from this principle cooperative organizations which made spot purchases of products from Conoco and resold these products to their members. In the past, we have treated refund applications by cooperatives as applications made on behalf of their members who, as ultimate customers, were not in a position to pass along increased costs. Similarly, any refund received by a cooperative would presumably be passed on to its members, in the form of either a price reduction or a distribution of surplus income. Office of Special Counsel, 9 DOE ¶ 82,538 (1982) at 85,203. *See, e.g.*, Anadarko Production Co./Cities Service Co., 12 DOE ¶85,060 (1984). Cooperative purchases, therefore, are presumed to have been injured in spot purchases of a consent order firm's products when these products were resold to members. Coopertives in this category will be eligible to apply for refunds. These firms must explain in their refund applications the manner in which any refunds will be distributed to members.

Cooperatives (NCFM) and Farmland Industries, Inc. both support refund procedures whereby agricultural cooperatives can seek refunds on behalf of their member associations. NCFM further maintains that cooperative refiners applying for crude oil refunds, particularly for the period prior to the operation of the Entitlements Program, should be exempt from the requirement to demonstrate that it did not pass through any alleged overcharges. Finally, Marathon Oil Company addressed several of the issues it raised in our *Alkek, Adams* and *Johnson* proceedings, as well as the arguments and evidence it submitted in *In Re Stripper Well Exemption Litigation*, Case No. HEF-0025.

On June 19, 1985, after the PD&O was issued, the Department of Energy issued a "Report to the United States District Court for the District of Kansas" in the *Stripper Well Exemption Litigation*. 6 Fed. Energy Guidelines ¶ 90,507 (1985). The report stated that "it is impossible to trace these increased costs [caused by crude oil overcharges] through an individual refiners' refinery, distribution and marketing operations." Report, at 90,620. As a result, a statement was issued establishing a DOE restitutionary policy for crude oil overcharges and the OHA issued an order implementing that policy. 50 FR 27,400 (July 2, 1985) (DOE policy); 50 FR 27,402 (July 2, 1985) (OHA implementation). The OHA order notified the public that the Department will hold crude oil overcharge funds attributable to miscertifications after the implementation of the Entitlements Program in escrow pending Congressional action. Comments on that policy have been received and evaluated, and both the DOE policy statement and OHA implementation order were recently reaffirmed. *Amber Refining Inc.*, 13 DOE ¶ 85,217 (1985). Accordingly, we will accept crude oil-related refund applications in this proceeding as provided in the PD&O, but the distribution of the crude oil refund pool in this case will, where applicable, be governed by the DOE policy statement.

### V. Applications for Refund

After considering the comments received concerning the first-stage procedures tentatively adopted in the August 13, 1984 PD&O, we have concluded that the proposed procedures should be implemented, as outlined above. We shall now accept applications for refunds from parties who purchased covered products from the consent order firm during the consent order period.

In order to receive a refund, each claimant must provide a monthly schedule of its volume of purchases from Conoco during the applicable consent order period. If no documentation of the number of gallons purchased is available, a claimant must submit a detailed estimate of its purchases. Each claimant must indicate its level in the consent order firm's chain of distribution, *e.g.*, ultimate consumer, reseller, etc. Each applicant must also state whether there has been a change in ownership of the firm during or since the consent order period, and must provide the names and addresses of any other owners. If there has been a change in ownership, the applicant should either state the reasons why the refund should be paid to the applicant rather than the other owners or provide a signed statement from the other owners indicating that they do not claim a refund. If a reseller or retailer claims a refund in excess of $5,000, it must demonstrate that it was injured by the alleged overcharges by submitting the types of information outlined in Section IV of this Decision.

All applications must be filed in duplicate and must be received within 90 days of publication of this Decision and Order in the **Federal Register**. A copy of each application will be available for public inspection in the Public Docket Room of the Office of Hearings and Appeals. Any applicant who believes that its application contains confidential information must so indicate and submit two additional copies of its application from which the confidential information has been deleted. Each application must also include the following statement: "I swear (or affirm) that the information submitted is true and accurate to the best of my knowledge and belief." *See* 10 CFR 205.283(c); 18 U.S. 1001. In addition, the applicant should provide the name and telephone number of a person who may be contacted by the OHA for additional information concerning the application.

Applications should refer to Case Numbers HEF-0010 and HEF-0484, and should be sent to: Office of Hearings and Appeals, Department of Energy, 1000 Independence Ave., SW., Washington, DC 20585.

It is Therefore Ordered That:

(1) Applications for Refund from the funds remitted to the Department of Energy pursuant to the Conoco Inc. consent order may now be filed.

(2) All applications must be filed no later than 90 days after publication of this Decision and Order in the **Federal Register**.

Dated: December 12, 1985.

**George B. Breznay,**

*Director, Office of Hearings and Appeals.*

[FR Doc. 85-30143 Filed 12-19-85; 8:45 am]

BILLING CODE 6450-01-M

## Implementation of Special Refund Procedures

**AGENCY:** Office of Hearings and Appeals, Department of Energy.

**ACTION:** Notice of implementation of special refund procedures.

**SUMMARY:** The Office of Hearings and Appeals of the Department of Energy solicits comments concerning the appropriate procedures to be followed in refunding to adversely affected parties $40,000 gained as a result of a consent order which the DOE entered into with H. C. Lewis Oil Company, a reseller-retailer of petroleum products located in Welch, West Virginia. The money is being held in escrow following the settlement of enforcement proceedings brought by the DOE's Economic Regulatory Administration.

**DATE AND ADDRESS:** Comments must be filed within 30 days of publication of this notice in the Federal Register and should be addressed to the Office of Hearings and Appeals, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585. All comments should conspicuously display a reference to case number HEF-0115.

**FOR FURTHER INFORMATION CONTACT:** Nancy L. Kestenbaum, Office of Hearings and Appeals, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 252-6602.

**SUPPLEMENTARY INFORMATION:** In accordance with § 205.282(b) of the procedural regulations of the Department of Energy, 10 CFR 205.282(b), notice is hereby given of the issuance of the Proposed Decision and Order set out below. The Proposed Decision sets forth procedures and standards that the DOE has tentatively formulated to distribute to adversely affected parties $40,000 plus accrued interest obtained by the DOE under the terms of a consent order entered into with H. C. Lewis Oil Company, Inc. The funds were provided to the DOE by H. C. Lewis to settle all claims and disputes between the firm and the DOE regarding the manner in which the firm applied the federal price regulations with respect to its sales of refined petroleum products during the consent order period April 1, 1979, through December 20, 1979.

OHA proposes that a two-stage refund process be followed. In the first

stage, OHA has tentatively determined that a portion of the consent order funds should be distributed to firms and individuals who purchased motor gasoline from H. C. Lewis. In order to obtain a refund, a claimant will be required to submit a schedule of its monthly purchases from H. C. Lewis and to demonstrate that it was injured by H. C. Lewis' pricing practices. Applicants must submit specific documentation regarding the date, place, and volume of product purchased, whether the increased costs were absorbed by the claimant or passed through to other purchasers, and the extent of any injury alleged to have been suffered. An applicant claiming $5,000 or less, however, will be required to document only its purchase volumes.

Applications for refund should not be filed at this time. Appropriate public notice will be given when the submission of claims is authorized.

Some residual funds may remain after all meritorious first-stage claims have been satisfied. OHA invites interested parties to submit their views concerning alternative methods of distributing any remaining funds in a subsequent proceeding.

Any member of the public may submit written comments regarding the proposed refund procedures. Commenting parties are requested to submit two copies of their comments. Comments should be submitted within 30 days of publication of this notice. All comments received in this proceeding will be available for public inspection between 1:00 and 5:00 p.m., Monday through Friday, except federal holidays, in the Public Docket Room of the Office of Hearings and Appeals, located in Room 1E-234, 100 Independence Avenue, SW., Washington, DC 20585.

Dated: December 13, 1985.

**George B. Breznay,**

*Director, Office of Hearings and Appeals.*

**Proposed Decision and Order of the Department of Energy**

*Implementation of Special Refund Procedures*

Name of Firm: H. C. Lewis Oil Company.

Date of Filing: October 13, 1983.

Case Number: HEF-0115.

Under the procedural regulations of the Department of Energy (DOE), the Economic Regulatory Administration (ERA) may request that the Office of Hearings and Appeals (OHA) formulate and implement special procedures to distribute funds received as a result of an enforcement proceeding in order to remedy the effects of actual or alleged violations of the DOE regulations. *See* 10 CFR Part 205, Subpart V. In accordance with the provisions of Subpart V, on October 13, 1983, ERA filed a Petition for the Impementation of Special Refund Procedures in connection with a consent order entered into with H. C. Lewis Oil Company (H. C. Lewis).

**I. Background**

H. C. Lewis is a "reseller-retailer" of motor gasoline as that term was defined in 10 CFR 212.31 and is located in Welch, West Virginia. Based on an audit of H. C. Lewis' records, ERA issued a Notice of Probable Violation (NOPV) on July 17, 1980, in which it alleged that H. C. Lewis had committed possible violations of the Mandatory Petroleum Price Regulations, 10 CFR Part 212, Subpart F. The NOPV stated that between April 1, 1979 and December 20, 1979, H. C. Lewis committed certain pricing violations with respect to its sales of motor gasoline.

In order to settle all claims and disputes between H. C. Lewis and the DOE regarding the firm's sales of motor gasoline during the period covered by the audit, H. C. Lewis and the DOE entered into a consent order on March 19, 1981. the consent order fund represents 71 percent of the amount of the overcharge originally alleged in the NOPV. The consent order refers to ERA's allegations of overcharges, but notes that there was no finding that violations occurred. In addition, the consent order states that H. C. Lewis does not admit that it violated the regulations.

Under the terms of the consent order, H. C. Lewis agreed to deposit $40,000 into an interest-bearing escrow account for ultimate distribution by the DOE. H. C. Lewis remitted this sum on April 22, 1981. This decision concerns the distribution of the funds in the H. C. Lewis escrow account.[1]

**II. Proposed Refund Procedures**

The procedural regulations of the DOE set forth general guidelines to be used by OHA in formulating and implementing a plan of distribution for funds received as a result of an enforcement proceeding. 10 CFR Part 205, Subpart V. The Subpart V process may be used in situations where the DOE is unable to identify readily those persons who likely were injured by alleged overcharges or to ascertain readily the amount of such persons' injuries. For a more detailed discussion of Subpart V and the authority of OHA to fashion procedures to distribute refunds, *see Office of Enforcement*, 9 DOE ¶ 82,508 (1981), and *Office of Enforcement*, 8 DOE ¶ 82,597 (1981) (*Vickers*).

As in other Subpart V cases, we believe that the distribution of refunds in this proceeding should take place in two stages. In the first stage, we will attempt to provide refunds to identifiable purchasers of motor gasoline that were injured by H. C. Lewis' alleged pricing practices between April 1, 1979 and December 20, 1979 (the consent order period). Any funds that remain after all meritorious first-stage claims have been paid may be distributed in a second-stage proceeding. *See, e.g., Office of Special Counsel*, 10 DOE ¶ 85,048 (1982) (*Amoco*).

*A. Refunds to Identifiable Purchasers*

In the first stage of the H. C. Lewis refund proceeding, we propose to distribute the funds currently in escrow to claimants who demonstrate that they were injured by H. C. Lewis' alleged overcharges. As we have done in many prior refund cases, we propose to adopt certain presumptions, which will be used to help determine the level of a purchaser's injury.

The use of presumptions in refund cases in specifically authorized by applicable DOE procedural regulations. Section 205.282(e) of those regulations states that:

> [i]n establishing standards and procedures for implementing refund distributions, the Office of Hearings and Appeals shall take into account the desirability of distributing the refunds in an efficient, effective and equitable manner and resolving to the maximum extent practicable all outstanding claims. In order to do so, the standards for evaluation of individual claims may be based upon appropriate presumptions.

10 CFR 205.282(e). The presumptions we plan to adopt in this case are used to permit claimants to participate in the refund process without incurring inordinate expenses and to enable OHA to consider the refund applications in the most efficient way possible in view of the limited resources available. First, we plan to adopt a presumption that the alleged overcharges were dispersed evenly among all sales of products made during the consent order period. In the past, we have referred to a refund process that uses this presumption as a volumetric system. Second, we propose to adopt a presumption of injury with respect to small claims. Third, we plan to adopt a presumption that spot purchasers were not injured by the alleged overcharges. As a separate

[1] As of November 30, 1985, the H. C. Lewis escrow account contained a total of $65,502, representing $40,000 in principal and $25,502 in accrued interest.

matter, we are making a proposed finding that end users experienced injury.

The pro rata, or volumetric, refund persumption assumes that alleged overcharges by a consent order firm were spread equally over all gallons of product marketed by that firm. In the absence of better information, this assumption is sound because the DOE price regulations generally required a regulated firm to account for increased costs on a firm-wide basis in determining its prices. This presumption is rebuttable, however. A claimant which believes that it suffered a disproportionate share of the alleged overcharges may submit evidence proving this claim in order to receive a larger refund. *See Sid Richardson Carbon and Gasoline Co. and Richardson Products Co./Siouxland Propane Co.*, 12 DOE ¶ 85,054 (1984), and cases cited therein at 88,164.

Under the volumetric system we plan to adopt, a claimant will be eligible to receive a refund equal to the number of gallons purchased from H. C. Lewis times the volumetric factor. The volumetric factor is the average per gallon refund and in this case equals $.0047 per gallon.[2] In addition, successful claimants will receive a proportionate share of the accrued interest.

Second, we plan to presume that purchasers of H. C. Lewis' products seeking small refunds were injured by H. C. Lewis' pricing practices. There are a number of bases for the presumption that claimants seeking small refunds were injured. *See, e.g., Uban Oil Co.*, 9 DOE ¶ 82,541 (1982). The firms that will be eligible for refunds are purchasers that were in the chain of distribution of the products to which the alleged overcharges are attached. These purchasers therefore experienced some impact of the alleged overcharges. Without some presumptions as to injury, in order to support a specific claim of injury a claimant would have to compile and submit very detailed factual information regarding the impact of alleged overcharges which occurred many years ago. This procedure is generally time-consuming and expensive. In the case of relatively small claims, the cost to the claimant of gathering the necessary information and the cost of OHA of analyzing it could certainly exceed the expected refund and whatever benefits are derived from any additional precision. Consequently, without simplified procedures, some potential claimants would be effectively denied an opportunity to seek a refund since it would be uneconomic to do so. As a result, we intend to adopt a small claims presumption which will eliminate the need for a claimant to submit and OHA to anlayze extensive, detailed proof of the result of the initial impact of the alleged overcharges.

Under the small-claims presumption, a claimant who is a reseller or retailer will not be required to submit any additional evidence of injury beyond purchase volume if its refund claim is based on purchases below a certain level. Several factors determine the value of this threshold. Principal among these factors is the concern that the cost to the applicant and the government of compiling and analyzing information sufficient to show injury not exceed the amount of the refund to be gained. In this case, where the refund amount is fairly low, $5,000 is a reasonable value for the threshold. *See Texas Oil & Gas Corp.*, 12 DOE ¶ 85,069 at 88,210 (1984); *Office of Special Counsel*, 11 DOE ¶ 85,226 (1984) (Conoco), and cases cited therein.

Unlike threshold claimants, an applicant which claims a refund in excess of $5,000 will be required to document its injury. A reseller will be required to demonstrate that it maintained a "bank" of unrecovered product costs in order to show that it did not pass along the alleged overcharges to its own customers.[3]

In addition, a reseller claimant must show that market conditions would not permit it to pass through those increased costs. *See e.g., Triton Oil and Gas Corporation/Cities Service Company*, 12 DEO ¶ 85,107 (1984); *Tenneco Oil Company/Mid-Continent Systems, Inc.*, 10 DOE ¶85,009 (1982).

We propose that retailer claimants be subject to a different requirement for demonstrating injury than that outlined above for reseller applicants. We believe a modification of the injury requirement for retailers is justified because during most of the H. C. Lewis consent order period, specifically, from July 16, 1979 to December 20, 1979, retailers of motor gasoline were not required to compute MLSPs with reference to May 15, 1973 selling prices and increased costs. *See* 10 CFR 212.93; 45 FR 29546 (1980). Instead, effective July 16, 1979, a retailer was required to calculate its MLSP under a fixed-margin approach set forth in the new rule. Unrecouped increased product costs could no longer be banked for later recovery. *Id.*

We note that retailer applicants in other refund proceedings are generally unable to claim refunds above the threshold amount if they lack a showing of banks or unrecouped product costs, since banks tend to prove that a firm absorbed rather than passed through its increased product costs. However, for the purposes of this proceeding, we propose that retailer which lack banks subsequent to July 16, 1979 may still file a claim for a refund for that period which exceeds the small claim threshold.[4] Retailers should, however, submit bank calculations from April 1, 1979 through July 16, 1979. In addition, like resellers, they must show that market conditions prevented them from recovering those increased costs. Indicators of a competitive disadvantage include a detailed description of lowered profit margins, decreased market shares, or depressed sales volumes.[5]

If a reseller or retailer made only spot purchases, we propose that it should not receive a refund since it is unlikely to have experienced injury. This is true because

> [t]hose customers tend to have considerable discretion in where and when to make purchases and would therefore not have made spot market purchases of [the firm's product] at increased prices unless they were able to pass through the full amount of [the firm's] quoted selling price at the time of purchase to their own customers.

*Vickers*, 8 DOE at 85,396–97. The same principles apply in this case. Accordingly, we propose that resellers and retailers which made only spot purchases from H. C. Lewis not receive refunds unless they present evidence which rebuts this presumption and

[2] This figure is derived by dividing the $40,000 principal amount by the 8,535,372 gallons of products sold by H. C. Lewis during the consent order period.

[3] This injury requirement reflect the nature of the petroleum price regulations in effect beginning on August 19, 1973, and ending on July 16, 1979 for retailers, and on May 1, 1980 for resellers. Under the original rules, a reseller or retailer of motor gasoline was required to calculate its maximum lawful selling price (MLSP) by summing its selling price on May 15, 1973 with increased costs incurred since that time. A firm which was unable to charge its MLSP in a particular month could "bank" any unrecovered increased product costs, so that those costs could be recouped in a letter month, if possible. *See* 10 CFR 212.93; 45 FR 29546 (1980).

[4] The cost bank requirement has been relaxed in other instances regarding the change in the pricing regulations for motor gasoline. See Tenneco Oil Company/United Fuels Corporation, 10 DOE ¶ 85,005 at 88,017 n.1 (1982) (Tenneco).

[5] Resellers or retailers who claim a refund in excess of $5,000 but who cannot establish that they did not pass through the price increase will be eligible for a refund of up to the $5,000 threshold, without being required to submit further evidence of injury. Firms potentially eligible for greater refunds may choose to limit their claims to $5,000 *See* Vickers, 8 DOE at 85,396. *See also* Office of Enforcement, 10 DOE ¶ 85,029 at 88,122 (1982) (Ada).

establishes the extent to which they experienced injury.

As noted above, we propose to find that end users whose business operations are unrelated to the petroleum industry were injured by the alleged overcharges. These entities were not subject to DOE regulations during the relevant period, and are thus outside our inquiry about pass-through of overcharges. *See Office of Enforcement* 10 DOE ¶ 85,072 (1983) (*PVM*); *see also Texas Oil & Gas Corp.*, 12 DOE at 88,209, and cases cited therein. Therefore, we propose that for end users of motor gasoline sold by H. C. Lewis, documentation of purchase volumes will provide a sufficient showing of injury.

In addition, we propose that firms whose prices for goods and services are regulated by a governmental agency or by the terms of a cooperative agreement not be required to provide a detailed demonstration that they absorbed the alleged overcharges associated with H.C. Lewis' sales of motor gasoline. *See, e.g., Office of Special Counsel*, 9 DOE ¶ 82,538 (1982) (*Tenneco*), and Office of Special Counsel, 9 DOE ¶ 82,545 at 85, 244 (1982) (*Pennzoil*). Those firms should provide with their applications a full explanation of the manner in which refunds would be passed through to their customers and of how the appropriate regulatory body or membership group will be advised of the applicant's receipt of any refund money. Sales by cooperatives to nonmembers, however, will be treated the same as sales by any other reseller.

As in previous cases, only claims for at least $15 plus interest will be processed. In prior refund cases we have found that the cost of processing claims for smaller amounts outweighs the benefits of restitution. *See, e.g., Uban Oil Co.*, 9 DOE at 85,225. *See also* 10 CFR 205.286(b). The same principle applies here.

### III. Applications for Refund

In order to receive a refund, each claimant will be required to submit a schedule of its monthly purchases of motor gasoline from H. C. Lewis. The Appendix contains a list of 50 H. C. Lewis customers, which may help to identify those firms which were overcharged. This list is not exhaustive, however. Purchasers will be required to provide schedules of their monthly purchases of motor gasoline from H. C. Lewis, including specific information as to the volume of motor gasoline purchased, the date of purchase, the name of the firm from which the purchase was made, and the extent of any injury alleged. If they claim injury at a level greater than the volumetric level, they must document this injury in accordance with the procedures described above. A claimant must also indicate whether it has previously received a refund, from any source, with respect to the alleged overcharges identified in the ERA audit underlying this proceeding. Each applicant must also state whether there has been a change in ownership of the firm since the audit period. If there has been a change in ownership, the applicant must provide the names and addresses of the other owners, and should either state the reasons why the refund should be paid to the applicant rather than to the other owners or provide a signed statement from the other owners indicating that they do not claim a refund. Finally, an applicant should report whether it is or has been involved as a party in any DOE enforcement or private, § 210 actions. If these actions have been concluded the applicant should furnish a copy of any final order issued in the matter. If the action is still in progress, the applicant should briefly describe the action and its current status. The applicant must keep OHA informed of any change in status while its Application for Refund is pending. *See* 10 CFR 205.9(d).

In the event that money remains after all meritorious claims have been satisfied, residual funds could be distributed in a number of ways in a subsequent proceeding. However, we will not be in a position to decide what should be done with any remaining funds until the initial stage of this refund proceeding has been completed. We encourage the submission by interested parties of proposals which address alternative methods of distributing any remaining funds.

It Is Therefore Ordered That:

The refund amount remitted to the Department of Energy by H. C. Lewis Oil Company pursuant to the consent order executed on March 19, 1981, will be distributed in accordance with the foregoing decision.

### Appendix

*H.C. Lewis Oil Company*

| Customer name | City [1] | Zip Code |
|---|---|---|
| Allen Trucking | Kimball | 24853 |
| B & G Shell | Lester | 25865 |
| Bailey's Grocery | Mohawk | 24862 |
| Bailey Lumber | Welch | 24801 |
| Bentree Shell | Bentree | 25018 |
| Big Four Shell | Kimball | 24853 |
| Blizzards Inc | Coaldale | 24717 |
| Brinhee Coal Company | Thoyre | 24888 |
| Bryant's Shell | Raspal | 24679 |
| Carmelton Industries | Carmelton | 25036 |
| City of Gary | Gary | 24836 |
| City of Welch | Welch | 24801 |
| Consolidation Coal Company | Maitland | |
| Cook Brothers Drilling | Wayne | 25770 |
| Corte Co., Inc | Kimball | 25701 |
| East Pineville Shell | Pineville | 24874 |
| English Shell | English | 25901 |
| Fountain Shell | Oak Hill | 24836 |
| Gary Country Club | Gary | 24836 |
| H & C Bantam Market | Welch | 24801 |
| Hawley Coal Mining | Keystone | 24852 |
| Henlawson Shell | Logan | 25601 |
| Hi Ock Oil No. 2 | Welch | 24801 |
| Terry Justice | Panther | 24872 |
| M & B Coal Company | Welch | 24801 |
| Mayberry Produce | Mayberry | 24861 |
| McDowell Tire & Tread | Gary | 24836 |
| McDowell Trucking | Davy | 24828 |
| McKinney's Shell | New Richmond | 24867 |
| Matney Junk Company | Welch | 24801 |
| Mountain State Shell | Mt. Hope | 25880 |
| Mullens Shell | Mullens | 25882 |
| New Berry Trucking | Iaeger | 24844 |
| Northfork Coca-Cola | Welch | 24801 |
| Olga Coal Company | Coalwood-Coretta | |
| Owens Shell | War | 24892 |
| Oyler's Shell | Ikes Fork | 24845 |
| P & L Shell | Welch | 24801 |
| Perry & Hulton, Inc | Maitland | |
| Royalty Smokeless | Premier | 24878 |
| Saulsville Shell | Saulsville | 25876 |
| Seven-up Bottling Company | Welch | 24801 |
| Shannon Porghontas Mining | Welch | 24801 |
| Skygarty Grocery | Skygarty | 24883 |
| Squire Shell | Squire | 24884 |
| Steuer Shell | War | 24892 |
| Sugar Hill Dist. Co | Welch | 24801 |
| Threeway Shell | Iaeger | 24844 |
| Wilkinson Shell | Wilkinson | 25653 |
| Wyomac Coal Company | Welch | 24802 |

[1] All companies are located in West Virginia.

[FR Doc. 85-30144 Filed 12-19-85; 8:45 am]

BILLING CODE 6450-01-M

## Implementation of Special Refund Procedures

**AGENCY:** Office of Hearings and Appeals, Department of Energy.

**ACTION:** Notice of implementation of special refund procedures.

**SUMMARY:** The Office of Hearings and Appeals of the Department of Energy solicits comments concerning the appropriate procedures to be followed in refunding to adversely affected parties $353,339 obtained as a result of a consent order which the DOE entered into with Lockheed Air Terminal, Inc., a reseller of aviation fuel located in Burbank, California. The money is being held in escrow following the settlement of enforcement proceedings brought by the DOE's Economic Regulatory Administration.

**DATE AND ADDRESS:** Comments must be filed within 30 days of publication of this notice in the **Federal Register** and should be addressed to the Office of Hearings and Appeals, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585. All comments should conspicuously display a reference to case number HEF-0117.

**FOR FURTHER INFORMATION CONTACT:** Nancy L. Kestenbaum, Office of

Hearings and Appeals, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 252–6602.

**SUPPLEMENTARY INFORMATION:** In accordance with § 205.282(b) of the procedural regulations of the Department of Energy, 10 CFR 205.282(b), notice is hereby given of the issuance of the Proposed Decision and Order set out below. The Proposed Decision sets forth procedures and standards that the DOE has tentively formulated to distribute to adversely affected parties $353,339 plus accrued interest obtained by the DOE under the terms of a consent order entered into with Lockheed Air Terminal, Inc. The funds were provided to the DOE by Lockheed to settle all claims and disputes between the firm and the DOE regarding the manner in which the firm applied the federal price regulations with respect to its sales of aviation fuel during the consent order period January 1, 1974 through December 31, 1975.

OHA proposes that a two-stage refund process be followed. In the first stage, OHA has tentatively determined that a portion of the consent order funds should be distributed to 40 first purchasers who may have been overcharged. In order to obtain a refund, each claimant will be required either to submit a schedule of its monthly purchases from Lockheed or to submit a statement verifying that it purchased aviation fuel from Lockheed and is willing to rely on the data in the audit files. Certain firms will also be required to make specific demonstrations of injury. In addition, applications for refund will be accepted from purchasers not identified by the DOE audit. These purchasers will be required to provide specific documentation concerning the date, place, price, and volume of product purchased, the name of the firm from which the purchase was made, and the extent of any injury alleged. Applications for refund should not be filed at this time. Appropriate public notice will be given when the submission of claims is authorized.

Some residual funds may remain after all meritorious first-stage claims have been satisfied. OHA proposes to distribute at least 50 percent of any remaining funds to the State of California, where approximately 50 percent of the sales to identified purchasers occurred.

Any member of the public may submit written comments regarding the proposed refund procedures. Commenting parties are requested to submit two copies of their comments. Comments should be submitted within 30 days of publication of this notice. All comments received in this proceeding will be available for public inspection between 1:00 and 5:00 p.m., Monday through Friday, except Federal holidays, in the Public Docket Room of the Office of Hearings and Appeals, located in Room 1E–234, 1000 Independence Avenue, SW., Washington, DC 20585.

Dated: December 13, 1985.

**George B. Breznay,**

*Director, Office of Hearings and Appeals.*

**Proposed Decision and Order of the Department of Energy**

*Implementation of Special Refund Procedures*

Name of Firm: Lockheed Air Terminal, Inc.

Date of Filing: October 13, 1983.

Case Number: HEF–0117.

Under the procedural regulations of the Department of Energy (DOE), the Economic Regulatory Administration (ERA) may request that the Office of Hearings and Appeals (OHA) formulate and implement special procedures to distribute funds received as a result of an enforcement proceeding in order to remedy the effects of actual or alleged violations of the DOE regulations. *See* 10 CFR Part 205, Subpart V. In accordance with the provisions of Subpart V, on October 13, 1983, ERA filed a Petition for the Implementation of Special Refund Procedures in connection with a consent order entered into with Lockheed Air Terminal, Inc. (Lockheed).

**I. Background**

Lockheed is a "reseller" of aviation fuel as that term was defined in 10 CFR 212.31 and is located in Burbank, California. Based on an audit of Lockheed's records, ERA issued a Notice of Probable Violation (NOPV) in which it alleged that Lockheed had committed possible violations of the Mandatory Petroleum Price Regulations, 10 CFR Part 212, Subpart F. The NOPV stated that between January 1, 1974 and December 31, 1975, Lockheed committed certain pricing violations with respect to its sales of aviation fuel.

In order to settle all claims and disputes between Lockheed and the DOE regarding the firm's sales of aviation fuel during the period covered by the audit, Lockheed and the DOE entered into a consent order on May 11, 1981. The consent order fund represents 35.7 percent of the amount of the overcharge originally alleged in the NOPV. The consent order refers to ERA's allegations of overcharges, but notes that there was no finding that violations occurred. In addition, the consent order states that Lockheed does not admit that it violated the regulations.

Under the terms of the consent order, Lockheed agreed to deposit $328,024 plus installment interest into an interest-bearing escrow account for ultimate distribution by the DOE. Lockheed was required to make its payments in 12 equal monthly installments. The consent order was paid in full on March 12, 1982. Including installment interest, Lockheed's actual deposits total $353,339. That sum will be considered to be the principal amount in this proceeding. This decison concerns the distribution of the funds in the Lockheed escrow account.[1]

**II. Proposed Refund Procedures**

The procedural regulations of the DOE set forth general guidelines to be used by OHA in formulating and implementing a plan of distribution for funds received as a result of an enforcement proceeding. 10 CFR Part 205, Subpart V. The Subpart V process may be used in situations where the DOE is unable to identify readily those persons who likely were injured by alleged overcharges or to ascertain readily the amount of such persons' injuries. For a more detailed discussion of Subpart V and the authority of OHA to fashion procedures to distribute refunds, *see Office of Enforcement*, 9 DOE ¶ 82,508 (181), and *Office of Enforcement*, 8 DOE ¶ 82,597 (1981) (*Vickers*).

As in other Subpart V cases, we believe that the distribution of refunds in this proceeding should take place in two stages. In the first stage, we will attempt to provide refunds to identifiable purchasers of refined petroleum products that were injured by Lockheed's alleged pricing practices between January 1, 1974 and December 31, 1975 (the consent order period). Any funds that remain after all meritorious first-stage claims have been paid may be distributed in a second-stage proceeding. *See, e.g., Office of Special Counsel*, 10 DOE ¶ 85,048 (1982) (*Amoco*).

*A. Refunds to Identified Purchasers*

A special refund proceeding is designed to provide restitution to parties that were injured as a result of alleged or actual regulatory violations. In this proceeding, we have the benefit of access to material developed by the DOE during its audit of Lockheed and

[1] As of November 30, 1985, the Lockheed escrow account contained a total of $538,113, representing $353,339 in principal (including installment interest) and $182,774 in accrued interest.

we intend to rely in part on that information. In other Subpart V cases where audit material was available to identify purchasers, for example, the refund process has been facilitated by the use of that material. At the same time, these audit files do not necessarily provide conclusive evidence on which to base the distribution of refunds. We have consistently maintained, however, that the information contained in ERA's audit files may reasonably be used to determine the identities of purchasers allegedly overcharged in the first instance and the amounts of the overcharges. *See, e.g., Marion Corp.* 12 DOE ¶ 85,014 (1984) (the information contained in the audit file may be used to fashion a more accurate refund plan than that devised by using a general volumetric approach). *See also Armstrong and Associates/City of San Antonio,* 10 DOE ¶ 85,050 at 88,259 (1983).

During the DOE audit, 40 identifed first purchasers were alleged to have been overcharged in purchases of aviation fuel from Lockheed. In previous cases of this type, we have proposed that the funds in the escrow account be apportioned among the purchasers identified by the audit, and other as yet unidentified customers that may have been injured by purchases from the consent order firm. *See, e.g., Bob's Oil Co.,* 12 DOE ¶ 85,024 (1984); *Richards Oil Company,* 12 DOE ¶ 85,150 (1984). The first purchasers identified by the audit and the share of the settlement earmarked for each are listed in the Appendix.

Identification of first purchasers is only the first step in the distribution process. We must also determine whether the first purchasers were injured or were able to pass through the alleged overcharges. To aid us in our assessment of a purchaser's injury, we propose the adoption of certain presumptions. We intend to use the information in the audit files and these presumptions to distribute the funds in the escrow account. Presumptions in refund cases are specifically authorized by applicable DOE procedural regulations. Section 205.282(e) of those regulations states that:

> [i]n establishing standards and procedures for implementing refund distributions, the Office of Hearings and Appeals shall take into account the desirability of distributing the refunds in an efficient, effective and equitable manner and resolving to the maximum extent practicable all outstanding claims. In order to do so, the standards for evaluation of individual claims may be based upon appropriate presumptions.

10 CFR 205.282(e). The presumptions we plan to adopt in this case will permit claimants to participate in the refund process without incurring inordinate expenses and to enable OHA to consider the refund applications in the most efficient way possible in view of the limited resources available. Therefore, as in previous special refund proceedings, we intend to adopt a presumption that claimants seking small refunds were injured by the pricing practices of the company from which they purchased products. In addition, we plan to use a volumetric presumption for applicants who were not identified during the audit. As a separate matter, we propose to find that end-users experienced injury. The volumetric presumption and the end-user finding will be discussed in Section B.

There are a number of bases for the presumption that claimants seeking small refunds were injured. *See e.g., Uban Oil Co.,* 9 DOE ¶ 82,541 (1982). The firms that will be eligible for refunds are purchasers that were in the chain of distribution of the prducts to which the alleged overcharges are attached. These purchasers therefore experienced some impact of the alleged overcharges. Without some presumptions as to injury, in order to support a specific claim of injury a claimant would have to compile and submit very detailed factual information regarding the impact of alleged overcharges which occurred many years ago. This procedure is generally time-consuming and expensive. In the case of relatively small claims, the cost to the claimant of gathering the necessary information and the cost to OHA of analyzing it could certainly exceed the expected refund and whatever benefits are derived from any additional precision. Consequently, without simplified procedures, some potential claimants would be effectively denied an opportunity to seek a refund since it would be uneconomic to do so. As a result, we intend to adopt a small claims presumption which will eliminate the need for a claimant to submit and OHA to analyze extensive, detailed proof of the result of the initial impact of the alleged overcharges.

Under the small-claims presumption, a claimant who is a reseller or retailer will not be required to submit any additional evidence of injury beyond purchase volumes if its refund claim is based on purchases below a certain level. Several factors determine the value of this threshold. Principal among these factors is the concern that the cost to the applicant and the government of compiling and analyzing information sufficient to show injury not exceed the amount of the refund to be gained. In this case, where the consent order period is many years past, $5,000 is a reasonable value for the threshold. *See Texas Oil & Gas Corp.,* 12 DOE ¶ 85,069 at 88,210 (1984); *Office of Special Counsel,* 11 DOE ¶ 85,226 (1984) (*Conoco*), and cases cited therein. The record in this proceeding indicates that most of the 40 identified customers made small purchases.

However, a reseller or retailer which seeks a refund of more than $5,000 will be required to document its claim. While there are a variety of methods by which a claimant could show that it did not pass the alleged overcharges on to its customers and that market conditions would not permit it to pass through those increased costs, the claimant would generally have to show that at the time of the alleged overcharges, it maintained a "bank" of unrecovered costs.[2]

As in previous cases, only claims for at least $15 plus interest will be processed. In prior refund cases we have found that the cost of processing claims for smaller amounts outweighs the benefits of restitution. *See, e.g., Uban Oil Co.,* 9 DOE at 85,225. *See also* 10 CFR 205.286(b). The same principle

On the basis of the information in the record at this time, we propose to distribute a portion of the escrow funds to the firms listed in the Appendix, provided they can successfully document their injury with regard to their purchases from Lockheed. The refund amounts attributable to each firm have been adjusted from those listed in the consent order to reflect Lockheed's payments of installment interest.[3] Refunds will be authorized to successful applicants in the amounts indicated, plus accrued interest.

*B. Refunds to Unidentified Purchasers*

As previously noted, this Decision concerns the distribution of the entire $353,339 that Lockheed deposited into the escrow account through March 12, 1982, plus accrued interest since that date. Since the refunds tentatively allotted to identified purchasers total only $263,240, the remaining portion of the Lockheed consent order funds may

[2] Resellers or retailers who claim a refund in excess of $5,000 but who cannot establish that they did not pass through the price increases will be eligible for a refund of up to the $5,000 threshold, without being required to submit evidence of injury beyond documentation of volumes purchased. Firms potentially eligible for greater refunds may choose to limit their claims to $5,000. *See* Vickers, 8 DOE at 85,396. *See also* Office of Enforcement, 10 DOE ¶ 85,029 at 88,125 (1982) (Ada).

[3] These amounts were recalculated according to the following formula: we divided the $328,064 original principal amount into the new principal amount, $353,339 to obtain a factor of 1.077. We then multiplied this factor by the amounts attributed to each firm to obtain the revised refund amounts.

be distributed among purchasers other than those identified by the ERA audit, provided they can make the necessary demonstration of injury.

To assist potential claimants in deciding whether to apply for a refund, we propose using the small-claims presumption discussed above. In addition, we will adopt a presumption that the alleged overcharges were dispersed evenly among all sales of aviation fuel made by Lockheed during the consent order period. In the past, OHA has used a volumetric refund amount as an equitable means of distributing funds based on this presumption. In the absence of better information, the volumetric presumption is sound because the DOE price regulations generally required a regulated firm to account for increased costs on a firm-wide basis in determining its prices.

Using a Volumetric approach means that a portion of the Lockheed consent order amount would be allocated to each gallon of product sold by the consent order firm. The average per gallon refund, or volumetric refund amount, in this proceeding is $0.0078 per gallon.[4] Potential applicants that were not identified by the ERA audit of Lockheed may use this volumetric figure to estimate the refund to which they may be entitled.

We recognize that the impact on an individual purchaser could have been greater than that estimated by using the volumetric factor, and any purchaser may file a refund application based on a claim that is suffered a disproportionate share of the alleged overcharges. *See Sid Richardson Carbon & Gasoline Co., and Richardson Products Co./Siouxland Propane Co., 12 DOE ¶ 85,054 at 88,164 (1984).* and cases cited therein. Similary, purchasers identified in the ERA audit may attempt to show that they should receive refunds greater than those indicated in the Appendix. If valid claims exceed the funds available in escrow, all refunds will be reduced proportionately. Actual refunds will be determined only after analyzing all appropriate claims.

As noted above, we propose to find that end-users whose business operations are unrelated to the petroleum industry were injured by the alleged overcharges. These entities were not subject to DOE regulations during the relevant period, and are thus outside our inquiry about pass-through of injury. *See Office of Enforcement* 10 DOE ¶ 85,072 (1983) (*PVM*); *See also Texas Oil & Gas Corp.*, 12 DOE at 88,209,. and cases cited therein. Therefore, we propose that for end users of aviation fuel sold by Lockheed, documentation of purchase volumes will provide a sufficient showing of injury.

In addition, we propose that firms whose prices for goods and services are regulated by a governmental agency or by the terms of a cooperative agreement not be required to provide a detailed demonstration that they absorbed the alleged overcharges associated with Lockheed's sales of aviation fuel. *See, e.g., Office of Special Counsel*, 9 DOE ¶ 82,538 (1982) (*Tenneco*), and *Office of Special Counsel*, 9 DOE ¶ 83,545 at 85,244 (1982) (*Pennzoil*). Those firms should provide with their applications a full explanation of the manner in which refunds would be passed through to their customers and of how the appropriate regulatory body or membership group will be advised of the applicant's receipt of any refund money. Sales by cooperatives to nonmembers, however, will be treated the same as sales by any other reseller.

### *III. Applications for Refund*

In order to receive a refund, each claimant identified by ERA will be required to submit either a schedule of its monthly purchases of aviation fuel from Lockheed or a statement verifying that it purchased aviation fuel from Lockheed and is willing to rely on the data in the audit file. Purchasers not identified by the ERA audit will be required to provide schedules of their monthly purchases of aviation fuel from Lockheed. If they claim injury at a level greater than the volumetric level, they must document this injury in accordance with the procedures described above. A claimant must also indicate whether it has previously received a refund, from any source, with respect to the alleged overcharges identified in the ERA audit underlying this proceeding. Each applicant must also state whether there has been a change in ownership of the firm since the audit period. If there has been a change in ownership, the applicant must provide the names and addresses of the other owners, and should either state the reasons why the refund should be paid to the applicant rather than to the other owners or provide a signed statement from the other owners indicating that they do not claim a refund. Finally, an applicant should report whether it is or has been involved as a party in any DOE enforcement or private Section 210 actions. If these actions have been concluded the applicant should furnish a copy of any final order issued in the matter. If the action is still in progress, the applicant should briefly describe the action and its current status. The applicant must keep OHA informed of any change in status while its Application for Refund is pending. *See* 10 CFR 205.9(d).

In the event that money remains after all meritorious claims have been satisfied, residual funds could be distributed in a number of ways in a subsequent proceeding. In this special refund proceeding, however, the State of California is a general claimant. Based on the fact that Lockheed's sales were made in California and approximately half of the identified firms were located in California, we propose to distribute at least 50 percent of the remainder of the funds to the state of California in a second-state refund proceeding. To the extent that unidentified purchasers may change this configuration, this proposal will be subject to modification.

It Is Therefore Ordered That:

The refund amount remitted to the Department of Energy by Lockheed Air Terminal, Inc. pursuant to the consent order executed on May 11, 1981, will be distributed in accordance with the foregoing decision.

## Appendix

*Lockheed Air Terminal, Inc.*

| First purchaser | Share of settlement [1] |
|---|---|
| Air California, 3636 Birch Street, Newport Beach, CA 92660 | $46,891 |
| Air France, 1350 Avenue of the Americas, New York, NY 10019 | 453 |
| Airlift International, Inc., Post Office Box 90696, International Airport, Los Angeles, CA 90009 | 180 |
| Air New Zealand, Ltd., 9841 Airport Boulevard, Los Angeles, CA 90045 | 352 |
| Air South, Inc., 230 North Dale Street, Fullerton, CA 92633 | 70 |
| Republic Airlines, Inc., 7500 Airline Drive, Minneapolis, MN 55450 | 17,919 |
| American Airlines, Inc., Post Office Box 61616, Dallas/Ft. Worth Airport, TX 75261 | 2,232 |
| Ansett Airlines of Australia, Ltd., 10881 La Tuna Canyon Road, Sun Valley, CA 91352 | 719 |
| Aspen Airway, Inc., Hangar 5, Stapleton International Airport, Denver, CO 80207 | 1,583 |
| Atlantic Richfield Company, 515 South Flower Street, Los Angeles, CA 90071 | 184 |
| Boeing Company, Post Office Box 3707, Seattle, WA 98124 | 7,634 |
| Braniff International, Post Office Box 61747, Dallas/Ft. Worth Airport, TX 75261 | 373 |
| CP Air, 1 Grant McConachie Way, Vancouver, BC V7B 1V1 | 83 |
| China Airlines, 391 Sutter Street, San Francisco, CA 94108 | 152 |
| Continental Airlines, Inc., International Airport, Los Angeles, CA 90009 | 42,490 |
| Curtiss-Wright Corporation, 15910 Ventura Boulevard, Encino, CA 91436 | 156 |
| Douglas Aircraft Company, 3855 Lakewood Boulevard, Long Beach, CA 90846 | 2,928 |
| Eastern Airlines, Inc., International Airport, Miami, FL 33148 | 968 |
| Federal Express Corporation, Post Office Box 727, Memphis, TN 38194 | 4,240 |
| Flying Tigers, Post Office Box 92935, International Airport, Los Angeles, CA 90009 | 318 |

[4] This per gallon factor is computed by dividing the remaining $80,099 available for distribution to unidentified customers of Lockheed by 11,495,256 gallons, which represents an estimate of the total sales volumes to those unidentified firms during the consent order period.

| First purchaser | Share of settlement [1] |
|---|---|
| Frontier Airlines, Inc., 8250 Smith Road, Denver, CO 80207 | 372 |
| General Electric, 3135 Easton Turnpike, Fairfield, CT 06431 | 3,136 |
| Gibbs Flying Service, Inc., 7245 Clybourn Avenue, Sun Valley, CA 91352 | 1,932 |
| Golden West Airlines, 1877, Newport Beach, CA 92663 | 2,580 |
| Hawaiian Airlines, Post Office Box 30008, Honolulu, HI 96820 | 505 |
| Holiday Airways, Inc., 12421 Littler Place, Granada Hills, CA 91344 | 1,742 |
| Hydro-Aire, Post Office Box 7722, Burbank, CA 91510 | 142 |
| Mexicana Airlines, 9841 Airport Boulevard, Los Angeles, CA 90045 | 118 |
| Northwest Airlines, Inc., Minneapolis/St. Paul International Airport, St. Paul, MN | 129 |
| Overseas National Airways, Inc., JFK International Airport, Jamaica, NY 11430 | 60 |
| Pan American World Airways, Inc., 200 Park Avenue, New York, NY 10166 | 72 |
| Pacific Southwest Airlines, 3225 North Harbor Drive, San Diego, CA 92101 | 22,807 |
| Pacific Western Airlines, Ltd., 700 Second Street, S.W., Calgary, AB T2P 2W1 | 615 |
| Scandinavian Airlines System, 138-02 Queens Boulevard, Jamaica, NY 11435 | 107 |
| Trans Continental Airlines, Inc., Willow Run Airport, Post Office Box 839, Ypsilanti, MI 48197 | 167 |
| Transamerica Airlines, Inc., Airport Station, Post Office Box 2504, Oakland, CA 94614 | 3,731 |
| Trans World Airways, Inc., 605 Third Avenue, New York, NY 10016 | 2,843 |
| United Airlines, Inc., Post Office Box 66100, Chicago, IL 60666 | 78,585 |
| Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, DC, 20591 | 282 |
| Defense Logistics Agency, Cameron Station, Alexandria, VA 22314 | 13,408 |
| Total escrow to identifiable first purchasers | 263,240 |
| Total escrow to unidentifiable first purchasers | 90,099 |
| Total escrow amount | 353,339 |

[1] This figure includes the share of installment interest. It does not include accrued interest. *See* n.1, p.2

[FR Doc. 85-30145 Filed 12-19-85, 8:45 am]

BILLING CODE 6450-01-M

## Implementation of Special Refund Procedures

**AGENCY:** Office of Hearings and Appeals, Department of Energy.

**ACTION:** Notice of implementation of special refund procedures.

**SUMMARY:** The Office of Hearings and Appeals of the Department of Energy solicits comments concerning the appropriate procedures to be followed in refunding to adversely affected parties $25 million obtained by the DOE under the terms of a consent order entered into with Getty Oil Company. The funds were provided by the firm in order to settle enforcement proceedings brought by the Economic Regulatory Administration.

**DATE AND ADDRESS:** Comments must be filed within 60 days of publication of this notice in the **Federal Register** and should be addressed to the Office of Hearings and Appeals, Department of Energy, 1000 Independence Avenue, SW., Washington, DC. 20585. All comments should display conspicuously a reference to case number HEF-0209.

**FOR FURTHER INFORMATION CONTACT:** Geoff Stein, Terry Johnson, Office of Hearings and Appeals, Department of Energy, 1000 Independence Avene, SW., Washington, DC 20585, (202) 252-6602.

**SUPPLEMENTARY INFORMATION:** In accordance with § 205.282(b) of the procedural regulations of the Department of Energy, 10 CFR 205.282(b), notice is hereby given of the issuance of the Proposed Decision and Order set out below. The Proposed Decision and Order tentatively establishes procedures to distribute to adversely affected parties $25,000,000, plus accrued interest, obtained by the DOE under the terms of a consent order entered into with Getty Oil Company. The funds were provided to the DOE by the firm in order to settle claims and disputes between Getty and the DOE regarding the manner in which Getty applied the federal price and allocation regulations with respect to its importation, refining, and sale of crude oil and covered petroleum products during the period between August 19, 1973 and December 31, 1978. In summary, a two-stage refund procedure for distribution of the escrowed funds is proposed. In the first stage, claimants may file Applications for Refund for a share of the fund. Level-of-distribution presumptions for motor gasoline claimants are suggested, while general presumptions used in other refund proceedings are proposed for claimants seeking refunds based on purchases of other products. Amounts of money remaining after the valid first-stage refund applications have been paid would be refunded in a second stage; however, no second-stage refund procedures are being proposed at this time.

Some of the information contained in the Proposed Decision was obtained from the Department of Energy's Energy Information Administration pursuant to a disclosure agreement with that agency which limits its dissemination to persons entering into a protective order. That information is deleted from the Proposed Decision which is being published today. The OHA is endeavoring to obtain permission from Getty's successor, Texaco Inc., to make this information public. If Texaco agrees, this Proposed Decision will be republished without the deletions.

It should be pointed out that until final procedures are adopted, no claims for refund will be accepted. Applications for refund therefore should *not* be filed at this time. Appropriate public notice, including notice published in the **Federal Register**, will be provided prior to the acceptance of claims.

Any member of the public may submit written comments regarding the proposed refund procedures. Commenting parties are requested to submit two copies of their comments. Comments should be submitted within 60 days of publication of this notice in the **Federal Register** and should be sent to the address set forth at the beginning of this notice. All comments received in this proceeding will be available for pubic inspection in the Public Docket Room of the Office of Hearings and Appeals, Room 1E-234, 1000 Independence Avenue, SW., Washington, DC., between the hours of 1:00 to 5:00 p.m., Monday through Friday, except Federal holidays.

Issued in Washington, D.C. on December 13, 1985.

**George B. Breznay,**

*Director, Office of Hearings and Appeals.*

### *Implementation of Special Refund Procedures*

Name of Firm: Getty Oil Company
Date of Filing: October 13, 1983
Case Number: HEF-0209

On October 13, 1983, the Economic Regulatory Administration (ERA) filed with the Office of Hearings and Appeal (OHA) a Petition for the Implementation of Special Refund Procedures to distribute the proceeds of a December 3, 1979 consent order which ERA entered into with Getty Oil Company (Getty). In its Petition, ERA requests that OHA formulate and implement special procedures to make refunds in order to remedy the effects of the alleged regulatory violations that were settled in the Getty consent order.

### I. Background

Getty Oil Company was an integrated refiner of crude oil and petroleum products during the period of federal price controls and was therefore subject to the Mandatory Petroleum Price and Allocation Regulations set forth at 6 CFR Part 150, and 10 CFR Parts 210, 211, and 212. The ERA conducted an extensive audit of Getty's operations and, as a result of that audit, contended in the course of a number of judicial and administrative proceedings that Getty, and its wholly-owned affiliate, Skelly Oil Company (generally referrred to collectively as Getty) had violated applicable DOE price and allocation regulations in its sales of crude oil and petroleum products during the audit

period.[1] On December 3, 1979, the ERA executed a consent order with Getty that, with the exception of three enumerated issues, settled all compliance issues involving the firm's regulated operations during the period August 19, 1973, through December 31, 1978 (hereinafter referred to as the consent order or settlement period).[2] In that consent order, Getty agreed to deposit $25 million into an escrow account for subsequent distribution under DOE's supervision and to reduce its banks of unrecovered product and non-product costs, *see generally* 10 CFR § 212.83(e), by $50 million. Consent Order, ¶ 5. In exchange for Getty's performance under the consent order, the ERA agreed not to challenge Getty's compliance with the specific DOE regulations, except for the three specific issues which were listed in the consent order. The Getty consent order specifically provided that "[E]xecution of this Consent Order constitutes neither an admission of Getty nor a finding by Special Counsel or DOE that Getty has violated any statutes or applicable regulations of the Cost of Living Council, the Federal Energy Office, the Federal Energy Administration, or the Department of Energy." Consent Order, ¶ 11. The amount of escrowed funds currently held in an interest-bearing account with the United States Treasury had grown to $42,738,567.73 as of November 30, 1985.

[1] During the consent order period, Getty exercised indirect control over Skelly. It owned a 3.56 percent interest in Skelly and a 87.93 percent interest in Mission Corporation (Mission), which in turn held a 72.53 percent interest in Skelly. Skelly also marketed motor gasoline under the "Surfco" brand name. Getty and Skelly were generally considered by the agency to be a single "firm" pursuant to 10 CFR 212.83(b), but received exception relief that permitted them to report their crude oil receipts and their increased costs separately and to calculate separate allocation fractions for the period May 19, 1972 through January 25, 1977. *See* Getty Oil Co., 2 FEA ¶ 83,041 (1975) Getty Oil Co., 2 FEA ¶ 80,646 (1975). On January 25, 1977, the DOE rescinded the exception relief at Getty's request because Getty, Skelly and Mission were merging their operations effective January 31, 1977. Getty Oil Co., 5 FEA ¶ 87,009 (1977). The important fact for present purposes is that the consent order covered all of both firms' regulated activities during the settlement period.

[2] The three issues exempted from the consent order relate to: (i) a June 27, 1978 Notice of Probable Violation (NOPV) involving crude oil production at Getty's Kern River field; (ii) the decision and order in Getty Oil Co., 1 DOE ¶ 80,102 (1977) and Getty Oil Co., Civ. No. 77-434 (D. Del.) (subsequently *aff'd* as Getty Oil Co. v. DOE, 749 F.2d 734 (Temp. Emr. Ct. App. 1984), *cert. denied*, 105 S. Ct. 1176 (1985)), concerning certain crude oil exchanges with Standard Oil Company of Ohio; and (iii) issues relating to the propriety of the costs reported by Getty or its predecessors for interaffiliate purchases of natural gas liquids or natural gas liquid products or shrinkage costs under 10 CFR Part 212, Subpart K.

On October 13, 1983, ERA filed a Petition for the Implementation of Special Refund Procedures concerning the Getty settlement fund. The purpose of this determination is to set forth tentative procedures for the distribution of the Getty refund monies to persons who were likely to have been injured by Getty's alleged regulatory infractions. As in other similar proceedings, distribution of the Getty refunds should take place in two stages. The first stage will provide for refunds to identifiable purchasers of refined petroleum products who may have been injured by Getty's pricing and allocation practices during the period August 19, 1973 through December 31, 1978. If any funds remain after meritorious claims are paid in the first stage, a second stage may be necessary. We will not, however, propose second-stage procedures at this time. *See Office of Enforcement*, 9 DOE ¶ 82,508 (1981) (*Coline*).

## II. Jurisdiction and Authority To Fashion Refund Procedures

The DOE procedural regulations at 10 CFR Part 205, Subpart V, provide that the OHA may, upon petition by ERA, formulate and implement special procedures by which refunds may be made to injured persons. For the following reasons, we conclude that we should assume jurisdiction over the Getty settlement fund.

During the consent order period, Getty was a producer of crude oil, a refiner and marketer of a full slate of petroleum products, and a natural gas plant operator. Getty was the twentieth or twenty-first largest domestic seller of refined petroleum products during each of the six years encompassed by the consent order. "Major Oil Companies—Refined Products, Sales," *International Petroleum Encyclopedia*, 1982, XV, 424. The ERA audits which led to the Getty consent order alleged a substantial number of refiner pricing formula violations, the effects of which would generally have been spread across all of Getty's petroleum products customers. Although a few firms have identified themselves as potential refund recipients, most are not identified, and the number of potentially eligible reseller applicants alone approaches 8,000 persons in 43 states.[3] Accordingly, we have concluded that a Subpart V proceeding is appropriate to distribute the Getty settlement fund.

[3] According to information in the record, Getty and Skelly sold motor gasoline to about 6900 wholesalers and dealers and propane through 100 dealers.

## III. Proposed Refund Procedures

The Subpart V refund process is used by the DOE to identify and compensate persons for injuries incurred as a result of actual or alleged violations of the DOE regulatory program. *See* 44 FR 8562 (1979) ("The new subpart provides a general framework pursuant to which the DOE Office of Hearings and Appeals may order refunds to be made to *injured* persons from funds remitted by regulated firms . . .") (emphasis added). The analysis of refund claims focuses on the question of whether firms were economically injured as a result of allegedly unlawful regulatory practices, rather than on whether they were "overcharged" in a technical sense. *See Denny Klepper Oil* v. *Dept. of Energy*, 598 F. Supp. 527 (D.C.D.C. 1984). Restitution is, however, an inexact process. Relevant case law, the Subpart V regulations and the DOE decisions in this area recognize the difficulties inherent in deciding what would have happened had overcharges not occurred.

In the case of crude oil miscertifications that were spread through the entitlements program to the entire refining industry and then to all consumers, we have previously found that it is impossible to trace the increased costs resulting from such miscertifications through an individual refiner's refining, distribution and marketing operations. *Report to the United States District Court for District of Kansas, In re Department of Energy Stripper Well Exemption Litigation*, June 1985 at 25. Based upon that Report, the Department concluded that in the case of such crude oil miscertifications, where the harm was spread through the entire petroleum distribution system and then through the whole economy, attempts to make payments to individual firms based upon the econometric modeling techniques analyzed in our Stripper Well Report were not appropriate. Department of Energy Statement of Restitutionary Policy, 50 FR 27,400 (July 2, 1985). But in the case before us here, involving the far simpler task of analyzing the effects of alleged overcharges on the petroleum products sold by a single refiner, and where the alleged overcharges did not directly affect the costs of all competitors of those who dealt in Getty's products, it is feasibile to use approximations of injury to facilitate the distribution of refunds.

Since the inception of the special refund program, the OHA has used a variety of approaches to achieve proper restitution of petroleum product overcharge funds, depending upon the

particular circumstances of each case. The most important variables from case to case include the amount of information available about the alleged violations underlying a settlement, the amount of money available for distribution, and the type of business in which the consent order firm was involved. Thus, for example, in cases involving petroleum products resellers where the audit record is well-developed and includes a list of alleged overcharge victims and the overcharge amounts each party allegedly incurred, we have relied heavily upon the audit information to make preliminary determinations of alleged overcharges. *See, e.g., Bob's Oil Co.*, 12 DOE ¶ 85,024 (1984); *J.A.L. Oil Co., Inc.*, 12 DOE ¶ 85,138 (1984). In contrast, where little information concerning the alleged violations underlying a consent order was available, we have adopted more flexible procedures. *See, e.g., Thornton Oil Co.*, 12 DOE ¶ 85,112 (1984).

This proceeding is unusual. The underlying consent order involved all aspects of the operations of an integrated refiner. Getty marketed motor gasoline and middle distillates through a long distribution network. *See, e.g., Office of Special Counsel*, 10 DOE ¶ 85,048 (1982) (hereinafter cited as *Amoco*); *Mobil Oil Corp.*, 6 Fed. Energy Guidelines ¶ 90,058 (proposed decision) (hereinafter cited as *Mobil*). In addition, the consent order fund of $45 million is large and potential claimants number several thousand. Consequently, we began our analysis of possible Getty refund procedures by utilizing all relevant marketing information available, including publicly available information, information in the Getty audit files, and proprietary data collected by the Energy Information Administration (EIA). With this data we hoped to fashion product-specific presumptions that could be used to streamline the refund application process.[4]

We first examined the record to determine whether any conclusions could be drawn about potential crude oil refund claims. The audit records revealed that the auditors did not identify many significant issues concerning Getty's compliance with the DOE regulations applicable to sales of crude oil. The only significant dispute, which concerned Getty's crude oil production in a Kern County, California oil field, was excluded by agreement from the ambit of the consent order. *See* Consent Order, ¶ 3(a).[5] Moreover, an agency attorney who was involved in the negotiation of the consent order confirmed that the audit underlying the consent order included few crude oil issues. *See* December 16, 1983 Letter from Leslie Adams, Deputy Solicitor, ERA, to Terry Johnson, OHA. As a result, we anticipate that the refund applications in this case will be filed by firms that purchased Getty refined products.[6]

Potential claimants will therefore claim injury in the sale of Getty refined products. These claimants are likely to be numerous. For example, evidence in the record indicates that in 1974 alone Getty was marketing motor gasoline through 6,881 retail outlets. It would be extremely difficult, if not impossible, to trace the effects of Getty's alleged violations to these particular customers because of many factors, including the large number of purchasers, the much larger number of individual transactions which are relevant to that analysis, and the complex interplay between various aspects of the DOE pricing regulations over an extended period of time. For example, the fact that a refiner's accounting for particular transactions, *e.g.*, motor gasoline sales, may not have been in conformity with the DOE regulations does not necessarily mean that overcharges to particular customers occurred, since the firm may have had adequate banks of unrecovered costs increases to cover any cost violations. Nevertheless, our experience with petroleum products marketing, combined with an analysis of Getty pricing data at various levels, yield useful information about the most likely incidence of injury. We will use this information about the incidence of injury to adopt certain general presumptions that we have used successfully in other proceedings and will also formulate specific presumptions based upon the particular circumstances presented in this case.

*A. General Presumptions*

Presumptions in refund cases are specifically authorized by applicable DOE procedural regulations. Section 205.282(e) of those regulations states that:

> [i]n establishing standards and procedures for implementing refund distributions, the Office of Hearings and Appeals shall take into account the desirability of distributing the refunds in an efficient, effective and equitable manner and resolving to the maximum extent practicable all outstanding claims. In order to do so, the standards for evaluation of individual claims may be based upon appropriate presumptions.

10 CFR 205.282(e). The presumptions we will adopt in this case will permit claimants to participate in the refund process without incurring disproportionate expenses, and will enable OHA to consider the refund applications in the most efficient way possible in view of the limited resources available. These presumptions will be founded upon our experience in prior Subpart V proceedings involving refined products. In addition, we will adopt some product-specific presumptions for motor gasoline based upon specific information concerning Getty's regulated operations for that product during the settlement period.

We will first adopt the presumption that the maximum refund available to a particular applicant shall be that proportion of the total consent order fund equal to the volume of Getty purchases made by that applicant divided by all sales of refined products by Getty during the relevant period. Under this "volumetric presumption," the effects of Getty's alleged violations are presumed to have been spread evenly over all of the controlled petroleum products marketed by the firm during the consent order period. We have used this presumption successfully in a number of prior cases. *See, e.g., Amoco* at 88,198. In the absence of better information, this assumption is sound because the DOE price regulations generally required refiners to account for their increased costs on a firm-wide basis in determining their prices. *See generally* 10 CFR Part 212.

[4] Most of the information in the Getty audit files consists of (i) arguably confidential, proprietary data, (ii) interagency memoranda containing recommendations and preliminary findings concerning the Getty audit, and (iii) investigatory, material gathered during the course of ERA's enforcement investigation. These documents are likely to be exempt from disclosure under Exemptions 4, 5, and 7 of the Freedom of Information Act, 5 U.S.C. 552, and the exempt material will be protected from disclosure. In addition, the Getty-specific data obtained from the EIA is covered by a disclosure agreement that limits third-party access to the information to firms that enter into a protective order. *See* July 12, 1984 Disclosure Agreement between EIA and OHA. This information will also be kept confidential.

[5] Due to this exclusion, we will not accept refund applications from purchasers of the crude oil specified in the referenced Notice of Probable Violation. No Proposed Remedial Order was ever issued in that case. *See* Memorandum of December 11, 1984 Telephone Conversation Between Leslie Adams, Deputy Solicitor, ERA, and Terry Johnson, OHA.

[6] This is consistent with the fact that refined product pricing violations were the focus of the Getty Consent Order. *See e.g.*, March 31, 1978 Notice of Probable Violation (alleging overstatement of costs due to excessive shipping costs); June 24, 1975 Notice of Proposed Disallowance (alleging overstatement of costs for imported crude for the months of October 1973 through April 1974).

Subpart E. However, we also recognize that the impact of a particular refiner's pricing practices on an individual purchaser could have been greater, and we will allow purchasers to file refund applications based on a claim that the applicant suffered disproportionate injury from Getty's alleged overcharges. *See, e.g., Standard Oil Co. (Indiana)/Army and Air Force Exchange Service,* 12 DOE ¶ 85,015 (1984). Consequently, this presumption will be rebuttable, as will all of the presumptions which we will adopt. *See Amoco* at 88,199.

We estimate that Getty's sales of refined products that were subject to price and allocation controls during the settlement period totalled 16,667,285,701 gallons.[7] When divided into the current Getty escrow account balance of $42,738,567.73 this yields a per gallon refund of $0.002564 ($0.001526 in principal plus $0.001038 in interest accrued through September 30, 1985).[8] As in previous cases, we will establish a minimum refund amount of $15.00 for claims. We have found through our experience in prior refund cases that the cost of processing claims in which refunds are sought for amounts less than $15.00 outweighs the benefits of restitution in those situations. *See, e.g., Uban Oil Co.,* 9 DOE ¶ 82,541 (1982).

In addition to the volumetric presumption of injury, we will adopt a presumption that any reseller or retailer who made only spot purchases from Getty probably did not suffer an injury and thus will be ineligible for a refund for those purchases. As we have previously stated with respect to spot purchasers:

> [T]hose customers tend to have considerable discretion in where and when to make purchases and would therefore not have made spot market purchases of [the firm's product] at increased prices unless they were able to pass through the full amount of [the firm's] quoted selling price at the time of purchase to their own customers.

*Vickers* at 85,396–97. We believe the same rationale holds true in the present case. Accordingly, a spot purchaser that files a claim should submit additional evidence to establish that it was unable to recover the increased prices it paid for Getty motor gasoline. *See Amoco* at 88,200.

An additional class of Getty customers that will be presumed not to have been injured by the firm's regulatory practices is consignee agents. Those firms established their prices at a set, per-gallon commission fee that was added to Getty's wholesale price. That type of arrangement made it likely that a consignee did not absorb any alleged overcharges. We therefore propose to adopte a rebuttable presumption that claims based on alleged overcharges which are submitted by consignees should not be approved. *See Amoco* at 88,200; *Gulf Oil Corp./C.R. Hill Oil Co.,* Case No. RF40–1004 (proposed Decision issued September 11, 1985). *Cf. Tenneco Oil Co./Kellermyer Inc.,* 10 DOE ¶ 85,092 (1983) (consignee's allocation-based claim granted while its price violation claim denied).

The volumetric presumtion of injury will not be applied to claims based on alleged violations of the allocation regulations. Refunds based upon allocation claims—alleging a failure by Getty to furnish product which it was obliged to supply to the claimant under the DOE allocation regulations, 10 CFR Part 211—have in past cases been approved on the basis of monetary damages (if any) caused by the failure to deliver product. *See, e.g., Tenneco Oil Co./Research Fuels, Inc.,* 10 DOE ¶ 85,012 (1982). An allocation claimant should have been aware of the alleged violation at the time it occurred, and should have taken some contemporaneous action to mititgate the injury. Consequently, an allocation claimant must include with its refund application an explanation of the contemporaneous actions it took to mitigate its injury. In addition, an allocation claimant will be required to submit sufficient information to demonstrate that its claim is credible, including the best available evidence of the injury which was sustained by the claimant. The burden of establishing eligibility for a refund based on an allocation-type claim will rest on the claimant, and cases will be adjudicated on a case by case basis.

Our experience with Subpart V proceedings indicates that the likely claimants in this category in this proceeding, when more fully identified, will fall into two categories: (1) Resellers (including refiners and retailers) of Getty refined products and (2) firms, individuals, or organizations that were consumers (end-users) of Getty refined products. The products purchased by these claimants were probably purchased either directly from Getty or from other firms in a chain of distribution leading back to Getty.

As in previous cases, we will adopt a presumption of injury for small claims filed by resellers of Getty refined products other than motor gasoline. *See, e.g., J.A.L. Oil Co.,* 12 DOE ¶ 85,138 (1984). The presumption that claimants seeking smaller refunds were injured by the pricing practices settled in the Getty consent order is based on a number of considerations. *See, e.g., Uban Oil Co.,* 9 DOE ¶ 82,541 (1982). As we have noted in many previous refund decisions, considerable expense can be entitled in gathering the types of data needed to support a detailed claim of injury. In order to prove such a claim, an applicant must compile and submit detailed factual information regarding that impact of alleged overcharges which occurred many years ago. This procedure is generally time-consuming and expensive, and in the case of small claims, the cost to the firm of gathering this factual information, and the cost to OHA of analyzing it, can easily exceed the amount of the possible refund. Failure to allow simplification application procedures for small claims could therefore operate to deprive injured parties of the opportunity to obtain a refund. The use of presumptions is also desirable from an administrative standpoint, becaue it allows the OHA to process a large number of routine refund claims quickly, and to employ its limited resources more efficiently. Finally, these smaller claimants did purchase covered products from Getty and were in the chain of distribution where the alleged overchares occurred. Therefore, they felt at least the initial impact of the alleged overcharges. The presumption eliminates the need for a claimant to submit and the OHA to analyze detailed proof of what happened downstream of that initial impact.

Under the small claims presumption that we intend to adopt a reseller or retailer claimant (for products other than motor gasoline) will not be required to submit any additional evidence of injury beyond Getty purchase volumes if its refund claim is based on purchases below a threshold level. Previous OHA refund decisions have expressed the threshold either in terms of a ceiling on purchases from the consenting firm, or as a dollar refund amount. However, in *Texas Oil & Gas Corp.,* 12 DOE ¶ 85,069 (1984), we noted that describing the theshold in terms of a dollar amount rather than a purchase volume figure would better effectuate our goal of facilitating disbursements to applicants seeking relatively small refunds. *Id.* at 88,210. We believe that the same approach should be followed in this case. As in other cases, we believe that the establishment of a threshold of $5,000, exclusive of interest, is appropriate. *See Texas Oil & Gas Corp.; Office of Special Counsel; In the*

[7] This total was calculated based upon Getty's and Skelly's refined product sales figures in the company's annual reports for 1973 through 1978.

[8] This figure is provided in order to enable claimants to estimate potential refund amounts. The appropriate *pro rata* share of interest will be added to each refund at the time of payment.

*Matter of Conoco, Inc.*, 11 DOE ¶ 85,226 (1984), and cases cited therein.

Finally, as in past refined product cases we will adopt a presumption that regulated industries and agricultural cooperatives need not prove that they absorbed alleged overcharges in order to qualify for a refund on purchases they use or sold to members. Consequently, we will permit these entities to receive a full volumetric refund, provided that they include in their refund application a full explanation of the manner in which refunds will be passed through to their customers. *See Tenneco* at 85,203.

We will also treat end-users or ultimate consumers who purchased products other than middle distillates and motor gasoline, and whose business is unrelated to the petroleum industry, as having been injured by the alleged petroleum product overcharges settled in the consent order. These entities were not subject to DOE regulations during the relevant period, and thus are outside our inquiry about passthrough of overcharges. *See Office of Enforcement, Economic Regulatory Administration: In the Matter of PVM Oil Associates, Inc.*, 10 DOE ¶ 85,072 (1983); *see also Texas Oil & Gas Corp.*, 12 DOE at 88,209, and cases cited therein. We have therefore concluded that end-users of Getty petroleum products other than motor gasoline need only document their purchase volumes from Getty to show that they were injured by the alleged overcharges.

*B. Product-Specific Presumptions*

The petroleum industry is highly integrated, and some petroleum products such as motor gasoline are frequently sold or transferred more than once before reaching the ultimate consumer. Accordingly, the impact of any Getty overcharges on these products was felt at each level of the distribution system for those products. The presumptions and criteria discussed below are intended to provide a mechanism for assessing what portion of the presumed per gallon injury on each gallon of Getty products was experienced at the different levels of distribution for that product.

1. Motor Gasoline

Motor gasoline sales accounted for over one-half of the volumes covered by the Getty consent order. Only a small portion of these sales were made through Getty-operated retail outlets; most of the motor gasoline sold by Getty passed through at least one intermediate distributor before it was sold to its ultimate consumer. These distributors and consumers number in the thousands. *See* note 3, *supra*.

Consequently, it would be useful if we could use the data available to the agency to discern the injury absorbed by each level of the distribution chain. This would obviate the need for individual claimants to submit detailed historical data concerning their pricing practices during the consent order period, *see, e.g., Tenneco Oil Co./Mid-Continent Systems, Inc.*, 10 DOE ¶ 85,009 (1982), as well as the need for OHA to conduct a case-by-case analysis of each firm's injury. *See id.*

In previous cases involving major refiner consent order funds, *see, e.g., Amoco*, we have examined the approximate average prices charged by those refiners at each level of distribution and made findings as to the probable share of injury that was absorbed at each level in the distribution system, as reflected by the effect the refiner's price changes had on each level's profit margins. This analysis for mid-level distributors is proper because motor gasoline retailing and reselling is essentially a single-item business. Motor gasoline sales dominate for that type of firm, and its other sales of goods and services, such as tires, batteries and accessories, are tied to the traffic generated by motor gasoline customers. Moreover, the cost of motor gasoline represents the bulk of the firm's selling price and is the key factor in its pricing decisions.

Our profit margin analyses in two previous refiner cases used national average refiner prices, based upon our finding that the prices of each refiner involved substantially mirrored national average refiner prices. *See Amoco* at 88,206; *Mobil* at 90,117. However, those firms had large market shares during the period of price controls and their prices corresponded closely with the national average. In contrast, Getty was only the twentieth or twenty-first ranked largest seller of petroleum products during the consent order period and its reported prices for motor gasoline varied significantly from reported national averages at all distribution lvels. As a result, we have concluded that Getty-specific data should be used to analyze injury for motor gasoline claimants.

Our information concerning Getty's motor gasoline prices was obtained from data which Getty filed with the EIA during the period July 1975 through December 1978.[9] In the absence of data for the other periods, we will assume that market conditions during these 42 months are representative of the market conditions which prevailed throughout the entire consent order period.

This information shows generally that Getty's wholesale motor gasoline prices were usually * * * the national average, while its dealer tankwagon (DTW) price, the price Getty charged independent retailers, was often * * * the national average. These * * * DTW prices did not conform to our expectation that Getty motor gasoline, as a * * * brand product, was marketed at * * * than average prices. On the other hand, Getty's *retail* motor gasoline prices were, as expected, always * * * than the national average. In other words, consumers and end-users of Getty motor gasoline paid * * * than purchasers of other motor gasoline nationwide during the consent order period. In addition, the data showed that including Skelly in Getty's reports beginning in February 1977 caused * * * *See* note 10 below. Based upon these general observations, it appeared that the great majority of the injury experienced by Getty motor gasoline customers as a result of overcharge allegations settled in the consent order was likely absorbed by independent retailers of Getty motor gasoline. We subsequently analyzed the available data in greater detail and our analysis of each individual distribution level follows.

a. *Jobbers' Sales at Dealer Tankwagon (DTW) Prices.* Conclusions about the effect of Getty's prices on its jobbers can be drawn by comparing Getty's wholesale prices (sales to jobbers) and its dealer tankwagon (DTW) prices (sales to retailers) during the 42-month period from July 1975 through December 1978. That information shows that while the Getty jobbers' profit margins for sales at DTW * * * between the pre-Skelly and post-Skelly periods, they were generally * * * than the national average.[10]

[9] This information was collected on Forms FEA-P302-M-1 and EIA-460, "Monthly Petroleum Product Price Report." The EIA did not have information for either Getty or Skelly for the period prior to July 1975. In addition, Skelly was not included in these EIA reports until February 1, 1977. *See* note 1, *supra*.

[10] This corresponded to the shift in sales patterns that also was reflected in the combined reports. The Getty distribution system had relied more heavily than the national average on DTW sales to retailers. After Getty and Skelly combined, the system changed and funnelled the combined entity's motor gasoline sales volumes through jobbers. This may be attributable to Skelly's Midwest location, where jobbers are particularly important. Motor gasoline in that region must frequently be transported by jobbers from remote pipeline terminals, in contrast to the situation in the more populous Northeastern region of the United States, where Getty Eastern marketed its motor gasoline.

During the pre-Skelly period, Getty jobbers' margins on sales at DTW averaged $ * * * per gallon, compared to $.0315 for their competitors. The post-Skelly period found the jobbers' profit margins * * * to an average of $ * * *, with * * * three months of 1978 * * *, compared to a national average of $.0295. In other words, during the entire period, Getty jobbers' profit margins were, * * * as their competitors. In fact, from February 1977 onward, when Skelly was included in Getty's reports, the Getty jobbers' profit margins on sales at DTW were * * * than competing jobbers supplied by other major refiners. The six months when Getty jobbers' profit margin were * * * than national average jobber profit margins were * * * Getty's jobbers thus * * * their jobber competitors throughout the period because Getty's wholesale prices were usually * * * than average, while Getty's DTW prices the average. The data indicate therefore that Getty jobbers * * * rarely were in a position where they would have had to absorb any of the alleged Getty overcharges. As stated above, the Getty jobbers' margins on sales at DTW were depressed in only six of the forty-two months for which we have data. * * * the jobbers' sales volumes reflect * * * market share during the relevant period. As noted above, we are assuming here and in the discussions below that these 42 months are representative of the entire consent order period and are concluding by extrapolation that the same level of injury occurred during the 23 months for which we lack price data.

Based on the foregoing analysis of this critically important data, we have concluded that it is appropriate to adopt a presumption that jobbers were injured in their sales at DTW only during the six months that their profit margins * * * to a point below the national average, i.e., * * * However, since we find below that firms selling Getty motor gasoline at retail—including jobbers—were also injured during those six months, the jobbers will split the volumetric refund with retailers on motor gasoline sales in those months, and the percentage of the full pro rata refund per gallon to be applied against gasoline volumes sold by a Getty jobber at DTW prices will be 7 percent (6 months of injury divided by 2 (to represent the sharing of injury), divided by 42 months in the period, or (6÷2)/42, and rounded to the nearest whole figure).

b. *Retailers.* As we have previously indicated, the retail price (*i.e.*, price charged to consumers) for Getty motor gasoline at Getty-owned and operated outlets for the period for which we have data was * * * the national average. In fact, in all but one of the 42 months studied, Getty's retail prices were * * * than its competitors by * * *. This conformed to our expectations because at all levels of distribution non-major branded motor gasoline is usually sold * * * prices in order to overcome the traditional buyer preference for major-branded gasoline. However, as noted above, Getty's DTW prices were * * * national averages. While this * * * certainly created no hardship for consumers, assuming that independent dealers had to meet the Getty price, * * * adversely affected the independent retailers and the jobber-operated retailers marketing Getty motor gasoline. Throughout the consent order period, margins for Getty independent retailers were * * * than those of their competitors, except for * * * three months * * *. Similarly, Getty jobber-owned retail outlets' margins, *i.e.*, the difference between wholesale and retail prices, were * * * national average prior to the addition of Skelly to the data base, and afterwards * * * low national average, except in the * * * two months * * *.

We therefore conclude that all retailers of Getty motor gasoline were not able to pass through the Getty alleged overcharges and were therefore injured by the alleged Getty overcharges during the period for which we have data, except for * * * two months * * * and we shall adopt a presumption that reflects this finding. For ease of applicants and for processing purposes, the presumption will be set at 93 percent, rather than varying according to the source (*i.e.*, Getty, jobber or owner-jobber) of the motor gasoline for which the retailer is filing a claim. We believe that that percent approximates the average injury suffered by this group.[11]

c. *Consumers.* Prior to its consolidation with Skelly, Getty's direct sales to consumers at Getty-owned and -operated retail outlets comprised a * * * percent of its total motor gasoline sales volumes, compared with a national average of 11.6 percent. During that period, * * * of Getty's sales were at DTW. After February 1977, the proportion of Getty motor gasoline sold at retail * * * for the period February 1977 through December 1978, which was still * * * than the national average of 13 percent. The addition of Skelly * * * Getty's motor gasoline marketing composition to * * * wholesale, reflecting Skelly's operations in the Midwest, where sales by refiners to jobbers are usually more prevalent. Overall, Getty's motor gasoline sales at retail accounted for * * * percent of Getty's total sales of motor gasoline for the period for which we have data.

During the period which we examined, Getty's retail prices were always * * * national average prices. As noted above, we find that * * * Getty's jobbers and retailers to absorb the vast majority of the alleged overcharges on motor gasoline for all but * * * three months * * *, when Getty's retail prices * * * than the national average. Consequently, we have concluded that persons filing claims based upon purchases of Getty motor gasoline at retail will be presumed to have absorbed injury only for 7 percent of volumes purchased during the consent order period (100 percent minus 93 percent). Consumers that purchased motor gasoline directly from Getty did not share the impact of the alleged overcharges with any intermediate party and, accordingly, those claimants will receive 100 percent of the volumetric refund allotted to their purchase volumes.

d. *Motor Gasoline Refund Procedures.* Where a refund applicant states that it is willing to be subject to the applicable

[11] In the case of independent retailers supplied by jobbers, the applicable percentage is calculated by adjusting to account for the six months during which both retailers and jobbers experienced an impact as a result of the alleged overcharges. This figure is 85.71 percent (42 months minus 3 months of non-injury, less ½ of the six months in which jobbers shared injury, divided by the 42 months of the period, or 36/42). Similarly, for jobbers who sold motor gasoline through their own retail outlets, the presumption of injury would include all but * * * two months * * *, when their profit margins * * * the national average, and is precisely calculated to be 95.24 percent of their purchases for the period (42 months minus 2 months, divided by 42 months). Finally, retailers who purchased product directly from Getty at DTW prices, and thus did not share the burden of the alleged overcharges with any intervening reseller, absorbed 92.86 percent of the volumetric amount for the volumes which they purchased (42 months minus 3 months, divided by 42 months). This last group represents about * * * of the total motor gasoline volumes, and jobber-owned outlets represent * * * of the Getty retail market. We therefore chose 93 percent, rather than 91.27 percent, the arithmetic mean of these three figures. The use of an average will further administrative efficiency by permitting more rapid agency processing. In addition, each retailer will only be obliged to provide the volume and source of the Getty motor gasoline it purchased, not the regulatory status of its supplier. Retailers themselves are often uncertain as to the exact status of their supplier.

presumption for its motor gasoline purchase volumes, we propose to pay a refund to each claimant, depending upon that claimant's position in the distribution chain, for the appropriate percentage of the refund per gallon on the volumes which it purchased without any further showing of injury. These presumptions are as follows:

| Type of claimant | Applicable percentage |
|---|---|
| Jobber (Sales at DTW) | 7 |
| Jobber (Sales at Retail) | 93 |
| Retailer (Product Purchased Directly from Getty) | 93 |
| Retailer (Product Purchased from Reseller) | 93 |
| Consumer (Purchases at Retail) | 7 |
| Consumer (Product Purchased Directly from Getty) | 100 |

These presumptions are rebuttable, like all of the presumptions we use in Subpart V proceedings, so that claimants may offer additional evidence of injury which could form the basis for the approval of larger refunds. Firms that did not purchase Getty-, Skelly-, or Surfco-branded product should explain the basis for their belief that the product which they purchased was Getty motor gasoline. A claimant filing a non-presumption type of refund application will be obliged to provide, in addition to a schedule of its purchase volumes, information to establish that it absorbed the alleged overcharges and was thereby injured. To make this showing, each reseller or retailer will be required to show that it maintained "banks" or unrecovered increased product costs in order to demonstrate that it did not subsequently recoup the alleged overcharges by increasing its prices. *See Vickers.* In addition, a non-presumption claimant must demonstrate that, at the time it purchased motor gasoline from Getty, market conditions would not permit it to increase its prices to pass through the additional costs associated with the alleged overcharges. *See Amoco* at 88,223.[12]

2. Middle Distillates and Propane. Unlike motor gasoline, middle distallates and propane are customarily sold at only two levels of distribution, wholesale and retail. Reliable information about the marketing of these products, sufficient for us to propose level-of-distribution presumptions is not currently available to the DOE. Consequently, we propose to adopt for applicants filing a claim for these products the generally applicable presumptions set forth in Section III.A. above. However, we will state the information that is currently available, and we invite commenters to supplement that data or to propose analyses of the data which we have obtained that might lead to formulation of reliable level-of-distribution presumptions of injury for these products.

Middle distillates, which include heating oil and diesel fuel, were subject to price controls for only a portion of the Getty settlement period—from August 19, 1973 through June 30, 1976. Since the EIA did not begin its systematic collection of price data until July 1975, it was only able to provide us with Getty and national average wholesale and retail middle distillate price information for one year of the Getty consent order, the period July 1975 through June 1976, or 12 months out of the 35 relevant months. Moreover, since Skelly was not included in Getty's reports until February 1977, the EIA data only encompass Getty's operations in the eastern United States. Consequently, we have serious reservations as to whether this data could form a sufficient basis for the adoption of level-of-distribution presumptions for this product.

Upon closer examination, we found other difficulties involving the middle distillate data. During the year for which we have EIA data, Getty's reported wholesale middle distillate prices * * * in comparison to the national average, which rose gradually over the period. The same effect was observed for retail middle distillate prices. Without an explanation for this * * *, we cannot confidently use this data to propose level-of-distribution presumptions for middle distillate resellers and consumers.

Propane was subject to federal price and allocation controls throughout the entire Getty consent order period. Again, EIA did not make a systematic collection of propane prices until July 1975, and Skelly, which could be expected to make greater than average sales of propane due to its midwestern location, was not included in Getty's reports to EIA until February 1977. EIA reports that, although Form FEA P302–M–1 sought information concerning propane sales volumes and prices in the categories of residential, commercial, industrial, and agricultural sales, Getty did not report any sales in the residential class. The EIA considers all sales to other than residential customers to be wholesale; consequently, it was only able to furnish us price information for one level of distribution. We are therefore unable to conduct an analysis of propane profit margins in order to discern injury at the different levels of distribution.

Nevertheless, these products form a substantial portion of Getty's sales of refined products during the consent order period. Middle distillates comprise 12 percent, and propane almost 17 percent, of the refined products covered by the Getty consent order. Without the aid of presumptions concerning the amount of injury that was absorbed at each level of distribution, those middle distillate and propane claimants who were resellers will be obliged either to submit detailed information concerning their pricing practices during the consent order period, in order to demonstrate that they were unable to pass on the injury to their customers, or to limit their claims to the $5,000 threshold amount. *See, e.g., Tenneco.* Similarly, OHA will be obliged to conduct a case-by-case analysis of the level of injury sustained by each claimant.

In order to remedy this information gap, we would be willing to accept from responsible industry representatives any compilations or studies of Getty middle distillate and propane prices that are documented sufficiently to provide a reliable basis for analyses of the impacts on wholesalers and consumers of Getty's price changes for these products during the consent order period. This information need not cover the entire consent order period, but it should cover enough time to enable us to extrapolate confidently over the rest of the consent order period. Commenters may also wish to propose analyses of the data which we have obtained that would support level-of-distribution presumptions of injury for these products. If we are unable to obtain further information or to formulate appropriate level-of-distribution presumptions, we propose to distribute refunds to middle distillate and propane refund applicants based upon the general principles and presumptions discussed above.

3. Other Refined Products

The remaining refined products other than motor gasoline, middle distillates and propane made up about 4.67 percent of Getty's product sales during the consent order period. We were unable to locate enough reliable information

[12] For example, a refund applicant could provide a complete schedule showing its purchase and selling prices for motor gasoline during the settlement period, so that we could identify and approve refunds for each month in which the firm's profit margin fell significantly. *See, e.g.,* Standard Oil Co. (Indiana)/Lou's All Service, Inc., 12 DOE ¶ 85,061 (1984); Standard Oil Co. (Indiana)/East Side Truck Stop, 11 DOE ¶ 85,141 (1983).

about Getty's and other refiners' marketing practices for these refined products to allow us to formulate appropriate level of distribution presumptions for them. Firms filing refund applications based upon their purchases of these products will therefore be required to demonstrate the amount of injury which they absorbed. However, we will employ the presumptions of injury which we discussed above, including the presumption for small claimants.

### IV. Summary of Refund Procedures

In order to receive a refund, each claimant will be required to submit a schedule of monthly purchases of covered products from Getty for the period August 19, 1973 through December 31, 1978. A suggested application format will be provided in the final Decision. If the products were not purchased directly from Getty, the claimant will be required to include a statement setting forth reasons for believing the product originated with the firm. *See, e.g., Standard Oil Co. (Indiana)/Union Camp Corp.*, 11 DOE ¶ 85,007 (1983). In addition, a reseller or retailer of refined petroleum products (other than a claimant relying on the presumptions for motor gasoline) that files a claim generally will be required to establish that it absorbed the alleged overcharges and was thereby injured. To make this showing, each reseller or retailer will be required to show that it maintained "banks" of unrecovered increased product costs in order to demonstrate that it did not subsequently recover those costs by increasing its prices. *See Office of Enforcement*, 10 DOE ¶ 85,029 (1982) at 88,125. In addition, it will have to demonstrate that, at the time it purchased covered products from Getty, market conditions would not permit it to increase its prices to pass through the additional costs associated with the alleged overcharges. In the alternative, purchasers of Getty products which limit their claims to $5,000 will only be required to provide sufficient evidence of Getty product purchases to qualify for a refund.

We solicit comments on all aspects of the foregoing Proposed Decision from interested individuals and organizations. All comments must be filed within 60 days of publication of this Proposed Decision in the **Federal Register**.

It Is Therefore Ordered That:

The refund amount remitted by Getty Oil Company pursuant to the consent order executed on December 3, 1979, will be distributed in accordance with the foregoing Decision.

[FR Doc. 85-30146 Filed 12-19-85; 8:45 am]
BILLING CODE 6450-01-M

## Implementation of Special Refund Procedures

**AGENCY:** Office of Hearings and Appeals, Department of Energy.

**ACTION:** Notice of implementation of second-stage refund procedures.

**SUMMARY:** The Office of Hearings and Appeals of the Department of Energy has issued a Decision and Order concerning second-stage refund procedures to be implemented for distribution of the remaining consent order funds remitted to the DOE by OKC Corporation (Case No. KQF-0011).

**FOR FURTHER INFORMATION CONTACT:** Richard W. Dugan, Associate Director, Office of Hearings and Appeals, Department of Energy, 1000 Independence Avenue, SE., Washington, DC 20585, (202) 252-2860.

**SUPPLEMENTARY INFORMATION:** The Decision and Order which appears below establishes procedures for distribution of the consent order funds remitted to the DOE by OKC Corporation which remain after the first stage of the OKC refund proceeding. During the first stage of the proceeding, injured OKC customers received $1,992,605, plus interest, in compensation for alleged violations by OKC of DOE petroleum price and allocation regulations. The funds remaining in the OKC escrow account shall be distributed on behalf of unidentified parties injured by the alleged OKC violations

In this Decision, the Office of Hearings and Appeals (OHA) apportions the residual consent order funds among the ten states in which OKC marketed petroleum products during the period covered by the consent order. The residual funds are apportioned among the ten states in proportion to the level of consumption of OKC products in each state during the consent order period. The refund amount apportioned to each state will be disbursed upon approval by the OHA of a plan submitted by the state which provides restitutionary benefits to purchasers of specific petroleum products, as identified in the Decision.

Dated: December 13, 1985

**George B. Breznay,**

*Director, Office of Hearings and Appeals.*

### Decision and Order of the Department of Energy

*Second Stage Refund Procedures*

Name of Firm: OKC Corporation

Date of Filing: December 3, 1985

Case Number: KQF-0011

On July 17, 1980, OKC Corporation (OKC) entered into a consent order with the Department of Energy. Under the terms of the consent order, OKC deposited $4,750,000 into an escrow account in settlement of enforcement actions alleging OKC violations of DOE price and allocation regulations during the period August 19, 1973 through July 17, 1980. On March 25, 1982, the Office of Hearings and Appeals (OHA) issued a Decision and Order establishing special refund procedures for distribution of the OKC settlement fund. *Office of Enforcement: In the Matter of OKC Corp.*, 9 DOE ¶ 82,551 (1982) (hereinafter cited as *OKC*). These refund procedures were adopted pursuant to the regulations set forth at 10 CFR Part 205, Subpart V.

The primary purpose of Subpart V special refund procedures is to provide restitution to persons injured by alleged or adjudicated violations of the petroleum price and allocation regulations. *See generally Office of Enforcement*, 8 DOE ¶ 82,597 (1981). To accomplish this objective, we have generally used a two-stage process. In the first stage, payment is made to claimants who file applications for refund and demonstrate that they were injured by the alleged overcharges or allocation violations. Any funds remaining after valid claims are paid are distributed through second stage proceedings, consistent with the restitutionary purpose of the Subpart V regulations and the underlying statutes.

The *OKC* Decision established this type of two-stage process for distribution of the OKC consent order fund. During the first stage of the OKC refund proceeding, refunds were granted to 28 applicants that purchased refined petroleum products from OKC during the consent order period. Refunds paid to these claimants to date total $1,992,605 plus interest. The first stage is nearly completed and $1,981,111, plus interest remains in the OKC escrow account for disbursement. While all first stage refund applications have not yet been acted upon, we can now estimate with reasonable certainty the maximum amount that must be set aside with respect to those claims. The design,

evaluation, and approval of second stage restitutionary projects can be time consuming, and we are anxious to get that process underway. The purpose of this Decision and Order, therefore, is to formulate second-stage procedures for distributing the $1,981,111 [1] which will remain in the OKC consent order fund once the first stage is completed.

In previous special refund cases, we have used a number of different means of achieving restitution in second-stage proceedings, choosing the one in each case which would most clearly serve the equitable and restitutionary goals of the Subpart V process. Where the information in the record of a Subpart V proceeding has indicated that the impact of the alleged overcharges was borne by specific end-users, we have distributed the second-stage refunds to the actual end-users concerned. *Office of Enforcement (Ada)*, 11 DOE ¶ 85,161 (1983) (Metropolitan Transit Authority of Harris County, Texas); *Office of Enforcement (PVM)*, 10 DOE ¶ 85,072 (1983) (General Electric, Missouri Pacific Railroad). Where specific end-users could not be identified, but the product and geographic area where it was sold were known, we have channelled the second-stage refunds to the injured classes in that geographic area. For example, in *Ada*, the Port of Houston Authority and Galveston Wharves Board were allotted second-stage refunds because they could best use the refunds to benefit the class of injured end-users of Bunker C fuel from Ada. Where the classes of persons who were adversely affected by the alleged overcharges were located in a specific metropolitan area, refunds have been made to the state in which the metropolitan area was located for use in that area. *Office of Enforcement (Nordstrom)*, 11 DOE ¶ 85,174 (1983) (Cedar Rapids, Iowa, metropolitan area); *PVM* (New York City metropolitan area). Where, however, the alleged overcharges were borne by a large cross-section of residents located within a state, second-stage refunds have been approved for the state as a whole. *See, e.g., Anderson Butane Service, Inc.*, 11 DOE ¶ 85,186 (1983) (Louisiana).

Second-stage refunds have also been approved in cases where customers injured by alleged overcharges were located in a region covering more than one state. In those cases, refunds were apportioned among the states based upon the percentage of covered product(s) sold within each state. *See Vickers Energy Corp.*, 12 DOE ¶ 85,164 (1985) (16 states) *(Vickers); Pennzoil Co.*, 12 DOE ¶ 85,183 (1985) (11 states and Puerto Rico); *Charter Co.*, 12 DOE ¶ 85,298) (1985) (11 states).

State governments are particularly well-suited to channelling the benefits of consent order funds to the persons who most likely were injured by the consent order firm's regulatory practices. *See, e.g., PVM; Nordstrom.* State governments are familiar with the energy needs of their citizens and therefore can select the specific energy-related projects and programs which would be funded with the money. State governments also are familiar with the existing and potential mechanisms for distributing these funds through energy-related public programs quickly and in a cost-effective manner.

Where channelling refunds to specific customers, to a locality, state or a multi-state area is impractical or impossible, e.g., where overcharges had a nationwide impact, a direct refund to the Untied States Treasury has been utilized. *See Getty Oil Co.*, 1 DOE ¶ 80,102) (1977) (refund to U.S. Treasury for crude oil price violations), *aff'd, sub nom. Getty Oil Co. v. DOE*, 569 F. Supp. 1204 (D. Del. 1983), *aff'd*, 749 F. 2d 734 (Temp. Emer. Ct. App. 1984), *cert. denied*, 105 S. Ct. 1176 (1985). This refund mechanism involves virtually no administrative expenses and produces benefits for all citizens. *See*, Ruling 1984–1, 2 Fed. Energy Guidelines ¶ 16,082. Finally, the DOE has recommended that Congress enact a bill, entitled the Petroleum Overcharge Restitution Act, which would make oil overcharge funds available to the states for use in three energy conservation programs.

We must now consider which of the above approaches is more appropriate in this proceeding. In the present case, we know that the injured consumers of OKC petroleum products are located in a large but specific region of the nation. OKC sold petroleum products during the period covered by the consent order to firms located in 10 states: Arkansas, Colorado, Illinois, Iowa, Kansas, Louisiana, Mississippi, Missouri, Oklahoma, and Texas.[2] As a result, the impact of the alleged overcharges was not nationwide. In fact, according to our calculations, nearly 80 percent of the OKC covered refined products sold during the consent order period was distributed in only three states: Kansas, Oklahoma, and Arkansas. *See* the Appendix to this decision and Order. We find that the distribution of the remaining OKC consent order funds to those states where the sales covered by the OKC Consent Order took place is most consistent with the restitutionary goals of Subpart V and the underlying statutes since the effects of the alleged overcharges would most likely have been incurred by purchasers of refined products in those states.

We will therefore apportion the remaining consent order funds according to the volume of OKC refined products sold in each of the 10 states. *See, e.g., Vickers.* In order to arrive at an equitable allocation of the remaining consent order funds among the states, we have estimated the proportion of OKC refined products sold in each state using the geographical distribution of purchases of OKC refined products by first-stage claimants in this proceeding. The aggregate state-by-state totals of these claimants' verified purchase volumes represents the best available approximation of the distribution of OKC sales of refined products during the consent order period. The Appendix to this Decision and Order shows the results of our calculations using this data. Accordingly, we will allot the refunds set forth in the Appendix, plus a

[1] In making this calculation, it was first necessary to determine the portion of the OKC consent order fund that was attributable to alleged crude oil pricing violations. Based upon information submitted by OKC in unrelated proceedings before this Office, we have estimated that during the 84 month period covered by the OKC consent order, OKC sold an average of 90,203 barrels of crude oil per month. The firm's estimated total crude oil sales volume for the consent order period is therefore 7,577,081 barrels (84 × 90,203). This is the equivalent of 318,237,419 gallons (7,57,081 × 42 gallons/barrel). 318,237,419 gallons represents 15.8 percent of OKC's total sales of covered products during the consent order period. We find therefore that $750,500 ($4,750,000 × 15.8%) of the OKC escrow account is attributable to OKC's alleged crude oil pricing violations. This amount shall be held in reserve until disbursed in accordance with Congressional directives. *See* DOE Statement of Restitutionary Policy, 6 Fed. Energy Guidelines, ¶ 90,508 at 90,646. The $1,981,111 of residual funds was arrived at by deducting the following sums from the $4.75 million escrow account: $750,500 (alleged crude oil pricing violations), $1,992,605 (refunds paid) $25,784 (reserve held for pending first stage claims). The amount available for distribution in the second stage will be adjusted slightly if the amount needed to satisfy pending first stage claims differs from our estimate.

[2] Since OKC is no longer in business and is unable to provide relevant information, we recently requested the DOE Energy Information Administration (EIA) to provide us with a state-by-state breakdown of OKC's refined product sales. The EIA informed us that, based upon information which OKC had submitted to the agency on Form EIA-25, the firm sold refined products in only four states during the period from January 1, 1975 through June 30, 1981. This information is inconsistent with the record in the OKC special refund proceeding which shows that refund claimants located in 10 states (including the four reported to us by EIA) purchased significant quanitites of OKC products during the period from August 19, 1973 through July 17, 1980. In view of the verified purchase information provided by those claimants, we are reasonably confident that the vast majority of OKC's covered refined products was consumed in those 10 states.

proportionate share of the accrued interest, to each of the states listed therein.[3]

**Requirements for State Distribution Plans**

The funds to be designated for distribution to the states will be disbursed upon our approval of each State's plan for spending this money. The plans should meet the general restitutionary objective of benefiting the class of persons who were injured by the alleged violations—consumers of OKC refined petroleum products.

Each State's plan will be scrutinized to ensure that administrative costs will be minimized.[4] The refunds may not be used as a substitute for state funds to implement projects or programs which would be funded regardless of this distribution. In other words, the money distributed to the states should be used to supplement, not supplant, any state or federal funds which are already budgeted for those purposes. Once the OHA has approved the plan, it will issue an order directing disbursement of the appropriate funds to the applicant. *See e.g., Worldwide Energy Corp./State of Oklahoma*, 11 DOE ¶ 85,109 (1983). Each plan must be implemented within a reasonable period following receipt of the funds. After implementation of the plan, each refund recipient should file a report with the OHA which includes a certification that the funds were spent in accordance with the approved plan.

Following the broad guidelines discussed above, the plans that the states submit should include the following information:

(1) A statement certifying that the submitting agency or office has authority under state or federal law to submit the plan;

(2) A description of the program or programs to be funded;

(3) A statement explaining whether each program is an enlargement of an existing program or a new project;

(4) An explanation of the manner in which consumers of refined petroleum products will benefit from the programs;

(5) The time frame for implementation of the programs;

(6) A statement committing the agency or office responsible for administering the plan to filing with the OHA within two years of our Decision and Order approving the plan a post-plan report, which will include a certification that the funds were spent in accordance with the DOE-approved plan; and

(7) A statement committing the relevant agency or office to depositing their refund in an interest-bearing account until the funds, accrued interest and principal, are spent in accordance with the DOE-approved plan; and

(8) The name and address of the agency official to whom a refund check should be sent.

To the extent benefits will be derived by users of refined petroleum products, the funds may be used to augment various federal energy-related programs already implemented for these purposes. The states are free to select any appropriate energy-related project or program, new or existing, so long as the funds will be spent in a manner which satisfies the restitutionary objectives of this special refund proceeding.[5] For further guidance in formulating programs, *see, e.g., Standard Oil Co. (Indiana)/Maryland*, 13 DOE ¶ 85,075 (1985).[6]

All energy offices located in the 10 states will receive a copy of this Decision and Order and will be informed that they may submit plans suggesting how best to satisfy the restitutionary objectives of this proceeding. Since all applications for refund will be available for inspection in the OHA Public Docket Room, each state should submit two copies of its plan. Applications for refund should be sent to the following address: OKC Corporation Refund Proceeding, Office of Hearings and Appeals, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585.

It is Therefore Ordered That:

(1) The governments of the states in which refined petroleum products sold by OKC Corporation were consumed, as set forth in the Appendix to this Decision and Order, shall be permitted to submit plans for the use of each jurisdiction's proportionate share of the funds remaining in the escrow account established as a result of the consent order entered into by the Department of Energy and OKC Corporation.

(2) This is a final order of the Department of Energy.

Dated: December 13, 1985.

**George B. Breznay,**

*Director, Office of Hearings and Appeals.*

APPENDIX

| State | Percent of total OKC sales[2] | Share of funds |
|---|---|---|
| Missouri | 8.61 | $170,574 |
| Oklahoma | 31.86 | 631,182 |
| Arkansas | 11.241 | 222,677 |
| Texas | 4.20 | 83,207 |
| Mississippi[1] | 2.84 | 56,263 |
| Louisiana[1] | 3.10 | 61,414 |
| Illinois[3] | 1.15 | 22,783 |
| Iowa[3] | 0.69 | 13,670 |
| Kansas[3] | 34.15 | 676,549 |
| Colorado[3] | 2.16 | 42,792 |
| | 100.00 | 1,981,111 |

[1] 100% residual fuel oil used for electricity generation.
[2] 100% motor gasoline.
[3] See footnote two.

[FR Doc. 30147 Filed 12-19-85; 8:45 am]

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[3] It is possible that the proportional distribution of refunds available to each state will be adjusted after the completion of our analysis of pending first stage claims.

[4] In *PVM Oil Associates, Inc./New York State Energy Office*, 11 DOE ¶ 85,072 (1983), we advised the submitting agency that the limitation of administrative expenses to five percent provided for in the regulations governing the Institutional Building Grant Program, 10 CFR Part 455, while not specifically applicable to OHA special refund proceedings, provides a reasonable guideline for the appropriate portion of a restitutionary fund to be dedicated to administrative expenses. We indicated, however, that we might approve a higher level if the need for additional administrative funds was substantiated. The same standards will be applied in the present proceeding.

[5] Those states entitled to only a relatively small percentage of the OKC consent order funds are encouraged to combine the amount of money they are to receive in this proceeding in a plan for spending the amount they are to receive in other second-stage proceedings. Such combined plans have been approved in a number of proceedings. *See, e.g., Standard Oil Co. (Indiana)/Texas*, 12 DOE ¶ 85154 (1984); *Standard Oil Co. Indiana)/Nebraska*, 12 DOE ¶ 85,115 (1984). For this reason, a deadline for submitting refund applications in the OKC second-stage proceeding will not be established at the present time.

[6] The restitutionary plans submitted by the states of Illinois, Iowa, Kansas and Colorado should principally benefit consumers of motor gasoline since only motor gasoline related refund claims were filed in the first stage of this proceeding by applicants located in these states. Similarly, the plans designed by Louisiana and Mississippi should take account of the fact that OKC's documented sales in these states during the consent order period involved fuel oil sold to electric utilities. The remaining states should prepare plans that benefit petroleum product consumers generally. However, these plans should take into consideration that motor gasoline sales accounted for approximately 61% of OKC's refined product sales during the consent order period.

## ENVIRONMENTAL PROTECTION AGENCY

[ER-FRL-2940-8]

### Environmental Impact Statements; Availability

Responsible Agency: Office of Federal activities, General Information (202) 382-5073 or (202) 382-5075..

Availability of environmental Inpact Statements filed December 9, 1985 Through December 13, 1985 Pursuant to 40 CFR 1506.9.

EIS No. 850530, Draft, AFS, NY, VT, Green Mountain National Forest, Land and Resource Management Plan,

Due: March 31, 1986. Contact: Stephen Harper (802) 775–2579.

EIS No. 850531, Final, COE, NY Sheepshead Bay Navigational Channel Improvements, Kings County, Due: January 21, 1986, Contact: Peter Doukas (212) 264–1275.

EIS No. 850532, Final, BLM, WY, Kemmerer Resource Area, Land and Resource Management Plan, Due: January 21, 1986, Contact: Alan Stein (307) 382–5350.

EIS No. 850533, DSuppl, SFW, REG, Migratory Bird Hunting in the United States, Use of Lead Shotgun Pellets Regulations, Due: February 3, 1986, Contact: Rollin Sparrowe (202) 254–3207.

EIS No. 850534, Draft, SCS, LA, Mill Haven Watershed Flood Prevention and Dainage Plan, Ouachita and Richland Parishes, Due: February 3, 1986, Contact: Harry Rucker (318) 473–7751.

EIS No. 850535, Final, COE, HI, Kahawainui Stream Flood Damage Reduction Plan, Hawaii County, Due: January 21, 1986, Contact: James Maragos (808) 438–2263.

EIS No. 850536, Final, EPA, MA, Boston Metropolitan Area Wastewater and Disposal Facilities Expansion, Suffolk County, Due: January 21, 1986, Contact: Ronald Manfredonia (617) 223–5610.

EIS No. 850537, Final, MMS, AK, 1986 Norton Basin, Outer Continental Shelf (OCS) Oil and Gas Sale No. 100, Lease Offering, Bering Sea, Due: January 21, 1986, Contact: Anne Giesecke (202) 343–6264.

EIS No. 850538, Draft, FHW, CA, CA–4 Freeway Construction, Wilson Way to CA–99, San Joaquin County, Due: February 10, 1986, Contact: David Eyres (916) 551–1314.

EIS No. 850539, Draft, FHW, MT, I–15 Beltview Interchange Construction, I–15, to Colonial Drive, Lewis and Clark and Jefferson Counties, Due: February 3, 1986, Contact: William Dunbar (406) 449–5310.

Amended Notices

EIS No. 850385, Draft, SFW, AK, Yukon Flats National Wildlife Refuge Comprehensive Conservation Plan and Wilderness Designation, Due: February 10, 1986, Published FR 9–20–85 Revieiw period extended.

EIS No. 850522, Final, EPA, TX, Cummins Creek Surface Lignite Mine, NPDES Permit, Fayette County, Due: January 21, 1986, Published FR 12–6–85–Review period reestablished.

EIS No. 850300, Draft, CDB, MA, Tent City Development, Parcells 11A and 11B, South End Urban Renewal Area, UDAG, Suffolk County, Published FR 7–18–85–OFFICIALLY WITHDRAWN.

Dated: December 17, 1985.

**Allan Hirsch,**

*Director, Office of Federal Activities.*

[FR Doc. 85–30154 Filed 12–19–85; 8:45 am]

BILLING CODE 6560–50–M

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**[ER-FRL-2940-9]**

## Environmental Impact Statements and Regulations; Availability of EPA Comments

Availability of EPA comments prepared December 2, 1985 through December 6, 1985 pursuant to the Environmental Review Process (ERP), under section 309 of the Clean Air Act and section 102(2)(c) of the National Environmental Policy Act as amended. Requests for copies of EPA comments can be directed to the Office of Federal Activities at (202) 382–5075/76. An explanation of the ratings assigned to draft environmental impact statements (EISs) was published in FR dated October 19, 1984 (49 FR 41108).

### Draft EISs

ERP No. D–BLM–K65106–AZ, Rating EC2, Eastern Arizona Grazing Mgmt. Program, AZ. SUMMARY: EPA commented that the draft EIS was deficient in the analysis of water quality impacts caused by grazing and related activities (e.g., chaining, prescribed burns and pesticides use). EPA also requested that a greater emphasis be given to proposed mitigative measures to protect water quality and valuable riparian areas.

ERP No. D–FHW–L40049–OR, Rating EC2, 6th and 7th Ave. Couplet and OR–99 Extension, Garfield St. to West II Ave./OR–126/Florence-Eugene Highway, OR.

Summary: EPA expressed concern about the wetland impacts and recommended that the mitigation plan be included in the final EIS. In addition, EPA suggested that both the noise and secondary development impact sections be expanded.

ERP No. D–SCS–G36122–AR, Rating LO, Tyronza River Watershed Protection and Flood Prevention, (Possible 404 Permit), AR. SUMMARY: EPA expressed no objection to the proposed action as described. EPA requested further coordination with the Corps of Engineers to clarify applicability of 404 jurisdiction.

### Amended Notice

The following review was completed during the week of November 18 through 22, 1985 and should have appeared in the FR Notice published on December 6, 1985.

ERP No. D–AFS–L65097–00, Rating EC2, Sawtooth Nat'l Forest, Land and Resource Mgmt. Plan, Wilderness Designation, UT and ID. SUMMARY: EPA identified concerns over impacts of livestock grazing and timber harvesting on water quality and fisheries. In some instances the level of detail provided on the condition of existing resources, especially water quality and fisheries, made review of the draft EIS and Plan difficult. EPA also suggested refinements of the proposal and discussed several other issues as well.

Dated: December 17, 1985.

**Allan Hirsch,**

*Director, Office of Federal Activities.*

[FR Doc. 85–30155 Filed 12–19–85 8:45 am]

BILLING CODE 6560–50–M

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**[OPTS–51602; FRL 2941–5]**

## Certain Chemicals Premanufacture Notices

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice.

**SUMMARY:** Section 5(a)(1) of the Toxic Substances Control Act (TSCA) requires any person who intends to manufacture or imprort a new chemical substance to submit a premanufacture notice (PMN) to EPA at least 90 days before manufacture or import commences. Statutory requirements for section 5(a)(1) premanufacture notices are discussed in EPA statements of the final rule published in the **Federal Register** of May 13, 1983 (48 FR 21722). This notice announces receipt of thirty-seven PMNs and provides a summary of each.

**DATES:** Close of Review Period:

P 86–249, 86–250, 86–251, 86–252 and 86–253—March 5, 1986.

P 86–254, 86–255, 86–256, 86–257, 86–258, 86–259, 86–260 and 86–261—March 8, 1986.

P 86–262, 86–263, 86–264, 86–265, 86–266, 86–267, 86–268, 86–269, 86–270,. 86–271, 86–272, 86–273, 86–274, 86–275, 86–276, 86–277, 86–278, 86–279 and 86–280—March 9, 1986.

P 6–281, 86–282, and 86–283—March 10, 1986.

P 86–284, and 86–285—March 11, 1986.

Written comments by:

P 86–249, 86–250, 86–251, 86–252 and 86–253—February 3, 1986.

P 86–254, 86–255, 86–256, 86–257, 86–258, 86–259, 86–260 and 86–261—February 6, 1986.

P 86–262, 86–263, 86–264, 86–265, 86–266, 86–267, 86–268, 86–269, 86–270, 86–271, 86–272, 86–273, 86–274, 86–275, 86–276, 86–277, 86–278, 86–279 and 86–280—February 7, 1986.

P 86-281, 86-282 and 86-283—February 8, 1986.

P 86-284 and 86-285—February 9, 1986.

**ADDRESS:** Written comments, identified by the document control number "[OPTS-51602]" and the specific PMN number should be sent to: Document Control Officer (TS-793), Confidential Data Branch, Information Managment Division, Office of Toxic Substances, Environmental Protection Agency, Rm. E-201, 401 M St., SW, Washington, DC 20460, (202) 382-3532.

**FOR FURTHER INFORMATION CONTACT:** Wendy Cleland-Hamnett, Premanufacture Notice Managment Branch, Chemical Control Division (TS-794), Office of Toxic Substances, Environmental Protection Agency, Rm. E-611, 401 M St., SW, Washington, DC 20460, (202) 382-3725.

**SUPPLEMENTARY INFORMATION:** The folllowing notice contains information extracted from the non-confidential version of the submission provided by the manufactor on the PMNs received by EPA. The complete non-confidential document is available in the Public Reading Room E-107 at the above address.

**P 86-249**

*Manfacturer.* Confidential.

*Chemical.* (S) Polymer of isophorone diisocyanate, 2-hydroxy ethyl acrylate and polyoxypropylene triamine.

*Use/Production.* (G) Open-use. Prod. range. 500-30,000 kg/yr.

*Toxicity Data.* No data submitted.

*Exposure.* Manufacture: dermal, a total of 6 workers, up to 2 drs/da, to 30 da/yr.

*Environmental Release/Disposal.* Minimal release to air. Disposal by biological treatment lagoons and landfill.

**P 86-250**

*Manufacturer.* Confidential.

*Chemical.* (G) Complex substituted polyurethane of methylene bis (4-cyclohexylisocyanate) with polyols.

*Use/Production.* (G) Polymeric industrial coating component. Prod. range. 50,000-500,000 kg/yr.

*Toxicity Data.* No data submitted.

*Exposure.* Manufacture and processing: dermal, a total of 33 workers, up to 8 hrs/da, up to 191 da/yr.

*Environmental Release/Disposal.* 2 to 98 kg/batch released to land. Disposal by incineration and landfill.

**P 86-251**

*Importer.* Confidential.

*Chemical.* (G) 2-oxepanone, polymer with n-decanol and heptadecafluorodecanol, reaction product with benzene, diisocyanatomethyl.

*Use/Import.* (G) Paint additive, open, non-dispersive use. Import range. Confidential.

*Toxicity Data.* Acute oral: >10 g/kg; Irritation: Skin—Slight; Eye—Non-irritant.

*Exposure.* Confidential.

*Environmental Release/Disposal.* Confidential.

**P 86-252**

*Importer.* Confidential.

*Chemical.* (G) Polyoxyalkyene-, polymethylalkyl-polysilozane.

*Use/Import.* (G) Paint additive, open, non-dispersive use. Import range. Confidential.

*Toxicity Data.* Acute oral: >10.0 g/kg; Irritation: Skin—Slight; Eye—Non-irritant.

*Exposure.* No data submitted.

*Environmental Release/Disposal.* No data submitted.

**P 86-253**

*Importer.* Confidential.

*Chemical.* (G) N-butyl-2-ethylhexylacrylate copolymer.

*Use/Import.* (G) Paint additive, open, non-dispersive use. Import range. Confidential.

*Toxicity Data.* Acute oral: >20.0 g/kg; Irritation: Skin—Slight; Eye—Non-irritant.

*Exposure.* Processing: dermal, a total of 5 workers.

*Environmental Release/Disposal.* No release. Disposal at an approved waste disposal facility.

**P 86-254**

*Manufacturer.* Confidential.

*Chemical.* (S) Reaction product of N,N'-(methylene-di-4,1-phenylene)bis[N(oxiranylmethyl)oxirane methanamine] and bis(4-amiophenyl) sulfone.

*Use/Production.* (G) Resin system component. Prod. range. Confidential

*Toxicity Data.* No data submitted.

*Exposure.* Manufacture and processing: dermal, a total of 25 workers.

Environmental Release/Disposal. 0.1 to 4.5 kg/batch released to land. Disposal by landfill.

**P 86-255**

*Manufacturer.* Hercules, Inc.

*Chemical.* (G) Phenolic modified rosin ester.

*Use/Production.* (G) Ink resin. Prod. range. Confidential.

*Toxicity Data.* No data submitted.

*Exposure.* Manufacture: dermal, a total of 12 workers, up to 6 hrs/da, up to 300 da/yr.

*Environmental Release/Disposal.* 1% of batch and 100 kg released to air. Disposal by incineration.

**P 86-256**

*Manufacturer.* Confidential.

*Chemical.* (G) Substituted heterocycle azo naphthalenesulfonic acid, salt.

*Use/Production.* (G) Open, non-dispersive use. Prod. range. Confidential.

*Toxicity Data.* No data submitted.

*Exposure.* Confidential.

*Environmental Release/Disposal.* Confidential. Disposal by publicly owned treatment works (POTW).

**P 86-257**

*Manufacturer.* Confidential.

*Chemical.* (S) Site-limited substituted heterocycle azo naphthalenesulfonic acid, salt.

*Use/Production.* (G) Isolated intermediate. Prod. range. Confidential.

*Toxicity Data.* No data submitted.

*Exposure.* Manufacture: dermal.

*Environmental Release/Disposal.* Confidential.

**P 86-258**

*Manufacturer.* Confidential.

*Chemical.* (G) Alkyl oligoglycoside.

*Use/Production.* (S) Surface active agents for cleaning compounds dispersants for water insoluble organic chemicals. Prod. range. Confidential.

*Toxicity Data.* Acute oral: 5 g/kg; Irritation: Skin—Slight; Eye—Extreme.

*Exposure.* Manufacture: dermal, a total of 15 workers, up to 8 hrs/da, up to 100 da/yr.

*Environmental Release/Disposal.* Confidential. Disposal by POTW.

**P 86-259**

*Importer.* Toray Industries (America), Inc.

*Chemical.* (G) Water soluble nylon.

*Use/Import.* (G) Surface treatment agent for metal plate and film. Import range. 1,000-5,000 kg/yr.

*Toxicity Data.* No data submitted.

*Exposure.* No data submitted.

*Environmental Release/Disposal.* No data submitted.

**P 86-260**

*Importer.* Tory Industries (America), Inc.

*Chemical.* (G) Water soluble nylon.

*Use/Import.* (G) Surface treatment agent for metal plate and film. Import range. 1,000-5,000 kg/yr.

*Toxicity Data.* Acute oral: 10 g/kg.

*Exposure.* No data submitted.

*Environmental Release/Disposal.* No data submitted.

**P 86-261**

*Manufacturer.* Confidential.
*Chemical.* (G) Chlorendic anhydride capped polyester.
*Use/Production.* (S) Industrial type coating. Prod. range. Confidential.
*Toxicity Data.* No data submitted.
*Exposure.* Manufacture: dermal, a total of 8 workers.
*Environmental Release/Disposal.* Confidential.

**P 86-262**

*Importer.* BASF Wyandotte Corporation.
*Chemical.* (S) 2,5-dimethyl-2,5-hexanediamine.
*Use/import.* (S) Industrial curing agent for epoxy resins. Import range. 2,000-5,000 kg/yr.
*Toxicity Data.* Acute oral: $LD_{50}$ −1.4 g/kg: Irritation: Skin—Severe; Eye—Severe; Ames test: Negative; Skin sensitizer: Not a sensitizer.
*Exposure.* No data submitted.
*Environmental Release/Disposal.* No data submitted.

**P 86-263**

*Manufacturer.* Confidential.
*Chemical.* (G) Penta substituted benzene.
*Use/Production.* (G) Highly dispersive use. Prod. range. Confidential.
*Toxicity Data.* Acute oral: − > 2 g/kg: Irritation: Eye—Non-irritant; Photoallergenicity: Non-photosensitizer; Phototoxicity: No phototoxic potential.
*Exposure.* Confidential.
*Environmental Release/Disposal.* Confidential. Disposal by POTW.

**P 86-264**

*Manufacturer.* Confidential.
*Chemical.* (G) Tetra substituted benzene.
*Use/Production.* (G) Destructive use. Prod. range. Confidential
*Toxicity Data.* No data submitted.
*Exposure.* Confidential.
*Environmental Release/Disposal.* Confidential. Disposal by POTW.

**P 86-265**

*Importer.* Confidential.
*Chemical.* (G) Polyamide resin.
*Use/Import.* (G) Ink additive. Import range. Confidential.
*Toxicity Data.* No data submitted.
*Exposure.* Confidential.
*Environmental Release/Disposal.* No data submitted.

**P 86-266**

*Manufacturer.* Confidential.
*Chemical.* (G) Dialkyl substituted propionamide.
*Use/Production.* (G) Wood and paper additive. Prod. range. Confidential.
*Toxicity Data.* Acute oral: > 5.0 g/kg; Acute dermal: > 2.0 g/kg; Irritation: Skin—Non-irritant; Eye—Negative; Ames test: Non-mutagenic.
*Exposure.* Confidential.
*Environmental Release/Disposal.* Confidential. Disposal by POTW and navigable waterway.

**P 86-267**

*Manufacturer.* Confidential.
*Chemical.* (G) Polymer of fatty acids, C16-18 and C18 unsaturated, isophthalic acid, trimethylolethane and other carboxylic acids.
*Use/Production.* (S) Coating for industrial applications. Prod. range. 50,000-250,000 kg/yr.
*Toxicity Data.* No data submitted.
*Exposure.* Manufacture and processing: dermal, a total of 9 workers, up to 8 hrs/da, up to 100 da/yr.
*Environmental Release/Disposal.* .5 kg/batch released to water with .5 to 35 kg/batch to land. Disposal by POTW and landfill.

**P 86-268**

*Manufacturer.* SCM Organic Chemicals.
*Chemical.* (S) 2-, 3- and 4-pinanyl acetate mixture.
*Use/Production.* (S) Component of perfume compositions for commercial and consumer use. Prod. range. Confidential.
*Toxicity Data.* Acute oral: − >5 g/kg; Irritation: Eye—Irritant.
*Exposure.* Manufacture: dermal and inhalation: a total of 12 workers, up to 2 hrs/da, up to 72 da/yr.
*Environmental Release/Disposal.* Less than 10 kg/batch released to water with > 5 kg/batch to air. Disposal by POTW.

**P 86-269**

*Manufacturer.* SCM Organic Chemicals.
*Chemical.* (S) 1,2-dimethy-3-(1-methylethenyl)-cyclopentanol propionate mixture; plinyl propionate mixture.
*Use/Production.* (S) Component of perfume compositions for commercial and consumer use. Prod. range. Confidential.
*Toxicity Data.* No data submitted.
*Exposure.* Manufacture: dermal and inhalation: a total of 12 workers, up to 2 hrs/da, up to 72 da/yr.
*Environmental Release/Disposal.* Less than 10 kg/batch released to water with < 5 kg/batch to air. Disposal by POTW.

**P 86-270**

*Manufacturer.* SCM Organic Chemicals.
*Chemical.* (S) 3,7-dimethyl-3-octanol and 2,4-dimethy-4-octanol and 1,2-dimethyl-3-(1-methylethyl)-cyclopentanol mixture.
*Use/Production.* (S) Component of perfume compositions for commercial and consumer use. Prod. range. Confidential.
*Toxicity Data.* No data submitted.
*Exposure.* Manufacture: dermal and inhalation, a total of 12 workers, up to 2 hrs/da, up to 67 da/yr.
*Environmental Release/Disposal.* Less than 5 kg/batch released to air.

**P 86-271**

*Manufacturer.* Confidential.
*Chemical.* (G) Chlorinated polymer latex.
*Use/Production.* (G) Adhesive for open, non-dispersive use. Prod. range. Confidential.
*Toxicity Data.* No data submitted.
*Exposure.* Confidential
*Environmental Release/Disposal.* Confidential.

**P 86-272**

*Importer.* Fairmount Chemical Company, Inc.
*Chemical.* (S) Tri-ortho-tolyl phosphite.
*Use/Import.* (S) Organo phosphite as intermediate to be used in subsequent step at different site. Import range. Up to 4,000 kg/yr.
*Toxicity Data.* No data submitted.
*Exposure.* Use: dermal.
*Environmental Release/Disposal.* No data submitted.

**P 86-273**

*Manufacturer.* McWhorter, Inc.
*Chemical.* (G) Acrylated oil modified polyester.
*Use/Production.* (S) Resin for industrial coatings. Prod. range. 218,181 kg/yr.
*Toxicity Data.* No data on the PMN substances submitted.
*Exposure.* Manufacture: inhalation a total of 2 workers, up to 2 hrs/da, up to 12 da/yr.
*Environmental Release/Disposal.* No releases. Disposal by landfill.

**P 86-274**

*Importer.* CIBA-GEIGY Corporation.
*Chemical.* (G) Substituted anthraquinone.
*Use/Production.* (G) Textile day. Import range. 6,5000-10,800 kg/yr.
*Toxicity Data.* Acute oral: − >5,000 mg/kg; Subacute oral 28-day: No observable effect level. Acute dermal: − >2,000 mg/kg; Irritation: Skin—Non-irritant, Eye—Irritant; Ames test: Negative; Micronucleus test: Negative;

Skin sensitizer: Non-sensitizer; $EC_{50}$ 24 hr (Daphnia magna): 215 mg/1; $LC_{50}$ 96 hr (Zebra fish): 80 mg/1; COD: 1,199–1,259.1 mg/9 %; BOD: 88 mg/9 %; $BOD_5$: 9 %; $IC_{50}$ 3 hr: >100 mg/1; $TL_{50}$ 96 hr (Zebra fish: 198 mg/1.

*Exposure.* Processing: dermal;, a total of 2 workers, up to 0.5 hr/da, up to 1 da/yr.

*Environmental Release/Disposal.* 0.3 kg/batch released to water. Disposal by POTW.

**P 86–275**

*Manufacturer.* Confidential.

*Chemical.* (G) Acrylate, alkoxy silyl acrylate copolymer.

*Use/Production.* (G) Open, non-dispersive use. Prod. range. Confidential

*Toxicity Data.* Acute oral: −>10.0 kg; Irritation: Skin—Very slight; Eye—Slight to severe; Ames test: Negative.

*Exposure.* Manufacture: dermal, a total of 4 workers, up to 4 hrs/da, up to 5 da/yr.

*Environmental Release/Disposal.* 0.07 kg/batch released Disposal by landfill.

**P 86–276**

*Manufacturer.* Confidential.

*Chemical.* (G) Alkoxy functional olefinic silyl hydrocarbon.

*Use/Production.* (G) Open, non-dispersive use. Prod. range. Confidential.

*Toxicity Data.* Acute oral: >15.0/kg; Acute dermal: ; Irritation: Skin—Moderate; Ames test: Negative.

*Exposure.* Manufacture: dermal, a total of 4 workers, up to 2 hrs/da, up to 3 da/yr.

*Environmental Release/Disposal.* 0.02 kg/batch released to land. Disposal by landfill.

**P 86–277**

*Manufacturer.* Hercules Incorporated.

*Chemical.* (G) 4-substituted phenol, polymer with substituted bis(chlorobenzene), substituted bisphenol and inorganic hydroxide.

*Use/Production.* (S) Industrial component of resin system for pregregs. Prod. range. Confidential.

*Toxicity Data.* Acute oral: > −5 g/kg; Irritation: Skin—Non-irritant.

*Exposure.* Manufacture and processing: dermal, and inhalations a total of workers, up to 1 hrs/da, up to 12 da/yr.

*Environmental Release/Disposal.* Trace to less than 1 g/kg released to water. Disposal by POTW.

**P 86–278**

*Manufacturer.* Rohm and Hass Company.

*Chemical.* (G) Modified acrylic polymer.

*Use/Production.* (S) Binder for chalk vehicles for industrial, commercial and consumer use. Prod. range. Confidential.

*Toxicity Data.* Acute oral: >5.0 g/kg; Acute dermal: >5.0 g/kg; Irritation: Skin—Non-irritant; Eye-Slight.

*Exposure.* Confidential

*Environmental Release/Disposal.* Release to land. Disposal by landfill.

*Manufacturer.* Confidential.

*Chemical.* (G) Substituted (2-hydroxy-benzophenoxy) propane.

*Use/Production.* (G) Ultraviolet light absorbing coating. Prod. range. Confidential.

*Toxicity Data.* No data submitted.

*Exposure.* Confidential.

*Environmental Release/Disposal.* Confidential

**P 86–280**

*Manufacturer.* The Dow Chemical Company.

*Chemical.* (G) Aromatic isocyanate.

*Use/Production.* (S) Site-limited and industrial intermediate. Prod. range. Confidential.

*Toxicity Data.* No data submitted.

*Exposure.* Manufacture and use: dermal and inhalation.

*Environmental Release/Disposal.* Trace to ~0.2 kg/batch released to air with ~0.2 kg/batch to water. Disposal by POTW, incineration and landfill.

**P 86–281**

*Manufacturer.* The Dow Chemical Company.

*Chemical.* (G) Aromatic isocyanate.

*Use/Production.* (S) Site-limited and industrial intermediate. Prod. range. Confidential.

*Toxicity Data.* No data submitted.

*Exposure.* Manufacture and use: dermal and inhalation.

*Environmental Release/Disposal.* Trace to ~0.3 kg/batch released to air with ~0.3 kg/batch to land. Disposal by POTW, incineration and landfill.

**P 86–282**

*Manufacturer.* Confidential.

*Chemical.* (G) Reaction product of an amino alcohol and unsaturated organic acid.

*Use/Production.* (G) Corrosion inhibitor additive. Prod. range. Confidential.

*Toxicity Data.* No data submitted.

*Exposure.* Manufacture: dermal.

*Environmental Release/Disposal.* Confidential. Disposal by navigable waterway.

**P 86–283**

*Manufacturer.* Confidential.

*Chemical.* (G) Reaction product of an amino alcohol and heterocyclic organic acid.

*Use/Production.* (G) Corrosion inhibitor additive. Prod. range. Confidential.

*Toxicity Data.* No data on the PMN substance submitted.

*Exposure.* Manufacture: dermal.

*Environmental Release/Disposal.* Confidential. Disposal navigable waterway.

**P 86–284**

*Manufacturer.* The Dow Chemical Company.

*Chemical.* (G) Methylene diphenylene diisocyanate polyol prepolymer.

*Use/Production.* (S) Polyurethane elastomers for industrial components. Prod. range: Confidential.

*Toxicity Data.* No data on the PMN substance submitted.

*Exposure.* Manufacture: dermal and inhalation.

*Environmental Release/Disposal.* Less than 1 kg/batch released to air. Disposal by incineration.

**P 86–285**

*Manufacturer.* Confidential.

*Chemical.* (G) Acrylic resin.

*Use/Production.* (S) Resin converted to paint for automotive top-costs. Prod. range. Confidential.

*Toxicity Data.* No data submitted.

*Exposure.* Confidential.

*Environmental Release/Disposal.* Confidential.

Dated: December 16, 1985.

**Linda A. Travers,**

*Acting Director, Information Management Division.*

[FR Doc. 85–30168 Filed 12–19–85; 8:45 am]

BILLING CODE 6560–50–M

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**[OPP–40006C; FRL 2941–4]**

## Approval of Revised Department of Defense Plan for Certification of Pesticide Applicators

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice of Approval of Federal Agency Certification Plan.

**SUMMARY:** The EPA grants final approval of the revised Department of Defense (DOD) plan for the certification of its employees as pesticide applicators. Notice of the intent to approve this revised plan was published in the **Federal Register** of August 28, 1985 (50 FR 34910).

**EFFECTIVE DATE:** December 20, 1986.

**FOR FURTHER INFORMATION CONTACT:** John MacDonald, Policy and Grants Division, Office of compliance

Monitoring (EN-342), Environmental Protection Agency, Rm. 2510, 401 M Street, SW., Washington, DC 20460. (202)-382-7846.

**SUPPLEMENTARY INFORMATION:** Federal employees are considered by EPA to be commercial applicators. The DOD will certify its employees in 1 or more of the 10 commercial categories defined in 40 CFR 171.3 plus an additional proposed category defined as Aerial Applicator Pest Control.

A Notice of Intent to Approve the DOD Applicator Certification Plan by EPA was published in the **Federal Register** of August 28, 1985 (50 FR 34910). The comment period on the Notice closed on September 27, 1985; no comments were received.

Accordingly, the revised DOD Plan for the Certification of Pesticide Applicators is approved.

Copies of the DOD Plan are available for inspection at the following locations:

1. Armed Forces Pest Management Board, Forest Glen Section, Walter Reed Army Medical Center (WRAMC), Washington, DC 20307-5001.
2. Environmental Protection Agency, Information Services Section, Program Management and Support Division (TS-757c), Office of Pesticide Programs, Rm. 236, Crystal Mall No. 2, 1921 Jefferson Davis Highway, Arlington, VA 22202.
3. Environmental Protection Agency, Region I, John F. Kennedy Building, Boston, MA 02203.
4. Environmental Protection Agency, Region II, 26 Federal Plaza, New York, NY 10278.
5. Environmental Protection Agency, Region III, 841 Chestnut St., Philadelphia, PA 19107.
6. Environmental Protection Agency, Region IV, 3435 Courtland St., NE., Atlanta, GA 30365.
7. Environmental Protection Agency, Region V, Pesticides Branch, 2320 Dearborn St., Chicago, IL 60604.
8. Environmental Protection Agency, Region VI, 1201 Elm St., First International Building, Dallas, TX 75270.
9. Environmental Protection Agency, Region VII, 726 Minnesota Ave., Kansas City, KS 66101.
10. Environmental Protection Agency, Region VIII, One Denver Place, Suite 1300, 999 18th Ave., Denver, CO 80202-2413.
11. Environmental Protection Agency, Region IX, 215 Fremont St., San Francisco, CA 94105.
12. Environmental Protection Agency, Region X, 1200 Sixth Ave., Seattle, WA 98101.

The DOD Plan is also available for inspection at selected DOD installations throughout the country. Interested persons desiring the location of the installation in their State should contact the Armed Forces Pest Management Control Board at the address given above, or telephone Captain Larry Lewis,U.S.N. (202-427-5191).

Dated: December 8, 1985.

**Lee M. Thomas,**

*Administrator.*

[FR Doc. 85-30167 Filed 12-19-85; 8:45 am]

BILLING CODE 6560-50-M

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**[OPTS-59743; FRL-2941-6]**

## Certain Chemicals Premanufacture Notices

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice.

**SUMMARY:** Section 5(a)(1) of the Toxic Substances Control Act (TSCA) requires any person who intends to manufacture or import a new chemical substance to submit a premanufacture notice (PMN) to EPA at least 90 days before manufacture or import commences. Statutory requirements for section 5(a)(1) premanufacture notices are discussed in EPA statements of the final rule published in the **Federal Register** of May 13, 1983 (48 FR 21722). In the **Federal Register** of November 11, 1984, (49 FR 46066) (40 CFR 723.250), EPA published a rule which granted a limited exemption from certain PMN requirements for certain types of polymers. PMNs for such polymers are reviewed by EPA within 21 days of receipt. This notice announces receipt of two such PMNs and provides a summary of each.

**DATES:** Close of Review Period:

Y 86-44—December 29, 1985.

Y 86-45—January 1, 1985.

**FOR FURTHER INFORMATION CONTACT:** Wendy Cleland-Hamnett, Chemical Control Division (TS-794), Office of Toxic Substances, Environmental Protection Agency, Rm. E-611, 401 M St., SW., Washington, DC 20460, (202-382-3725).

**SUPPLEMENTARY INFORMATION:** The following notice contains information extracted from the non-confidential version of the submission by the manufacturer on the exemption received by EPA. The complete non-confidential document is available in the public Reading Room E-107 at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday, excluding legal holidays.

**Y 86-44**

*Manufacturer.* Confidential.

*Chemical.* (S) Polymer of neopentyl glycol, trimethylol propane, adipic acid, isophthalic acid, dimethyl terephthalate and dibutyl tin oxide.

*Use/Production.* (G) Open, non-dispersive use. Prod. range. Confidential.

*Toxicity Data.* No data submitted.

*Exposure.* No data submitted.

*Environmental Release/Disposal.* No data submitted.

**Y 86-45**

*Manufacturer.* General Electric Company.

*Chemical.* (G) Polyphenylene oxide-nylon 6,6 polymer blend.

*Use/Production.* (G) Thermoplastic molding resin. Prod. range. Confidentical.

*Toxicity Data.* Acute oral: > 5 g/kg; Acute dermal: 2.0 g/kg; Irritation: Skin—irritant; Eye—Non-irritant; Skin sensitization (Guinea pigs): Non-sensitizer.

*Exposure.* Manufacture: dermal, a total of 40 workers, up to 10 hrs/da, up to 100 da/yr.

Environmental Release/Disposal. 50 kg released to air with 200 kg to water, disposal by incineration and on site-waste treatment plant.

Dated: December 16, 1985.

**Linda A. Travers,**

*Acting Director, Information Management Division.*

[FR Doc. 85-30171 Filed 12-19-85; 8:45 am]

BILLING CODE 6560-50-M

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## FEDERAL HOME LOAN BANK BOARD

**[No. 85-1142]**

## FSLIC Insurance Premium

Dated: December 9, 1985.

**AGENCY:** Federal Home Loan Bank Board.

**ACTION:** Notice.

**SUMMARY:** The Federal Home Loan Bank Board, as operating head of the Federal Savings and Loan Insurance Corporation ("FSLIC" or "Corporation"), has adopted a resolution pursuant to which the Corporation ordered the assessment against each insured institution of an additional premium for FSLIC insurance in an amount equal to one-thirty-second of one percent of the total amount of the accounts of the insured members of each insured institution determined as of September 30, 1985.

**EFFECTIVE DATE:** December 9, 1985.

**FOR FURTHER INFORMATION CONTACT:** Mary A. Creedon, Director, Insurance

Division, Office of the FSLIC, (202) 377-6620; Terrill Rupp, Attorney, Office of General Counsel (202) 377-6773, Federal Home Loan Bank Board, 1700 G Street, NW., Washington, DC 20552.

**Assessment of Additional Insurance Premium**

Whereas, the Federal Home Loan Board ("Bank Board"), as operating head of the Federal Savings and Loan Insurance Corporation ("Corporation" or "FSLIC"), may authorize the Corporation, pursuant to 404(c) of the National Housing Act, as amended ("NHA"), 12 U.S.C. 1727(c)(1982), to assess against each institution the accounts of which are insured by the Corporation pursuant to 403 of the NHA, 12 U.S.C. 1726 (1982) ("insured institution"), additional premiums for such insurance until the amount of such premiums equals the amount of all losses and expenses of the Corporation, *provided* that the total amount so assessed in any one year against any insured institution shall not exceed one-eighth of one per centum of the total amount of the accounts of the insured members of such institution; and

Whereas, the Bank Board, as operating head of the Corporation, by Resolution No. 85-142, dated February 22, 1985, by Resolution No. 85-437, dated June 5, 1985, and by Resolution No. 85-770, dated August 28, 1985, ordered assessments against each insured institution of an additional premium for insurance in an amount equal to one-thirty-second of one per centum of the total amount of the accounts of the insured members of each insured institution determined as of December 31, 1984, for the first assessment and as of March 31, 1985, for the second, and as of June 30, 1985, for the third; and

Whereas, the Bank Board, as operating head of the Corporation, by Resolution No. 85-142, expressed its intention to consider the assessment of further additional premiums in amounts equal to one-thirty-second of one per centum on a quarterly basis during 1985, not to exceed an aggregate of one-eighth of one per centum of the total amount of the accounts of the insured members of each insured institution; and

Whereas, the Bank Board has considered a memorandum of the Director, Office of the FSLIC, (a copy of which memorandum is in the Minute Exhibit file), describing the impact of the collection of the additional premiums for insurance assessed pursuant to Resolution No. 85-142, dated February 22, 1985, Resolution No. 85-437, dated June 5, 1985, and Resolution No. 85-770, dated August 28, 1985, upon the Corporation's insurance reserves:

Now, therefore, it is resolved, that the Bank Board finds and determines that:

1. Losses and expenses incurred by the Corporation, as defined in Resolution No. 85-142, require the assessment of additional insurance premiums pursuant to section 404(c) of the NHA in addition to the additional insurance premiums assessed pursuant to Resolutions No. 85-142, No. 85-437, and No. 85-770, in order to maintain the insurance reserves of the Corporation at a level adequate to meet in part the Corporation's losses and expenses and to protect the insured members of insured institutions;

2. It appears that the Corporation will incur further substantial losses and expenses in calendar year 1985;

3. It is appropriate, therefore, to provide for the assessment of an additional insurance premium at this time, pursuant to section 404(a)(2) of the NHA, by order of the Corporation; and

Resolved further, that the Corporation hereby orders the assessment against each insured institution of an additional premium for insurance for the fourth quarter of 1985, in an amount equal to one-thirty-second of one per centum of the total amount of the accounts of the insured members of each insured institution determined as of September 30, 1985; and

Resolved further, that the additional insurance premium assessed pursuant to this Resolution shall be payable on or about December 31, 1985; and

Resolved further, that the Director or Deputy Director, Office of the FSLIC ("Director"), shall determine the amount of the additional premium due to be paid on December 31, 1985, by each insured institution and shall notify each insured institution of such amount at least twenty (20) days prior to the date such amount is due; and

Resolved further, that the Director, on behalf of the Corporation, is hereby authorized to take all other actions necessary or appropriate to determine and collect the additional insurance premium authorized and ordered by this Resolution; and

Resolved further, that the Secretary shall forward this Resolution for publication in the **Federal Register.**

By the Federal Home Loan Bank Board.

**Nadine Y. Penn,**

*Acting Secretary.*

[FR Doc. 85-30060 Filed 12-19-85; 8:45 am]

BILLING CODE 6720-01-M

## FEDERAL MARITIME COMMISSION

### Security for the Protection of the Public; Financial Responsibility to Meet Liability Incurred for Death or Injury to Passengers or Other Persons on Voyages; Notice of Issuance of Certificate [Casualty]

Notice is hereby given that the following have been issued a Certificate of Financial Responsibility to Meet Liability Incurred for Death or Injury to Passengers or Other Persons on Voyages pursuant to the provisions of section 2, Pub. L. 89-777 (80 Stat. 1356, 1357) and Federal Maritime Commission General Order 20, as amended (46 CFR Part 540): Crown Cruise Line S.A., Crown Cruise Line Ltd., Palm Beach Cruises S.A., and Crown Cruise Line of Florida, Inc., c/o Grunstad Maritime Overseas, Inc., 2790 N. Federal Highway, Boca Raton, FL 33429.

Dated: December 17, 1985.

**Bruce A. Dombrowski,**

*Acting Secretary.*

[FR Doc. 85-30166 Filed 12-19-85; 8:45 am]

BILLING CODE 6730-01-M

### Security for the Protection of the Public; Indemnification of Passengers for Nonperformance of Transportation; Notice of Issuance of Certificate (Performance)

Notice is hereby given that the following have been issued a Certificate of Financial Responsibility for Indemnification of Passengers for Nonperformance of Transportation pursuant to the provisions of section 3, Pub. L. 89-777 (80 Stat. 1357, 1358) and Federal Maritime Commission General Order 20, as amended (46 CFR Part 54): Crown Cruise Line S.A., Crown Cruise Line Ltd., Palm Beach Cruises S.A., and Crown Cruise Line of Florida, Inc. c/o Grunstad Maritime Overseas, Inc., 2790 N. Federal Highway, Boca Raton, FL 33429.

Dated: December 17, 1985.

**Bruce A. Dombrowski,**

*Acting Secretary.*

[FR Doc. 85-30165 Filed 12-19-85; 8:45 am]

BILLING CODE 6730-01-M

## FEDERAL RESERVE SYSTEM

### Dakota Company, Inc.; Acquisition of Company Engaged in Permissible Nonbanking Activities

The organization listed in this notice has applied under § 225.23(a)(2) or (f) of the Board's Regulation Y (12 CFR

225.23(a)(2) or (f)) for the Board's approval under section 4(c)(8) of the Bank Holding Company Act (12 U.S.C. 1843 (c)(8)) and § 225.21 (a) of Regulation Y (12 CFR 225.21(a)) to acquire or control voting securities or assets of a company engaged in a nonbanking activity that is listed in § 225.25 of Regulation Y as closely related to banking and permissible for bank holding companies. Unless otherwise noted, such activities will be conducted throughout the United States.

The application is available for immediate inspection at the Federal Reserve Bank indicated. Once the application has been accepted for processing, it will also be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing on the question whether consummation of the proposal can "reasonably be expected to produce benefits to the public, such as greater convenience, increased competition, or gains in efficiency, that outweigh possible adverse effects, such as undue concentration of resources, decreased or unfair competition, conflicts of interests, or unsound banking practices." Any request for hearing on this question must be accompanied by a statement of the reasons a written presentation would not suffice in lieu of a hearing, identifying specifically any questions of fact that are in dispute, summarizing the evidence that would be presented at a hearing, and indicating how the party commenting would be aggrieved by approval of the proposal.

Comments regarding the application must be received at the Reserve Bank indicated or the offices of the Board of Governors not later than January 13, 1986.

A. **Federal Reserve Bank of Minneapolis.** (Bruce J. Hedblom, Vice President) 250 Marquette Avenue, Minneapolis, Minnesota 55480:

1. *Dakota Company, Inc.*, Milbank, South Dakota; to acquire Big Stone City, South Dakota, and thereby engage in general insurance activities in a place with a population not exceeding 5,000, pursuant to section 4(c)(8)(C)(i) of the Act.

Board of Governors of the Federal Reserve System, December 16, 1985.

**James McAfee,**

*Associate Secretary of the Board.*

[FR Doc. 85-30104 Filed 12-19-85; 8:45 am]

BILLING CODE 6210-01-M

## Lincoln Financial Corp., et al.; Formations of; Acquisitions by; and Mergers of Bank Holding Companies

The companies listed in this notice have applied for the Board's approval under section 3 of the Bank Holding Company Act (12 U.S.C. 1842) and § 225.14 of the Board's Regulation Y (12 CFR 225.14) to become a bank holding company or to acquire a bank or bank holding company. The factors that are considered in acting on the applications are set forth in section 3(c) of the Act (12 U.S.C. 1842(c)).

Each application is available for immediate inspection at the Federal Reserve Bank indicated. Once the application has been accepted for processing, it will also be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing to the Reserve Bank or to the offices of the Board of Governors. Any comment on an application that requests a hearing must include a statement of why a written presentation would not suffice in lieu of a hearing, identifying specifically any questions of fact that are in dispute and summarizing the evidence that would be presented at a hearing.

Unless otherwise noted, comments regarding each of these applications must be received not later than January 10, 1986.

A. **Federal Reserve Bank of Chicago** (Franklin D. Dreyer, Vice President) 230 South LaSalle Street, Chicago, Illinois 60690:

1. *Lincoln Financial Corporation;* Fort Wayne, Indiana; to acquire 100 percent of the voting shares of First Community Financial Corp., Decautur, Indiana, thereby indirectly acquiring The First State Bank of Decatur, Decatur, Indiana.

2. *Valley Bancorporation,* Appleton, Wisconsin; to acquire 100 percent of the following banks: Bank of Spring Green, Spring Green, Wisconsin; Peshtigo State Bank, Peshtigo, Wisconsin; First National Bank & Trust Co. of Beaver Dam, Beaver Dam, Wisconsin; First National Bank of Minocqua and Woodruff, Woodruff, Wisconsin; and The Commercial Bank, Chilton, Wisconsin.

B. **Federal Reserve Bank of Kansas City** (Thomas M. Hoenig, Vice President) 925 Grand Avenue, Kansas City, Missouri 64198:

1. *Lone Wolf Bancshares, Inc.*, Lone Wolf, Oklahoma; to become a bank holding company by acquiring 100 percent of the voting shares of First State Bank, Lone Wolf, Oklahoma.

C. **Federal Reserve Bank of Dallas** (Anthony J. Montelaro, Vice President) 400 South Akard Street, Dallas, Texas 75222:

1. *Independent Community Financial Corporation,* Dallas, Texas; to acquire 51 percent of Casa Linda Financial Corporation, Dallas, Texas and indirectly acquire 100 percent of Independent Bank, N.A., Dallas, Texas (a *de novo* bank).

2. *Independent Community Financial Corporation,* Dallas, Texas; to acquire 100 percent of the voting shares of Coppell Financial Corporation, Dallas, Texas, and indirectly acquire 100 percent of the voting shares of Independent Bank Coppell, N.A., Dallas, Texas.

3. *Texstar Financial Corporation, Inc.*, Azle, Texas; to become a bank holding company by acquiring 99.93 percent of the voting shares of First National Bank of Azle, Azle, Texas.

Board of Governors of the Federal Reserve System, December 16, 1985.

**James McAfee,**

*Associate Secretary of the Board.*

[FR Doc. 85-30105 Filed 12-19-85; 8:45 am]

BILLING CODE 6210-01-M

## DEPARTMENT OF HEALTH AND HUMAN SERVICES

### Office of the Secretary

### Agency Forms Submitted to the Office of Management and Budget for Clearance

Each Firday the Department of Health and Human Services (HHS) publishes a list of information collection packages it has submitted to the Office of Management and Budget (OMB) for clearance in compliance with the Paperwork Reduction Act (44 U.S.C. Chapter 35). The following are those packages submitted to OMB since the last list was published on December 13, 1985.

**Social Security Administration**

Subject: Application for Supplemental Security Income, Extension—(0960-0229)

Respondents: Individuals or households

Subject: Letter to Employer Requesting Wage Information, Revision—(0960-0138)

Respondents: Business or other for-profit

Subject: Certificate of Responsibility for Welfare and Care of Child Not in Applicant's Custody, Extension—(0960-0019)

Respondents: Individuals or households

OMB Desk Officer: Judy A. McIntosh

**Public Health Service**

*Office of Assistant Secretary for Health*

Subject: 1987 National Health Interview Survey (Pretest), New—(0937–0021)
Respondents: Individuals or households
OMB Desk Officer: Bruce Artim

*Center for Disease Control*

Subject: Uranium Miners-Low Dose Investigation, Extension—(0920–0162)
Respondents: Individuals or households
OMB Desk Officer: Bruce Artim

Copies of the above information collection clearance packages can be otained by calling the HHS Reports Clearance Officer on 202–245–6511.

Written comments and recommendations for the proposed information collections should be sent directly to the appropriate OMB Desk Officer designated above at the following address: OMB Reports Management Branch, New Executive Office Building, Room 3208, Washington, DC 20503, Attn: (name of OMB Desk Officer).

Dated: December 16, 1985.

**K. Jacqueline Holz,**

*Deputy Assistant Secretary for Management Analysis and Systems.*

[FR Doc. 85–30066 Filed 12–19–85; 8:45 am]

BILLING CODE 4150–04–M

**Health Care Financing Administration**

**Privacy Act of 1974; Elimination of Systems of Records**

**AGENCY:** Health Care Financing Administration, HHS.

Pursuant to the provisions of the Privacy Act of 1974 (5 U.S.C. 552a), the Health Care Financing Administration is eliminating the following systems of records:

1. 09–70–0010 Current Medicare Survey (Statistics), HHS/HCFA/ORD. Most recently published at 47 FR 45699; October 13, 1982.

2. 09–70–0017 Health Insurance Benefit and Actuarial Sample Control System, HHS/HCFA/BDMS. Most recently published at 47 FR 45703; October 13, 1982.

3. 09–70–0018 Actuarial Health Insurance and Supplementary Insurance (Medicare), HHS/HCFA/BDMS. Most recently published at 47 FR 45703; October 13, 1982.

4. 09–70–0510 Alphabetical Name File (Folder) of Health Insurance Program Consultants, HHS/HCFA/BPO. Most recently published at 47 FR 45727; October 13, 1982.

5. 09–70–1504 Physical Therapists Proficiency Answer Sheets and Test Results (Medicare), HHS/HCFA/HSQB. Most recently published at 47 FR 45734; October 13, 1982.

6. 09–70–1505 Psychiatric Technician Proficiency Answer Sheets and Test Results (Medicare) HHS/HCFA/HSQB. Most recently published at 47 FR 45735; October 13, 1982.

7. 09–70–1507 Waivered Licensed Practical Nurse Proficiency Exam Answer Sheets and Test Results (Medicare), HHS/HCFA/HSQB. Most recently published at 47 FR 45736; October 13, 1982.

8. 09–70–1510 Professional Qualification Files, HHS/HCFA/HSQB. Most recently published at 47 FR 45737; October 13, 1982.

These systems have been discontinued and the records are no longer maintained. All records were destroyed in compliance with the "Retention and Disposal" section of each system of record.

Dated: December 12, 1985.

**C. McClain Haddow,**

*Acting Administrator, Health Care Financing Administration.*

[FR Doc. 85–30106 Filed 12–19–85; 8:45 am]

BILLING CODE 4120–03–M

**Public Health Service**

**National Toxicology Program; Fourth Annual Report on Carcinogens, Availability of Draft Report for Public Comment**

Notice is hereby given announcing the availability for public comment of the draft of the Fourth Annual Report on Carcinogens, a Report prepared by the National Toxicology Program under delegation from the Secretary, Department of Health and Human Services, pursuant to Pub. L. 95–622. This law requires the Secretary to publish an Annual Report listing substances known or reasonably anticipated to be carcinogens to which a significant number of those residingin the United States are exposed. This notice requests general as well as specific commentary regarding any particular substance or process included in the Fourth Annual Report. Comments including substantial documentation will be evaluated for making changes in the final Report or subsequent editions. Comments must be received by February 18, 1986.

The draft Fourth Annual Report on Carcinogens is available upon request to the Public Information Office, National Toxicology Program, P.O. Box 12233, Research Triangle Park, North Carolina 27709, telephone (919–541–3991), or FTS (629–3991). Comments should be submitted to the same address. For further information, contact Jacky Simon, telephone (301–496–3511), or FTS (496–3511).

The Annual Report on Carcinogens, commonly called the Maguire Amendment Report, was one of several environmental health related provisions enacted in the 95th Congress. The amendment concerning this Report requires the Secretary of the Department of Health and Human Services to publish an Annual Report which contains "a list of all substances (i) which either are known to be carcinogens or may reasonably be anticipated to be carcinogens and (ii) to which a significant number of persons residing in the United States are exposed. . . ." The law also states that the reports should provide available information on the nature of exposures, the estimated number of persons exposed, and the extent to which the implementation of Federal regulations decreases the risk to public health from exposure to these chemicals. Responsibility for preparing the Annual Reports has been delegated to the National Toxicology Program.

As drafted, the Fourth Annual Report has undergone a multi-phase peer review process both by other Federal regulatory and research agencies and programs within and outside the Department of Health and Human Services, as well as by the staff of the National Toxicology Program. However, in order to assure again the content and scientific reliability of the Fourth Annual Report, the Program is providing an additional opportunity for public review. Chemicals, mixtures, or occupational exposures added in this Report are listed in Appendix A.

The program welcomes any public comment on the draft Report, whether general in nature or with regard to any specific substance listed in it. Well documented comments will be considered for inclusion in or for revision of the Report. General comments or suggestions for making the Report more useful or useable for the public are appreciated and will be considered fully for future editions.

Dated: December 12, 1985.

**David P. Rall, M.D., Ph.D.,**

*Director, National Toxicology Program.*

APPENDIX A—CHEMICALS, MIXTURES AND OCCUPATIONAL EXPOSURES ADDED IN DRAFT FOURTH ANNUAL REPORT ON CARCINOGENS

| Chemicals, mixtures, occupational exposures | CAS No. |
|---|---|
| Adriamycin | 23214-92-8 |
| Analgesic Mixtures Containing Phenacetin | |
| Azathioprine | 446-86-6 |
| Benzotrichloride | 98-07-7 |

APPENDIX A—CHEMICALS, MIXTURES AND OCCUPATIONAL EXPOSURES ADDED IN DRAFT FOURTH ANNUAL REPORT ON CARCINOGENS—Continued

| Chemicals, mixtures, occupational exposures | CAS No. |
|---|---|
| Bischloroethyl Nitrosourea | 154-93-8 |
| Boot and Shoe Manufacture and Repair | |
| 1,4-Butanediol Dimethylsulfonate (Myleran) | 55-98-1 |
| Certain Combined Chemotherapy for Lymphomas | |
| 1-(2-Chloroethyl)-3-Cyclohexyl-1-Nitrosourea (CCNU) | 13010-47-4 |
| 4-Chlor-o-Phenylenediamine | 95-83-0 |
| Conjugated Estrogens | |
| Dacarbazine | 4342-03-4 |
| DDT | 50-29-3 |
| Diethyl Sulfate | 64-67-5 |
| 1,1-Dimethylhydrazine | 57-14-7 |
| Epichlorohydrin | 106-89-8 |
| Estrogens (not conjugated) | |
| 1. Estradiol-17β | 50-28-2 |
| 2. Estrone | 53-16-7 |
| 3. Ethinylestradiol | 57-63-6 |
| 4. Mestranol | 72-33-3 |
| Ethylene Oxide | 75-21-8 |
| Furniture Manufacture | |
| Hexamethylphosphoramide | 680-31-9 |
| Methoxsalen with Ultra-Violet A Therapy (PUVA) | |
| 2-Methylaziridine | 75-55-8 |
| 4,4'-Methylenedianiline and its Dihydrochloride | 101-77-9 |
| Methyl Iodide | 74-88-4 |
| Metronidazole | 443-48-1 |
| Nitrogen Mustard | 55-86-7 |
| 2-Nitropropane | 79-46-9 |
| Norethisterone | 68-22-4 |
| Progesterone | 57-83-0 |
| 1,3-Propane Sultone | 1120-71-4 |
| Propylthiouracil | 51-52-5 |
| Rubber Industry (Certain Occupations) | |
| Toluene Diisocyanate | 584-84-9 |

[FR Doc. 85-30117 Filed 12-19-85; 8:45 am]

BILLING CODE 4140-01-M

## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

### Region 7 Policy Regarding Management of World War II Material

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Notice.

**SUMMARY:** This Notice is made to inform the public of the Fish and Wildlife Service, Region 7, policy and procedures concerning the management of historic aircraft parts and other World War II materials occurring on lands of the National Wildlife Refuge System; it does not include new regulatory material, but merely interprets the applicability of existing laws and regulations with regard to these materials. This Notice is necessary due to increased interest and activity by both the public and private sector in entering national wildlife refuges to locate and remove military artifacts dating from the World War II period, and specifically due to recent occurrences in Alaska which indicate a clear lack of understanding of policy and procedures among the public as a whole. It is the intent of the actions describd herein to assure in so far as possible the preservation and appropriate use of these historic materials in accordance with applicable State and Federal laws and regulations. This Notice constitutes the public notice specified in 50 CFR 25.31.

**EFFECTIVE DATE:** The interpretation given in this Notice is effective immediately.

**ADDRESS:** U.S. Fish and Wildlife Service, Region 7, 1011 East Tudor Road, Anchorage, AK 99503.

**FOR FURTHER INFORMATION CONTACT:** Charles Diters, Regional Historic Preservation Officer, U.S. Fish and Wildlife Service, 1011 East Tudor Road, Anchorage, AK 99503, 907–786–3388.

**SUPPLEMENTARY INFORMATION:** The Aleutian Campaign of World War II was unique in that it took place on United States soil; the Japanese invasion of the Aleutians was the first occupation of U.S. territory by a foreign enemy since the War of 1812. The remains of this campaign, although subject to the effects of weather and of collectors over the past forty years, are still substantial. It is the opinion of the U.S. Fish and Wildlife Service (FWS) that these physical remains are of considerable value in the historic sense, and that many, if not all of them, are eligible for inclusion on the National Register of Historic Places. The following paragraphs describe the policy and procedures that will be followed regarding the management of downed aircraft and other materials of World War II military origin found on units of the National Wildlife Refuge System within the State of Alaska.

1. It is the policy of the FWS that all materials of military origin dating from the World War II period, and now located on lands managed as parts of the National Wildlife Refuge System, are to be regarded as under the control of the United States Government. The FWS intends to manage these items in full compliance with the National Historic Preservation Act of 1966, as amended (15 U.S.C. 470), and related laws and regulations.

2. Materials of this sort may only be disturbed or removed when authorized by specific permits issued by the FWS. For items presently buried beneath the soil, permits will be issued following a procedure identical to that set forth in 43 CFR Part 7 (Protection of Archaeological Resources). Application for such permits should be made to the Regional Director. The remainder of this Notice applies only to those materials presently found on the surface of the ground.

3. Individuals or institutions interested in recovering World War II materials from National Wildlife Refuges must make application to the Refuge Manager of the unit in question, for issuance of a special use permit (50 CFR 26.22(b); 50 CFR 36.41). The application must be in writing and must include the following information:

A. The specific aircraft part(s) or other artifact(s) to be collected, including their present location and condition. These descriptions should be detailed enough to allow all further determinations regarding the items to be made without additional field investigation, and ideally should be accompanied by detailed photographs.

B. A detailed descripton of the use to which the part(s) or artifact(s) will be put. Those uses that are scientific, interpretive, or educational in nature will be preferred, as will uses that tend to benefit the largest practical segment of the public. This section should also describe final disposition of the materials when they ar no longer of use or interest to the requesting individual or institution.

C. A detailed description of the qualifications of the individual(s) and/or institution(s) making the request. This portion will be used to assure that the permittee has the ability and resources to complete the uses described in (B).

4. The refuge manager will provide the application described in (3) to the Regional Office for review by staff, and for consultation with the State Historic Preservation Officer and the Advisory Council on Historic Preservation in accordance with 36 Part 800. The Regional Director will make the final determination as to whether the permit may be allowed on historical grounds, and return the application to the refuge manager, who may issue or deny the permit on environmental or other grounds. The refuge manager is responsible for determining the compatibility of the proposed action with refuge purposes, and may require additional protective stipulations and/or the preparation of environmental documentation (Environmental Assessments or Environmental Impact Statements).

5. During the review process, the Regional Office will actively seek the comments of the public on the merits of the proposed activity, and will allow a minimum of thirty (30) days for such comments. During this period, the Regional Office will also entertain proposals from other individuals or institutions which may have competing desires for the materials in question. If written notice of such an interest is

received during the comment period, the party or parties in question will be allowed sixty (60) days to apply for a permit to remove the subject materials. If there are competing applicants, the Regional Director will make the final selection; the permit may be granted to the original applicant, to one of the competing applicants, or to two or more parties from among the applicants, and the specific resources divided among them. Any or all of the applicants may also be allowed to modify their applications during this period.

6. Administrative fees may be assessed for the processing of applications and permits (16 USC 668dd–668jj).

7. Permits under these specific procedures are not required for individuals or institutions which merely wish to observe and/or document in place such materials. However, special use permits will be required, and persons or institutions wishing to conduct such activities should contact the refuge manager of the unit of FWS lands in question. The refuge managers will continue to coordinate these activities with the Regional Historic Preservation Officer.

Dated: December 11, 1985.

**Robert E. Gilmore,**

*Regional Director.*

[FR Doc. 85–30046 Filed 12–19–85; 8:45 am]

BILLING CODE 4310-55-M

## Bureau of Land Management

### Butte District, MT, District Advisory Council; Meeting

Notice is hereby given in accordance with Pub. L. 94–579 and 43 CFR Part 1780 that a meeting of the Butte District Advisory Council will be held Wednesday and Thursday, January 15 and 16, 1986.

The meeting will begin at 1 p.m., January 15 in the Butte District Office conference room, 106 North Parkmont (Industrial Park), Butte, Montana. The agenda will include (1) access to public lands, (2) the district's land adjustment program, (3) surface management (3809) regulation administration, (4) the FY 86 budget, and (5) a discussion of the district's range program, including the Bureau's riparian initiative, Cooperative Management Agreements and grazing fees.

The meeting is open to the public. Interested persons may make oral statements to the council or file written statements for the council's consideration. Anyone wishing to make an oral statement should make advance arrangements with the district manager.

Summary minutes of the meeting will be maintained in the district office and will be available for public inspection and reproduction during regular business hours within 30 days following the meeting.

Dated: December 12, 1985.

**Jack A. McIntosh,**

*District Manager, Butte District.*

[FR Doc. 85–30148 Filed 12–19–85; 8:45 am]

BILLING CODE 4310-DN-M

### Colorado; Craig District Advisory Council Meeting

In accordance with Pub. L. 94–579, notice is hereby given that there will be a meeting of the Craig District Advisory Council on January 29, 1986.

The meeting will begin at 10 a.m. at the Craig District Office, 455 Emerson Street, Craig, Colorado.

Agenda items will include:

1. Election for Chairman for 1986 year.
2. Report from Western Area Power Administration on the Craig/Utah 345 kV Transmission Line Project.
3. Report on K–T Copper Mine.
4. Report on the Draft James Creek Coal Preference Right Lease Application Environmental Impact Statement.

The meeting will be open to the public and interested persons may make oral statements to the council beginning at 10:30 a.m. The District Manager may establish a time limit for oral statements, depending on the number of people wishing to speak. Anyone wishing to address the Council, or file a written statement, should notify the District Manager, Bureau of Land Management, 455 Emerson Street, Craig, Colorado 81625, by January 23, 1986.

Summary minutes of the Council Meeting will be maintained in the Craig District Office and will be available for public inspection and reproduction during regular business hours.

Dated: December 12, 1985.

**Larry P. Bauer,**

*Acting District Manager.*

[FR Doc. 85–30150 Filed 12–19–85; 8:45 am]

BILLING CODE 4310-JB-M

[AZ–025–86–13]

### Phoenix District Draft Planning Analysis and Decision Record; Availability and Public Comment; AZ

**AGENCY:** Bureau of Land Management (BLM), Interior.

**ACTION:** Notice of Availability of Phoenix District Planning Analysis Decision Record and Opportunity for Public Comment.

**SUMMARY:** In compliance with the Federal Land Policy and Management Act of 1976 and section 102(2)(c) of the National Environmental Policy Act of 1969, a Draft Planning Analysis/Environmental Assessment was prepared by the Phoenix District, Arizona. A subsequent Decision Record and Finding of No Significant Impact (FONSI) is made available for public comment for 30 days, after which the Decision will become final.

The Decision finds it appropriate to make lands in the Phoenix District not covered by a land use plan available for possible exchange.

**Public Participation**

Copies of the Decision Record and FONSI are available upon request from the Phoenix District Office, 2015 West Deer Valley Road, Phoenix, Arizona 85027, (602) 863–4464. Public reading copies may also be reviewed there and at the Bureau of Land Management, Arizona State Office, 3707 North Seventh Street, Phoenix, Arizona 85014, (602) 241–5547.

Written comments should be sent to the District Manager, Phoenix District, Bureau of Land Management, 2015 West Deer Valley Road, Phoenix, Arizona 85027.

The public review and comment period will end 30 days from the date of this notice in the **Federal Register.**

**FOR FURTHER INFORMATION CONTACT:** Area Manager, Phoenix Resource Area, 2015 West Deer Valley Road, Phoenix, Arizona 85027, (602) 863–4464.

**Maryln V. Jones,**

*District Manager.*

[FR Doc. 85–30149 Filed 12–19–85; 8:45 am]

BILLING CODE 4310-32-M

### California; Proposed Issuance of Lease for Abandoned Mining Claim

The Bureau of Land Management proposes to issue a noncompetitive oil and gas lease for the abandoned W½ of the Josephine Claim located in Section 23, T. 31 S., R. 22 E., MD Mer., State of California, County of Kern. The effective date of the lease will be October 22, 1979. The payment of the lessor of back royalties upon oil produced, severed, save and sold from the above-described property between October 22, 1979 and December 31, 1985, will be made by the lessee in four equal quarterly payments beginning on or before March 1, 1986 and concluding on or before December 1, 1986. The lessee's obligation to pay the back royalties is in addition to its obligation to account for presently accruing rentals and/or royalties. An

interest charge shall be assessed on underpayments or late payments of back royalties in accordance with the Federal Oil and Gas Royalty Management Act of 1982 (96 Stat. 2447). The lessee will pay the required $500.00 administrative fee and reimburse the Bureau of Land Management for the cost of this Federal Register notice, prior to lease issuance.

The lessee meets all the requirements for the issuance of the lease as set out in section 31(f) of the Minerals leasing Act of 1920 (30 U.S.C. 188f).

Dated: December 10, 1985.

**Joan B. Russell,**

*Chief, Leasable Minerals Section, Branch of Lands & Minerals Operations.*

[FR Doc. 85-30271 Filed 12-19-85; 8:45 am]

BILLING CODE 4310-40-M

## INTERSTATE COMMERCE COMMISSION

### Intent To Engage in Compensated Intercorporate Hauling Operations

This is to provide notice as required by 49 U.S.C. 10524(b)(1) that the named corporations intend to provide or use compensated intercorporate hauling operations as authorized in 49 U.S.C. 10524(b).

1. Parent Corporation: Steuber Company, Incorporated, 66 Field Point Road, Greenwich, Ct. 06830.

2. Wholly-owned subsidiaries which will participate in the operations: Metro Oil & Chemical Corp., 343 South Broad Street, Ridgefield, N.J. State of Inc., New Jersey.

1. Parent corporation and address of principle office: Sysco Corporation, 1177 West Loop South, Houston, Texas 77027.

2. Wholly-owned subsidiaries and divisions which will participate in the operations, and States of incorporation:

| Subsidiary—Name and Address | State of Incorporation |
|---|---|
| Allied-Sysco Food Services, Inc., P.O. Box 6165, Hayward, CA 94540. | California. |
| Arrow-Sysco Food Services, Inc., P.O. Box 10038 Jefferson, LA 70181. | Delaware. |
| Baraboo-Sysco Food Services, Inc., 901 Sauk Avenue, Baraboo, WI 53913. | Wisconsin. |
| Bell-Sysco Food Services, Co. P.O. Box 2987, Asheville, NC 28802. | North Carolina. |
| Compton Foods Association, 1177 West Loop South Houston, TX 77027. | Delaware. |
| Compton Refrigerated Distribution Center, A Div. of Compton Foods Association, Houston, TX; 6700 Corporate Drive, Suite 100, Kansas City MS 64120. | |
| Sysco Chemical Co. A Div. of Compton Foods Association, Houston, TX 13003 Southwest Freeway, Suite 100, Stafford, TX 77479. | |
| DiPaolo/Sysco Food Services, Inc., P.O. Box 14485, Columbus, OH 43214. | Ohio. |
| Glencoe-Sysco Food Services Co., P.O. Box 4343, Carson, CA 90749-4343. | California. |
| Global Frozen Foods, 1177 W. Loop South, Houston, TX 77027. | Delaware. |
| Grants-Sysco Food Services, Inc., P.O. Box 1598, Saginaw, MI 48605. | Michigan. |
| HFP-Sysco Food Services, Inc., P.O. Box 113 Harrisonburg, VA 22801. | Virginia. |
| Hallsmith-Sysco Food Services, Inc. 380 South Worcester Street, Norton, MA 02766. | Massachusetts. |
| Hardin's Sysco Food Services, Inc., P.O. Box 16847, Memphis, TN. | Tennessee. |
| Koon-Sysco Food Services, Inc., P.O. Box 141, Bowling Green, KY 42101-0104. | Kentucky. |
| Lankford-Sysco Food Services, Inc., P.O. Box 477, Pocomoke City, MD 21851. | Maryland. |
| Mid-Central/Sysco Food Services, Inc., P.O. Box 629, Olathe, KS 66061. | Missouri. |
| Miesel/Sysco Food Service Co., P.O. Box 579, Detroit, MI 48232. | Michigan. |
| Miesel/Sysco Food Services Co. A Div. of Miesel/Sysco Food Service Co., Detroit, MI P.O. Box 94570, Cleveland, OH 44101. | |
| Nobel-Sysco Food Services Co., P.O. Box 5566 TA Denver, CO 80217. | Colorado. |
| Nobel/Sysco Food Services Co. Southwest Division, A Div. of Nobel/Sysco Food Services Co. Denver, CO; 601 Camanche Road N.E., Albuquerque, NM 87107. | |
| Pegler-Sysco Food Services Co. P.O. Box 80068 Lincoln, NE 68501. | Nebraska. |
| Robert Orr-Sysco Food Services Co. P.O. Box 1087, Nashville, TN 37202. | Tennessee. |
| Select-Sysco Foods, Inc., P.O. Box 3097, Haywood, CA 94540. | California. |
| Sysco Food Services of Amarillo, Inc., P.O. Box 510, Amarillo, TX 79105. | Texas. |
| Sysco Food Services of Austin, Inc. P.O. Box 1649, Austin, TX 78767. | Texas. |
| Sysco Food Services of Beaumont, Inc., P.O. Box 56, Beaumont, TX 77708. | Texas. |
| Sysco Food Services, Inc., P.O. Box 15316, Houston, TX 77220. | Texas. |
| Sysco Food Services-San Antonio, A Div. of Sysco Food Services, Inc., Houston, TX P.O. Box 18364, San Antonio, TX 78218. | |
| Sysco Food Services Southeast Inc., P.O. Box 14338, Augusta, GA 30919-0338. | Georgia. |
| Sysco Food Systems, Inc., P.O. Box 814229, Dallas, TX 75381. | Texas. |
| Sysco/Frost-Pack Food Services, Inc., P.O. Box 8769, Grand Rapids, MI 49508. | Michigan. |
| Sysco Frosted Foods, Inc., P.O. Box 5327, Albany, NY 12205. | New York. |
| Sysco/Louisville Food Services, Inc., P.O. Box 32470, Louisville, KY 40232. | Kentucky. |
| Railton/Sysco Food Services, Co., A Div. of Sysco/Louisville Food Services, Inc., Louisville, KY; 111 N. Northwest Avenue, Northlake, IL 60164. | |
| Sysco-Midwest Food Services, Inc. P.O. Box 5299, Lafayette, IN 47903. | Indiana. |
| Sysco/Rome Food Services, Inc., P.O. Box 2026, Rome, GA 30161. | Georgia. |
| The SYGMA Network, Inc., 7125 W. Jefferson Ave., Suite 460, Lakewood, CO 80235. | Delaware. |
| Midwest/SYGMA, A Div. of The SYGMA Network, Inc., Lakewood, CO P.O. Box 14458, Lenexa KS 66215. | |
| New York Tea-Sysco Food Service Co., P.O. Box 43030, St. Paul, MN 55164. | Minnesota. |

*Division—Name and Address*

Cochran/Sysco Food Services, P.O. Box 2900, Jackson, MS 39207;

Global Sysco, 700 Dibblee Drive, Garden City, NY 11530;

Plantation-Sysco P.O. Drawer 6400-A, Miami, FL 33164;

Plantation-Sysco of Central Florida, P.O. Box 15890, Orlando, FL 32858;

Plantation-Sysco Military Division, P.O. Box 15690, Orlando, FL 32802;

Sysco/Gulf-Atlantic Food Services, P.O. Box 37045, Jacksonville, FL 32236;

Sysco Intermountain Food Services, P.O Box 27638, Salt Lake City, UT 84125;

Sysco-Metro Food Services, P.O. Box 93865, Atlanta GA 30377;

Theimer-Sysco Food Services, P.O. Box 13786, Roanoke, VA 24037-3786;

Thomas-Sysco Food Services, P.O. Box 14405, Cincinnati, OH 45214.

Note.—SYSCO Corporation is incorporated in the State of Delaware.

**James H. Bayne,**

*Secretary.*

[FR Doc. 85-30033 Filed 12-19-85; 8:45 am]

BILLING CODE 7035-01-M

**[Docket No. AB-211 (Sub-No. 1X)]**

### Rahway Valley Railroad Co.; Abandonment Exemption in Union County, NJ

Applicant has filed a notice of exemption under 49 C.F.R. 1152 Subpart F—*Exempt Abandonments* to abandon 2.15 miles of rail line between its terminal at Summit and the Carter Bell Manufacturing Co. siding in Springfield, in Union County, NJ.

Applicant has certified (1) that no local traffic has moved over the line for at least 2 years and that overhead traffic on the line can be rerouted over other lines, and (2) that no formal complaint filed by a user of rail service on the line (or by a State or local governmental entity acting on behalf of such user) regarding cessation of service over the line either is pending with the Commission or any U.S. District Court, or has been decided in favor of the complainant within the 2-year period. The appropriate State agency has been notified in writing at least 10 days prior to the filing of this notice.

As a condition to use of this exemption, any employee affected by the abandonment shall be protected pursuant to *Oregon Short Line R. Co.—Abandonment—Goshen*, 360 I.C.C. 91 (1979).

The exemption will be effective January 12, 1985 (unless stayed pending reconsideration). Petitions to stay must be filed by December 23, 1985, and petitions for reconsideration, including environmental, energy, and public use concerns, must be filed by January 2, 1986 with: Office of the Secretary, Case Control Branch, Interstate Commerce Commission, Washington, DC 20423.

A copy of any petition filed with the Commission must be sent to applicant's representative: William R. Gilson, 57 Union Place, P.O. Box 1439, Summit, NJ 07901.

If the notice of exemption contains false or misleading information, use of the exemption is void *ab initio*.

A notice to the parties will be issued if use of the exemption is conditioned upon environmental or public use conditions.

Decided: December 10, 1985.

By the Commission, Heber P. Hardy, Director, Office of Proceedings.

**James H. Bayne,**

*Secretary.*

[FR Doc. 85-30035 Filed 12-19-85; 8:45 am]

BILLING CODE 7035-01-M

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[Docket No. AB-186 (Sub-1)]

## The Newburgh & South Shore Railway Co.; Abandonment and Discontinuance in Cuyahoga County, OH; Corrected Notice of Findings

December 3, 1985.

Notice is hereby given pursuant to 49 U.S.C. 10903 that a decision decided December 3, 1985, a finding, which is administratively final, was made by the Administrative Law Judge stating that the present or future public convenience and necessity permit the abandonment by the applicant, The Newburgh & South Shore Railway Company, of its entire line of railroad between milepost 0.48 to the end of the line at milepost 6.00, a distance of 7.33 miles in Cuyahoga County, OH. Pursuant to the Judge's decision, the application for abandonment is granted, effective 30 days from the date of service, except as the Commission may elect to hear a discretionary appeal. However, offers either of financial assistance or to purchase the line must be filed by December 17, 1985.

**James H. Bayne,**

*Secretary.*

[FR Doc. 85-30223 Filed 12-19-85; 8:45 am]

BILLING CODE 7035-01-M

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## DEPARTMENT OF LABOR

### Employment and Training Administration

### State Employment Security Agency System Administrative Financing; Open Meetings.

**AGENCY:** Employment and Training Administration, Labor.

**ACTION:** Notice of meetings.

**SUMMARY:** This notice sets forth the schedule and purpose for public meetings on the administrative financing mechanism for the State Employment Security Agency programs.

**DATES AND ADDRESSES:**

January 14, 1986, 8:30 a.m. to 5:00 p.m.:
Hyatt Regency, 300 Reunion Boulevard, Dallas, Texas

January 15, 1986, 8:30 a.m. to 5:00 p.m.:
Palmer House, 17th and Monroe Street, Chicago, Illinois

January 16, 1986, 8:30 a.m. to 5:00 p.m.:
Holiday Inn, Capitol, 550 C Street, SW., Washington, DC.

January 23, 1986, 8:30 a.m. to 5:00 p.m.:
Sheraton Palace, Market and New Montgomery, San Francisco, California

**FOR FURTHER INFORMATION CONTACT:** Carolyn M. Golding, Director, Unemployment Insurance Service, Employment and Training Administration, 601 D Street, NW., Washington, DC 20213 (202/376-6636).

**SUPPLEMENTARY INFORMATION:** The purpose of these meetings is to solicit the views of a wide range of individuals and organizations who may have an interest in administrative financing of the program. These meetings provide a forum for the discussion of such comments and concerns. The agenda and discussion framework for these meetings will be published in a forthcoming **Federal Register** notice. Presentations will be made by individuals representing major groups who have an interest in employment security. The audience will be encouraged to comment. Written comments are also being solicited through a separate **Federal Register** notice which provides more information on the review process and administrative financing procedure.

Signed at Washington, DC this 17th day of December 1985.

**Roger D. Semerad,**

*Assistant Secretary of Labor.*

[FR Doc. 85-30185 Filed 12-19-85; 8:45 am]

BILLING CODE 4510-30-M

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### Invitation To Comment on Administrative Financing of State Employment Security Agency Programs and To Propose Changes Thereto

**AGENCY:** Employment and Training Administration, Labor.

**ACTION:** Notice of opportunity to comment on changes to administrative financing.

**SUMMARY:** This notice announces a Department of Labor initiative to improve the adequacy and equity of financing of State Employment Security Agency (SESA) programs and invites interested parties to comment. This initiative will focus primarily on the Unemployment Insurance Program (UI).

The Assistant Secretary of Labor is sending individual letters to the governors of the States asking for their personal review and comment on existing administrative financing procedures, the problems associated with these procedures and on any proposals for changes to these procedures. He is planning to convene a general meeting open to the public to discuss problems and proposals for change. The agenda and discussion framework for these meetings will be published in a subsequent **Federal Register** notice. Written comments are requested, if possible, to follow the same discussion format as the meetings.

**DATE:** Written comments must be received by close of business January 17, 1986.

**ADDRESS:** Submit comments to Carolyn M. Golding, Director, Unemployment Insurance Service, Employment and Training Administration, 601 D Street, NW., Washington, DC 20213. Telephone: 202-376-6636.

**FOR FURTHER INFORMATION CONTACT:** Carolyn M. Golding, Director, Unemployment Insurance Service, Employment and Training Administration, 601 D Street, NW., Washington, DC 20213. Telephone: 202-376-6636.

**SUPPLEMENTARY INFORMATION:** The framework for the basic UI system is outlined in the Social Security Act (SSA) and the Federal Unemployment Tax Act (FUTA). Basically, States raise revenues for financing UI benefits; the Federal government raises revenues for financing both the State and Federal administration of the system. (Federal revenues also finance the Federal share of extended benefits and the loan fund from which States may borrow if their revenues are insufficient to pay benefits.)

The costs of administering the UI system have become increasingly large over time and vary considerably with economic conditions. For example, the benefit costs of the UI program have varied recently between $15 and $29 billion per year; the number of beneficiaries has varied between 7 and 13 million; and the administrative costs of the program at the State level have ranged from $1.5 to $2.0 billion.

The current system relies on forcasts of workloads derived from the Administration's economic assumptions as the basis for formulating requests for appropriations. Once the operating budget is appropriated it is allocated among the States for specific categories of activity as well as for separate object classes of expenditures. The Federal allocation of resources is highly specific, reflecting the workload factors on which the forecasts are based, but also thereby prescribing how States will administer the program.

Using the most recent economic assumptions, the Employment and Training Administration prepares workload estimates at base and contigency-above-base levels for various workload categories. Base workload estimates are projected to insure that the maximum number of States experience at least base workloads in their lowest quarter of activity. Workloads above base amounts are financed from a contingency appropriation.

Staff needed to perform necessary activities for proper and efficient administration are determined using productivity factors (workload per staffyear) which were developed from State work measurements and which have been in use since the late 1970's. These productivity factors and workload estimates are used to formulate the number of staffyears requested on a national basis.

Staffyears are priced in the President's Budget request using national average costs per staffyear (CPSY). These CPSY figures include average national costs for salaries and nonpersonal services. In addition to staffyears to process workloads, the President's Budget also includes amounts for certain national activities, automation grants, salary increases, postage and State legislative changes.

The appropriation is allocated among the States based on State specific workload forecasts and State specific productivity factors. State productivity factors are determined from Cost Model work measurement studies conducted by the States. State staff are priced using State specific salary rates and nonpersonal services rates. Initially, States are provided base allocations, with contingency allocations provided quarterly as workloads exceed base amounts. States are entitled to contingency funds based on the lesser of earned staffyears or used staffyears.

The appropriation language has required that all base resources be exhausted before contingency resources may be utilized. Normal budgetary adjustments are applied at mid-year and at the end of the third fiscal quarter to ensure that base resources are being fully utilized. Unused resources are recaptured for subsequent reallocation. Resources are managed to ensure that each State receives an equitable share of estimated nationwide needs but that resources not needed are not expended. To do this, allocations are adjusted (recaptured) during and at the end of the year to ensure that States receive only the lesser of workload dollars earned or used during the year. It is this process on which comments are invited, together with suggestions for improving the adequacy and equity of the process.

Signed at Washington, DC, this 17th day of December 1985.

**Roger D. Semerad,**

*Assistant Secretary of Labor.*

[FR Doc. 85-30184 Filed 12-19-85; 8:45 am]

BILLING CODE 4510-30-M

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[TA-W-16,034]

## General Dynamics Corp., Quincy Shipbuilding Division, Quincy, MA; Affirmative Determination Regarding Application for Reconsideration

By an application received on December 3, 1985, the Industrial Union of Marine and Shipbuilding Workers, the International Federation of Professional and Technical Engineers and the International Union of Plant Protection Employees, with the support of the company, requested administrative reconsideration of the Department of Labor's Negative Determination Regarding Eligibility to Apply of Worker Adjustment Assistance on behalf of workers and former workers of the Quincy Shipbuilding Division of General Dynamics Corporation, Quincy, Massachusetts. The determination was published in the Federal Register on November 5, 1985 (50 FR 45949).

The application claims, among other things, that one of Quincy's customers met their vessel requirements when they purchased the assets and contracts of another domestic company and that no U.S. shipyard has been successful in international commercial ship competition since the elimination of the Construction Differential Subsidies for vessels in 1982.

### Conclusion

After careful review of the application, I conclude that the claims are of sufficient weight to justify reconsideration of the Department of Labor's prior decision. The application is therefore, granted.

Signed at Washington, DC, this 10th day of December 1985.

**Robert A. Schaerfl,**

*Director, Office of Program Management, UIS.*

[FR Doc. 85-30181 Filed 12-19-85; 8:45 am]

BILLING CODE 4510-30-M

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## Occupational Safety and Health Administration

## Virginia State Standards; Approval

### 1. Background

Part 1953 of Title 29, Code of Federal Regulations prescribes procedures under section 18 of the Occupational Safety and Health Act of 1970 (hereinafter called the Act) by which the Regional Administrator for Occupational Safety and Health (hereinafter called the Regional Administrator), under a delegation of authority from the Assistant Secretary of Labor for Occupational Safety and Health (hereinafter called the Assistant Secretary) (29 CFR 1953.4), will review and approve standards promulgated pursuant to a State plan which has been approved in accordance with section 18(c) of the Act and 29 CFR Part 1902. On September 28, 1976, notice was published in the **Federal Register** (41 FR 42655) of the approval of the Virginia State plan and the adoption of Subpart EE to Part 1952 containing the decision.

The Virginia State plan provides for the adoption of all Federal standards as State standards after comments and public hearings except for those standards found in 29 CFR Parts 1915, 1917, 1918 and 1919 (shipyards, marine terminals, longshoring and gear certification). A notice of approval was published in the **Federal Register** (43 FR 11274) dated March 17, 1978.

By letters dated April 4, 5 and 12, 1984, from Commissioner Eva S. Teig, Virginia Department of Labor and Industry, to Linda R. Anku, Regional Administrator, and incorporated as part of the plan, the State submitted State standards comparable to: (1) 29 CFR 1910.1002, pertaining to Coal Tar Pitch Volatiles: Interpretation of Terms, as published in the **Federal Register** dated January 21, 1983 (48 FR 2764); (2) 29 CFR

1910.95, pertaining to Noise Standard: Hearing Conservation Amendment, as published in the Federal Register dated March 8, 1983 (48 FR 9738); (3) 29 CFR 1910.1025(a)(2), (e), (f)(2)(ii), (i), (j)(3)(ii), (k), (l) and (m), pertaining to Occupational Exposure to Lead: Respirator Fit Test and Miscellaneous Amendments, as published in the Federal Register dated November 12, 1982 (47 FR 51110); (4) 29 CFR 1910.106, pertaining to Hazardous Materials: Attendant Exemption and Latch-Open Devices, as published in the Federal Register dated September 17, 1982 (47 FR 39161); and (5) 29 CFR 1910.401, pertaining to Commercial Diving Operations: Educational/Scientific Diving Exemption, as published in the Federal Register dated November 19, 1982 (41 FR 25059). These standards which are contained in the Virginia Occupational Safety and Health Standards, were promulgated after public hearing conducted on February 28, 1984, and Resolution adopted by the Virginia Codes Commission pursuant to Section 40.1-22 and the Administrative Process Act, Code of Virginia. These State standards were effective on June 15, 1984.

2. Decision

Having reviewed the State submission in comparison with the Federal standards, it has been determined that the State standards are identical to the Federal standards and, accordingly, should be approved.

3. Location of Supplements for Inspection and Copying

A copy of the standard supplements, along with the approved plan, may be inspected and copied during normal business hours at the following locations: Office of the Regional Administrator, 3535 Market Street, Suite 2100, Philadelphia, Pennsylvania 19104; and the Office of the Commissioner, Virginia Department of Labor and Industry, 205 North Fourth Street, Richmond, Virginia 23241.

4. Public Participation

Under 29 CFR 1953.2(c), the Assistant Secretary may prescribe alternative procedures to expedite the review process or for other good cause which may be consistent with applicable laws. The Assistant Secretary finds that good cause exists for not publishing the supplements to the Virginia State plan as a proposed change and making the Regional Administrator's approval effective upon publication for the following reasons:

1. The standards are identical to the Federal standards which were promulgated in accordance with Federal law including meeting the requirements for public participation.

2. The standards were adopted in accordance with the procedural requirements of State law and further participation would be unnecessary.

This decision is effective December 20, 1985.

(Sec. 18, Pub. L. 91-596, 84 Stat. 1608 (29 U.S.C. 667)).

Signed at Philadelphia, Pennsylvania, this 24th day of July 1984.

**Linda R. Anku,**

*Regional Administrator.*

[FR Doc. 85-30183 Filed 12-19-85; 8:45 am]

BILLING CODE 4510-26-M

## Office of the Assistant Secretary for Veterans Employment and Training

### Secretary of Labor's Committee on Veterans' Employment; Meeting

The Secretary's Committee on Veterans' Employment was established under section 308, Title III, Pub. L. 97-306 "Veterans Compensation, Education and Employment Amendments of 1982," to bring to the attention of the Secretary, problems and issues relating to veterans' employment.

Notice is hereby given that the Secretary of Labor's Committee on Veterans' Employment will meet on Tuesday, January 14, 1986 at 10:00 A.M., in the Secretary's Conference Room, S-2508, FPB.

Items to be discussed are:

- Secretary's Goals and Objectives
- Separation Briefing Project
- South Carolina Entrepreneurship
- Solicitation for Grant Application Update
- Emeregency Veterans' Job Training Act Update (VA)

The public is invited.

Signed at Washington, DC, this 12th day of December 1985.

**Donald E. Shasteen,**

*Assistant Secretary for Veterans' Employment and Training.*

[FR Doc. 85-30182 Filed 12-19-85 8:45 am]

BILLING CODE 4510-79-M

## SECURITIES AND EXCHANGE COMMISSION

### Issuer Delisting; Notice of Application To Withdraw From Listing and Registration; Anthem Electronics, Inc.; Common Stock, $.125 Par Value (File No. 1-8566)

December 16, 1985.

The above named issuer has filed an application with the Securities and Exchange Commission pursuant to section 12(d) of the Securities Exchange Act of 1934 ("Act") and Rule 12d2-2(d) promulgated thereunder, to withdraw the specified security from listing and registration on the American Stock Exchange, Inc.

The reasons alleged in the application for withdrawing this security from listing and registration include the following:

Anthem Electronics, Inc. in making its decision to withdraw the common shares from listing and registration considered the costs of maintaining the dual listing of the common shares on the the NYSE and Amex. The issuer does not see any advantage in the dual trading of the common shares and believes that dual listing would fragment the market for such shares.

Any interested person may, on or before January 6, 1986, submit by letter to the Secretary of the Securities and Exchange Commission, Washington, DC 20549, facts bearing upon whether the application has been made in accordance with the rules of the Exchange and what terms, if any, should be imposed by the Commission for the protection of investors. The Commission, based on the information submitted to it, will issue an order granting the application after the date mentioned above, unless the Commission determines to order a hearing on the matter.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.

**John Wheeler,**

**Secretary.**

[FR Doc. 85-30119 Filed 12-19-85; 8:45am]

BILLING CODE 8010-01-M

[File No. 22-14372]

### Application and Opportunity for Hearing; Storage Equities, Inc.

December 16, 1985.

Notice is hereby given that Storage Equities, Inc., a California corporation ("Applicant") has filed an application under clause (ii) of section 310(b)(1) of the Trust Indenture Act of 1939 (the "Act") for a finding that the trusteeship of Trust Services of America, Inc., a California corporation ("TSA") (as successor trustee to First Interstate Bank of California, a California banking corporation), under a tenth supplement of an existing indenture qualified under the Act is not so likely to involve a material conflict of interest as to make it necessary in the public interest or for the protection of investors to disqualify

TSA from acting as trustee under such tenth supplement.

Section 310(b) of the Act provides in part that, if a trustee under an indenture qualified under the Act has or shall acquire any conflicting interest, it shall within ninety (90) days after ascertaining that it has such conflicting interest, either eliminate such conflicting interest or resign. Subsection (1) of such section provides, in effect, with certain exceptions, that a trustee under a qualified indenture shall be deemed to have a conflicting interest if such trustee is trustee under another indenture under which any other securities of the same issuer are outstanding.

However, under clause (ii) of subsection (1), there may be excluded from the operation of this provision another indenture under which other securities of the issuer are outstanding, if the issuer shall have sustained the burden of proving, on application to the Commission and after opportunity for hearing thereon, that trusteeship under such qualified indenture and such other indenture is not so likely to involve a material conflict of interest as to make it necessary in the public interest or for the protection of investors to disqualify such trustee from acting as trustee under either of such indentures.

The Applicant alleges that:

1. TSA, as successor trustee, currently is acting as trustee under an indenture (the "Indenture") and several prior supplements thereto under which the applicant is an obligor. The Indenture, dated as of August 9, 1983, is between Applicant and TSA and provides for the periodic issuance of secured notes in partial consideration for the purchase of property by Applicant. This indenture was filed as Exhibit 4.3 to Applicant's Registration Statement No. 2-80850 filed under the Securities Act of 1933, and has been qualified under the Trust Indenture Act in connection with a Form T-1 filing, File No. 22-12633.

Applicant has also entered into, and filed by way of post-effective amendments to the registration statement stated above, prior supplements under which TSA is a trustee. Applicant has issued several series of its secured notes under the prior supplements.

2. Applicant wishes TSA to continue as Trustee under the tenth supplemental indenture executed October 3, 1985.

3. The Applicant is not in default in any respect under the Indenture or prior supplements thereto.

4. Each series of secured notes issued under the prior supplements is secured by separate and distinct assets of Applicant so that should TSA have occasion to proceed against the security under any series of notes, such action would not affect the security, or the use of any security, under any other series. Thus, the existence of the other trusteeships should not inhibit or discourage TSA's actions under any one series.

The Applicant has waived notice of hearing, hearing on the issues raised by its Application and all rights to specify procedures under Rule 8(b) of the Rules of Practice of the Securities and Exchange Commission in connection with this matter. For a more detailed statement of the matters of fact and law asserted, all persons are referred to said Application, File No. 22-14067, which is a public document on file in the office of the Commission's Public Reference Section, 450 Fifth Street, NW., Washington, DC 20549.

Notice is further given that any interested person may, not later than January 10, 1986, request in writing that a hearing be held on such matter, stating the nature of his interest, the reasons for such request, and the issues of fact or law raised by said Application which he desires to controvert, or he may request that he be notified if the Commission should order a hearing thereon.

Any such request should be addressed: Secretary, Securities and Exchange Commission, Washington, DC 20549. At any time after said date, the Commission may issue an order granting the Application upon such terms and conditions as the Commission may deem necessary or appropriate in the public interest and the interest of investors, unless a hearing is ordered by the Commission.

For the Commission, by the Division of Corporation Finance, pursuant to delegated authority.

**John Wheeler,**

*Secretary.*

[FR Doc. 85-30120 Filed 12-19-85, 8:45 am]

BILLING CODE 8010-01-M

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**[Release No. 34-22714; File No. SR-Amex-85-34]**

## Self-Regulatory Organizations; Order Approving Proposed Rule Change by the American Stock Exchange, Inc., Relating to Amendments to Amex Company Guide—Sections 103 and 104

The American Stock Exchange, Inc. ("Amex") submitted on September 16, 1985, copies of a proposed rule change pursuant to section 19(b)(1) of the Securities Exchange Act of 1934 ("Act") and Rule 19b-4 thereunder, to amend sections 103 and 104 of the Amex *Company guide* which, in part, govern the features of (1) convertible preferred issues, and (2) convertible bonds and debentures, respectively, that may be listed on the Exchange. Under Rule 104, the Amex proposes to permit listing of convertible bonds and debentures if the underlying issue into which the bond or debenture is convertible is subject to last sale reporting.[1]

In addition, the Amex proposes under both sections 103 and 104 to permit listing of (1) convertible preferred and (2) convertible bonds and debentures, respectively, which grant the issuer discretion temporarily to reduce the conversion price of the preferred stock or debt. Sections 103 and 104 currently prohibit listing of convertible preferred or debt issues with such provisions—known as "flush out" provisions—attached. Under the proposal, the price reduction will be permissible only if the company establishes a minimum period of ten business days within which such reduction will be in effect.[2]

Notice of the proposed rule change together with the terms of substance of the proposed rule change was given by the issuance of a Commission release (Securities Exchange Act Release No. 22429, September 19, 1985) and by publication in the **Federal Register** (50 FR 39200, September 27, 1985). No comments were received with respect to the proposed rule change.

The Commission finds that the proposed rule change is consistent with the requirements of the Act and the rules and regulations thereunder applicable to a national securities exchange and, in particular, the

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[1] Currently, the Amex will list convertible preferred and debt only if the underlying issue is listed on Amex or the New York Stock Exchange.

[2] On December 11, 1985, the Amex filed Amendment No. 1 to the proposed rule change to provide that the Amex would not list convertible preferred or debt issues giving the company the right to "reduce" the conversion price, unless a minimum conversion period of ten business days was established. The Amex's original proposal would have prohibited listing if the company would "adjust" the conversion price unless a ten business day window period was provided for.

Amex has stated that the amendment makes clear that listed companies will be able to use "flush out" provisions for convertible securities only to effect a reduction in the conversion price. *See* letter from Michael S. Emen, Vice President and Counsel, Amex, to Michael Cavalier, Branch Chief, Division of Market Regulation, dated December 10, 1985. Thus, the proposal does not encompass listing convertible issues when the issuer could increase the conversion price.

The Amex has indicated that its disclosure policies in Sections 401-405 of the Amex *Company Guide* apply fully to any reduction by an issuer of the conversion price of convertible preferered, bonds or debentures. Telephone conversation between Donald Nisonoff, Attorney, SEC, and Benjamin Krause, Senior Vice President, Amex, on December 13, 1985.

requirements of section 6 and the rules and regulations thereunder.

It is therefore ordered, pursuant to section 19(b)(2) of the Act, that the above-mentioned proposed rule change be, and hereby is, approved.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.

Dated: December 13, 1985.

**John Wheeler,**

*Secretary*

[FR Doc. 85-30118 Filed 12-19-85; 8:45 am]

BILLING CODE 8010-01-M

## SMALL BUSINESS ADMINISTRATION

**[Declaration of Disaster Loan Area #2222; Amdt. #1]**

### Florida; Declaration of Disaster Loan Area

The above-numbered Declaration (50 FR 50697), which was issued in accordance with the President's declaration of December 3, 1985, is hereby amended in accordance with the amendment dated December 11, 1985, to include Calhoun, Jefferson and Liberty Counties because of damage from Hurricane Kate and flooding beginning on or about November 20, 1985. All other information remains the same; i.e., the termination date for filing applications for physical damage is the close of business on February 3, 1986, and for economic injury until the close of business on September 3, 1986.

(Catalog of Federal Domestic Assistance Programs Nos. 59002 and 59008)

Dated: December 13, 1985.

**Bernard Kulik,**

*Deputy Associate Administrator for Disaster Assistance.*

[FR Doc. 85-30108 Filed 12-19-85; 8:45 am]

BILLING CODE 8025-01-M

**[Declaration of Disaster Loan Area #2221]**

### Maryland; Declaration of Disaster Loan Area

The Counties of Anne Arundel, St. Mary's, Garrett, Washington and the adjacent Counties of Calvert, Frederick and Allegany in the State of Maryland constitute a disaster area because of damage caused by a severe storm, flooding, high winds and tidal surge which occurred on November 4, 1985. Applications for loans for physical damage may be filed until the close of business on February 10, 1986, and for economic injury until the close of business on September 11, 1986, at the address listed below: Disaster Area 2 Office, Small Business Administration, Richard B. Russell Federal Bldg., 75 Spring St., SW., Suite 822, Atlanta, Georgia 30303, or other locally announced locations.

The interest rates are:

| | Percent |
|---|---|
| Homeowners with credit available elsewhere | 8.000 |
| Homeowners without credit available elsewhere | 4.000 |
| Businesses with credit available elsewhere | 8.000 |
| Businesses without credit available elsewhere | 4.000 |
| Businesses (EIDL) without credit available elsewhere | 4.000 |
| Other (non-profit organizations including charitable and religious organizations) | 10.500 |

The number assigned to this disaster is 222106 for physical damage and for economic injury the number is 635700.

(Catalog of Federal Domestic Assistance Program Nos. 59002 and 59008)

Dated: December 11, 1985.

**James C. Sanders,**

*Administrator.*

[FR Doc. 85-30109 Filed 12-19-85; 8:45 am]

BILLING CODE 8025-01-M

**[Declaration of Disaster Loan Area #2218; Amdt. #2]**

### Virginia; Declaration of Disaster Area

The above-numbered Declaration (50 FR 48145) as amended (50 FR 50028) is hereby further amended in accordance with the Notice of Amendment to the President's declaration, dated November 16, 1985, to include Chesterfield, King George, Surry, York and Mathews Counties, and the independent City of Poquoson because of damage from severe storms, landslides and flooding beginning on or about November 3, 1985. All other information remains the same; i.e., the termination date for filing applications for physical damage is the close of business of January 10, 1986, and for economic injury until the close of business on August 11, 1986.

(Catalog of Federal Domestic Assistance Programs Nos. 59002 and 59008)

Dated: November 20, 1985.

**Bernard Kulik,**

*Deputy Associate Administrator for Disaster Assistance.*

[FR Doc. 85-30110 Filed 12-19-85; 8:45 am]

BILLING CODE 8025-01-M

**[Declaration of Disaster Loan Area #2224]**

### West Virginia; Declaration of Disaster Loan Area

The County of Marshall and the adjacent County of Ohio in the State of West Virginia constitute a disaster area because of damage caused by flooding which occurred on November 26-27, 1985. Applications for loans for physical damage may be filed until the close of business on February 10, 1986, and for economic injury until the close of business on September 10, 1986, at the address listed below: Disaster Area 2 Office, Small Business Administration, Richard B. Russell Federal Bldg., 75 Spring St., S.W., Suite 822, Atlanta, Georgia 30303, or other locally announced locations.

The interest rates are:

| | Percent |
|---|---|
| Homeowners with credit available elsewhere | 8.000 |
| Homeowners without credit available elsewhere | 4.000 |
| Businesses with credit available elsewhere | 8.000 |
| Businesses without credit available elsewhere | 4.000 |
| Businesses (EIDL) without credit available elsewhere | 4.000 |
| Other (non-profit organizations including charitable and religious organizations) | 10.500 |

The number assigned to this disaster is 222406 for physical damage and for economic injury the number is 635600.

(Catalog of Federal Domestic Assistance Program Nos. 59002 and 59008)

Dated: December 10, 1985.

**James C. Sanders,**

*Administrator.*

[FR Doc. 85-30111 Filed 12-19-85; 8:45 am]

BILLING CODE 8025-01-M

## DEPARTMENT OF TRANSPORTATION

### Office of the Secretary

**[Dockets 43656 (Maryland); 43657 (Arizona); 43658 (Vermont)]**

### 55 Mile Per Hour Hearings

**AGENCY:** Department of Transportation, (DOT).

**ACTION:** Notice of Hearings/Instituting Order.

**SUMMARY:** The Secretary of Transportation (Secretary) delegates to the Chief Administrative Law Judge authority to hold three oral evidentiary hearings to inquire into whether the States of Arizona, Maryland, and Vermont have failed to comply with 23 U.S.C. 154 and 23 CFR Part 659 for fiscal year 1984.

**FOR FURTHER INFORMATION CONTACT:** Questions or requests from the general public about these proceedings should be directed to Sam Whitehorn, Office of the Assistant General Counsel for Regulation and Enforcement, 400 7th St., SW., Washington, DC, 20590 (202) 472-5577.

**Background**

In 1974, Congress directed the Department of Transportation

(Department or DOT) to ensure that States enforce a national maximum 55 mile per hour (MPH) speed limit. Under 23 U.S.C 141, each State must certify to the Department that it is enforcing the speed limits on its public highways. Under 23 U.S.C. 154, each State must submit data to the Department supporting that certification. This data must include the percentage of motor vehicles exceeding the 55 MPH speed limit. Section 154 also provides that the Department shall withhold up to 10 percent of a State's Federal-aid non-interstate highway funds following a fiscal year in which more than 50 percent of the motor vehicles traveling on that State's highways which are posted at 55 MPH exceed that limit. Section 154 also grants the Secretary discretion to delay imposition of sanctions in hardship cases. It further states that funds withheld shall be apportioned if the State complies with the law for the fiscal year for which the funds were withheld. There is no statutory requirement that a hearing be conducted prior to imposition of any sanction.

Federal Highway Administration (FHWA) implementing regulations, 23 CFR Part 659, provide procedures concerning how each State must certify its compliance. (FHWA is an operating administration within DOT). Generally, each State develops a plan to monitor speeds. the plan is subject to FHWA review and approval. By January 1 of each year, each State must certify its compliance for the preceding fiscal year and submit information to support that certification.

A State that can not make a compliance certification is accorded a number of opportunities to argue its case to the Department. First, informal hearings may be held. If that proceeding results in a preliminary non-compliance determination, a State may request a formal hearing. If that proceeding results in a final non-compliance determination, a State may request yet another set of informal meetings to discuss sanctions and hardship factors.

In December 1984, Vermont, Maryland, and Arizona submitted data on speed limit observance on their respective highways for the period from October 1, 1983 to September 30, 1984. On February 8, 1985, the Governor of each State was notified that based on the State-submitted data, each State appeared not to be in compliance with the law. Each State was accorded an opportunity to show why a penalty should not be imposed.

The National Highway Traffic Safety Administration (NHTSA; also an operating administration within DOT) and the FHWA held informal hearings for the States (Arizona-March 13, 1985; Vermont-March 26, 1985; and Maryland-May 22, 1985) to discuss each State's 55 MPH compliance program. Transcripts of those hearings were taken and each, along with any documents submitted for those hearings, will be placed in the appropriate dockets established by this order.

In June 1985, each State was notified by the FHWA and NHTSA Administrators that its program was not in compliance (the preliminary decision) with the 55 MPH law. Copies of the letters of notification will be placed in the appropriate docket. Each State was accorded on opportunity to request a formal hearing, as provided under 23 CFR 659.21(d). Each State has done so.

Under 23 CFR 659.21(d), if a State requests a hearing, the Secretary must convene one to determine whether a State is in compliace with the law. If, after the hearing, the Secretary finds a State not to be in compliance, the Administrators of NHTSA and FHWA must notify the Governor of the finding and any proposed reduction in apportioned funds. The Governor of the State is also informed that he or she may request, within 20 days from the date of the letter, a delay in imposition of the penalty based upon hardship. 23 CFR 659.21(d) and 659.19(c).

Under the regulation, the State then may request another informal meeting to discuss the questions of sanctions and any hardship factors.

To date the Department has not conducted a formal hearing under 23 CFR 659.21(d) to determine if a State has complied with the 55 MPH requirements. The regulation provides States an opportunity to request a hearing on the record according to the provisions of the Administrative Procedure Act, 5 U.S.C. 551 *et seq.* (APA).

Therefore, to investigate whether each State has complied with the 55 MPH law, I direct that the Chief Administrative Law Judge of the Office of Hearings hold a separate hearing for each of the three States mentioned above. By this order, I establish three separate dockets for these cases: 43657 Arizona, 43656 Maryland, and 43658 Vermont. The Chief Administrative Law Judge of the Office of Hearings will be responsible for assigning the cases to other Administrative Law Judge (ALJs) as necessary.

The ALJ shall take testimony, accept evidence and generally develop a record to determine each State's compliance with the 55 MPH law and regulations for the period from October 1, 1983, to September 30, 1984. However, the legitimacy of the underlying regulation, governing how the determinations on compliance are made, is not at issue. At the conclusion of the hearing, the ALJ shall issue a Recommended Decision on the question of compliance. In addition, the ALJ shall certify the record to the Secretary.

The ALJ's ability to rule on questions of relevance and materiality is not limited by the above directives.

**Procedural Schedule**

The Department intends to expedite these cases because of their effect on the Federal-aid highway funds apportionment for fiscal year 1986. The procedural schedule set out below provides an appropriate amount of time for the various procedural steps, minimizes any disruption to State projects, and provides the Department sufficient time to review each case on its merits. The schedule is as follows:

*Prehearing Conference:* December 30, 1985. If the ALJ determines that this date must be changed, a notice of the new date will be published in the **Federal Register.**

*Submission of Recommended Decision to the Secretary:* on or before February 18, 1986.

*Submission of Briefs on compliance to the Secretary:* 10 days after the ALJ issues a Recommended Decision (to be filed with the Dockets Section).

*Submission of Briefs on other issues to the Secretary:* 10 days after the ALJ issues a Recommended Decision (to be filed with the Dockets Section).

The ALJ shall establish the procedural schedule. The Recommended Decision shall only address the issue of each State's compliance. If the ALJ determines that briefs to the ALJ are necessary, they are limited to this issue only.

To expedite the entire process set out in 23 CFR Part 659, each State, in a brief on other issues to the Secretary, should address what mitigating factors existed during the relevant reporting period that may or could have affected the State's ability to certify compliance with the law: what factors exist, or existed during the relevant reporting period, that suggest that a hardship deferral is warranted; and what factors might be considered in setting a percentage of Federal-aid highway funds to be withheld. (The preamble to 23 CFR Part 659, 45 FR 64488, September 29, 1980 lists a number of factors that the Department will consider including legislative actions, budgetary considerations, judicial actions, and proposals for additional actions that will be undertaken to bring the State into compliance). Any material that each

State desires to be considered should be submitted with the brief to the Secretary. No oral argument before the Secretary will be provided.

Appendix A lists the information each State must provide to the other parties at the prehearing conference. Other discovery requests should be addressed at the prehearing conference.

The ALJ has authority to limit the scope of discovery, and to ensure that discovery does not delay the proceeding. The Department does not believe that a significant amount of discovery will be necessary because the issues are limited, and informal meetings have already taken place. The ALJ should consider this in ruling on discovery matters.

**Procedures**

The rules of practice governing the proceeding shall be those set forth in Appendix B. They are based on 49 CFR Part 511. While Part 511 states that the procedures are applicable only for proceedings conducted pursuant to section 508(a)(2) of the Motor Vehicle Information and Cost Savings Act, they provide a general outline for the conduct of administrative proceedings. Therefore, certain modifications have been made for purposes of the proceedings instituted by this order.

By this order, the General Counsel is delegated the authority of the Secretary to rule on all matters raised in any interlocutory appeal appeals under 511.24 of the procedures in appendix B. Requests by non-parties to participate must be filed, and served on all parties, not less than one day prior to the pre-hearing conference.

**Burdens**

NHTSA/FHWA shall bear the burden of proving that a State is not in compliance with the 55 MPH speed limit requirements. The State then has the burden of refuting that proof.

**Parties/Separation of Functions**

Because this is a matter between the Department and the States, parties to the proceedings include each respective State and staff from FHWA and NHTSA. NHTSA and FHWA will act as one party. Any other interested person may file a notice of intention to participate in the proceeding, as provided for in 511.17 of the procedures in Appendix B.

FHWA and NHTSA staff litigating these cases shall not advise the Secretary on the issue of compliance. If the Administrators advise the staff on the issue of compliance, the Administrator shall not advise the Secretary on this issue.

**Stipulations/Settlement Offers**

The parties may stipulate on non-compliance and procedural matters. The parties may not stipulate that a State is in compliance, since a preliminary noncompliance decision has already been made.

It is possible that the parties may reach a settlement or compromise outside of the hearing process on a number of matters that are not a part of the hearing. If so, the proposed agreement must be reduced to writing by the parties and submitted to the Secretary, as provided for in 511.26 of the procedures in Appendix B.

If a State wishes to withdraw its request for a formal hearing, and resolve the matter informally and thereby waive its right to such a proceeding, the Governor can file motion or submit a letter (which will be treated like a motion) to the Secretary to that effect. The letter must be served on all parties and the presiding ALJ. Until the Secretary grants or denies the request or motion, the proceeding will be suspended. If the motion is granted, the proceeding will be terminated. If the request or motion is denied, additional time will be provided.

**Post-hearing procedures**

When the Secretary makes a final compliance decision, after receipt of all the evidence and briefs, the Administrators will notify each State of the decision and if the decision is of non-compliance, the proposed percentage of funds to be withheld.

Under 23 CFR Part 659, a State that receives a final non-compliance decision by the Secretary has 20 days to request a meeting with the Administrators of FHWA and NHTSA to discuss the question of sanctions. Meetings will be held as soon as possible after receipt of the request.

**Dockets**

A separate docket shall be established for each State. The docket shall be maintained in the Docket Section, Documentary Services Division, 400 7th St., SW., Room 4107, Washington, DC 20590, and any and all documents or pleadings must be filed between the hours of 9:00 a.m. and 5:00 p.m. All correspondence, the transcripts of each of the informal meetings and any material submitted in conjunction with those meetings, and the data concerning the 55 MPH certification shall be placed in the docket. Any party to the proceeding may request that any of the material referred to above be placed in the hearing record.

Since this matter has now been set down for a hearing before an ALJ, all subsequent material filed shall be addressed to the ALJ. A preliminary service list is attached (Appendix C). This order will be published in the **Federal Register.**

Issued in Washington, DC, on December 9, 1985.

**Elizabeth Hanford Dole,**

*Secretary of Transportation.*

**Appendix A—Information Request**

This request for information and document production is being submitted pursuant to the United States Department of Transportation's Instituting Order of December 9, 1985. Each State is instructed to answer the following questions and submit documentation, as required. Each State's response must be received by the parties and the Chief Administrative Law Judge no later than the pre-hearing conference.

1. In December 1984, the State submitted its annual certification of speed limits for the period October 1, 1983 to September 30, 1984 (hereinafter referred to as the certification). Please verify the accuracy of that certification.

2. Does the figure indentified in the certification as representing the percentage of monitored motorists exceeding 55 mph, as weighted and adjusted in accordance with the applicable regulations and guidelines, exceed 50 percent?

3. Submit data supporting or pertaining to the certification. Summary data is sufficient, provided that such data verifies the figures set forth in the certification.

4. If the supporting data identified in item 3 does not verify the information set forth in the certification, all known detailed supporting data must be submitted. Discrepancies must be specifically identified and explained.

5. Identify all witnesses which the State may present at the hearing.

6. Submit the following information for each of the witnesses identified in item 5: Name, employer, position, education and expertise.

7. Submit a summary of the testimony to be presented by each of the individuals identified in item 5.

8. Submit a copy of expert reports, if any, which the State plans to present or introduce at the hearing, or which pertains to the State's anticipated presentation at the hearing.

9. Submit all other documents which the State plans to present or introduce at the hearings which are not specified in the answers to the previous items.

10. Authenticate the documents provided in response to items 1 through 9.

### Appendix B—Procedures For the 55 MPH Proceedings

Note.—The procedures published in Appendix B apply only to these proceedings. While based upon the text of 49 CFR Part 511, these procedures do not amend or republish Part 511 nor are they intended to have general applicability.

## ADJUDICATIVE PROCEDURES

### Subpart A—Scope of Rules; Nature of Adjudicative Proceedings, Definitions

Sec.
511.1 Scope of the rules.
511.2 Nature of adjudicative proceedings.
511.3 Definitions.

### Subpart B—Pleadings; Form; Execution; Service of Documents

511.11 Commencement of proceedings.
511.12 [Reserved]
511.13 Amendments and supplemental pleadings.
511.14 Form and filing of documents.
511.15 Time.
511.16 Service.
511.17 Public participation.
511.18 [Reserved]

### Subpart C—Prehearing Procedures; Motions; Interlocutory Appeals; Summary Judgment; Settlement

511.21 Prehearing conferences.
511.22 [Reserved]
511.23 Motions.
511.24 Interlocutory appeals.
511.25 [Reserved]
511.26 Settlement.

### Subpart D—Discovery; Compulsory Process

511.31 General provisions governing discovery.
511.32 Written interrogatories to parties.
511.33 Production of documents and things.
511.34 Requests for admission.
511.35 [Reserved]
511.36 Motions to compel discovery.
511.37 Sanctions for failure to comply with order.
511.38 Subpenas.
511.39 Orders requiring witnesses to testify or provide other information and granting immunity.

### Subpart E—Hearings

511.41 General rules.
511.42 Powers and duties of Presiding Officer.
511.43 Evidence.
511.44 Expert witnesses.
511.45 In camera materials.
511.46 Proposed findings, conclusions, and order.
511.47 Record.
511.48 Official docket.
511.49 Fees.

### Subpart F Recommended Decision

511.51 Recommended decision.
511.52 [Reserved]
511.53 [Reserved]
511.54 [Reserved]
511.55 [Reserved]
511.56 [Reserved]
511.57 [Reserved]

### Subpart G—[Reserved]

### Subpart H—Appearances; Standards of Conduct

511.71 Who may make appearances.
511.72 Authority for representation.
511.73 Written appearances.
511.74 Attorneys.
511.75 Persons not attorneys.
511.76 Qualifications and standards of conduct.
511.77 Restrictions as to former members and employees.
511.78 Prohibited communications.

**Authority:** 23 U.S.C. 141, 154, and 315; 49 CFR 1.48(b) and 1.50

## Subpart A—Scope of Rules; Nature of Adjudicative Proceedings, Definitions

### § 511.1 Scope of the rules.

This part establishes rules of practice and procedure for adjudicative proceedings conducted pursuant to section 154 of title 23 U.S.C. and referred to in 23 CFR Part 659.

### § 511.2 Nature of adjudicative proceedings.

Adjudicative proceedings shall be conducted in accordance with title 5, U.S.C., sections 551 through 559 and this part. It is the policy of the agency that adjudicative proceedings shall be conducted expeditiously and with due regard to the rights and interests of all persons affected, and to the public interest. Therefore, the presiding officer and all parties shall make every effort at each stage of a proceeding to avoid unnecessary delay.

### § 511.3 Definitions.

(a) As used in this part:

(1) The term "application" means an *ex parte* request by a party for an order that may be granted or denied without opportunity for response by any other part.

(2) The term "NHTSA" means the National Highway Traffic Safety Administration. The term "FHWA" means the Federal Highway Administration.

(3) The term "NHTSA Administrator" means the Administrator of the National Highway Traffic Safety Administration. The term "FHWA Administrator" means the Administrator of the FHWA.

(4) The term "Secretary" means the Secretary of Transportation.

(5) Ther term "motion" means a request by a party for a ruling or order that may be granted or denied only after opportunity for response by each affeced party.

(6) The term "party" means the NHTSA, [FHWA] and any person named as a party in a proceeding governed by this part.

(7) Ther term "person" means any individual, partnerhsip, corporation, association, public or private organization, or Federal, State or municipal governmental entity.

(8) The term "petition" means a written request, made by a person or a party and addressed to the Presiding Officer of the Administrator, that the addresses take some action.

(9) The term "Presiding Officer" means the person who conducts an adjudicative hearing under this part, who shall be an administrative law judge qualified under title 5, U.S.C., section 3105 and assigned by the Chief, Administrative Law Judge.

(10) [Reserved]

(11) The term "Documentary Services Division" means the Documentary Service Division, which includes the Docket Section, of the Office of the Secretary.

(12) The term "staff" means the staff of the National Highway Traffic Safety Administration., and the Federal Highway Administration.

## Subpart B—Pleadings; Form; Executive; Service of Documents

### § 511.11 Commencement of proceedings.

(a) *Notice of institution of a proceeding.* An adjudicative proceeding under this part is commenced by the issuance of an instituting order.

### § 511.13 Amendments and supplemental pleadings.

Whenever determination of a controversy on the merits will be facilitated threby, the Presiding Officer upon motion, may allow appropriate amendments and supplemental pleadings which do not unduly broaden the issues in the proceeding or cause undue delay.

### § 511.14 Form and filing of documents.

(a) *Filing.* Except as othewise provided, all documents submitted to the Secretary, Administrators or Presiding Officer shall be addressed to and filed with the Documentary Services Division Documents may be filed in person or by mail and shall be deemed filed on the day of filing or mailing.

(b) *Caption.* Every document shall contain a caption setting forth the name of the action in connection with which it is filed, the docket number, and the title of the document.

(c) *Copies.* An original and nine (9) copies of all documents shall be filed. Documents may be reproduced by

printing or any other process, provided that any other process, providing that all copies filed are clear and legible.

(d) *Signature.* (1) The original of each document filed shall be signed by a representative of record for the party or in the case of parties not represented, by the party; or by a partner, officer, or regular employee of any corporation, partnership, or association, who files an appearance on behalf of the party.

(2) The act of signing a document constitutes a representation by the signer that the singer has read it; that to the best of the signer's knowledge, information and belief, the statements made in it are true; and that it is not filed for purposes of delay.

**§ 511.15 Time.**

(a) *Computation.* In computing any period of time prescribed or allowed by the rules in this part, the day of the act, event, or default from which the designated period of time begins to run shall not be included. The last day of the period so computed shall be included, unless it is a Saturday, a Sunday, or a legal holiday, in which event the peiod runs until the end of the next day which is not a Saturday, a Sunday, or a legal holiday. When the period of time prescribed or allowed is less than 7 days, intermediate Saturdays, Sundays, and legal holidays shall be excluded in the computation. As used in this part, "legal holiday" includes New Year's DAy, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, Christmas Day, and any other day appointed as a holiday by the President or the Congress of the United States.

(b) [Reserved]

(c) *Extensions.* For good cause shown, the Presiding Officer may extend any time limit prescribed or allowed under this part or by order of the Secretary or the Presiding Office, except thsoe governing the filing of interlocutory appeals and appeals from Initial Decisions and those expressly requiring the Secretary's action. Except as otherwise provided by law, the Secretary, for good cause shown, may extend any time limit prescribed under this part, or by order of the or the Secretary of the Presiding Officer. A party or participant may petition the Presiding Officer or the Secretary as appropriate, for an extension under this paragraph. Such a petition shall be filed prior to the concurrence of the time limit whcih is the subject of the ptition.

**§ 511.16 Service.**

(a) *Mandatory service.* Every document filed with the Documentary Services Division shall be served upon all parties and participants to a proceeding, and participants, and upon the Presiding Officer.

(b) *Service of complaint, ruling order, decision, or subpena.* Service of a ruling, order, decision, or subpena may be effected as follows:

(1) *By registered or certified mail.* A copy of the document shall be addressed to the person, partnership, corporation or unincorporated association to be srved at his or its residence or principal office or place of business; registered or certified; and mailed; or

(2) *By delivery to an individual.* A copy of the document may be delivered to the person to be served; or to a member of the partnership to be served; or to the president, secretary, or other executive officer, or a director of the corporation or unincorporated association to be served; or to an agent authorized by appointment or by law to receive service; or

(3) *By delivery to an address.* A copy of the document may be left at the principal office or place of business of the person, partnership, corporation, unincorporated association, or authorized agent with an officer, a managing or general agent; or it may be left with a person of suitable age and discretion residing therein, at the residence of the person or of a member of the partnership or of an executive officer, director, or agent of the corporation or unincorporated association to be served.

(c) *Service of documents with prescribed response periods.* When service of a document starts the running of a prescribed period of time for the submission of a responsive document or the occurrence of an event, the document shall be served as provided in paragraph (b) of this section.

(d) *Service of other documents.* All documents other than those specified in paragraph (c) of this section may be served as provided in paragraph (b) of this section, or by ordinary first-class mail, properly addressed, postage prepaid.

(e) *Service on a representative.* When a party has appeared by an attorney or other representative, service upon that attorney or other representative shall constitute service on the party.

(f) *Certificate of service.* The original of every document filed with the agency and required to be served upon all parties to a proceeding shall be accompanied by a certificate of service signed by the party making service, stating that such service has been made upon each party to the proceeding. Certificates of service may be in substantially the following form:

I hereby certify that I have this day served the foregoing document upon all parties of record in this proceeding by mailing, postage prepaid (or by delivering in person) a copy to each such party.

Dated at ——— this —— day of ———, 19——.

(Signature) ———

For ———

(g) *Date of Service.* The date of service of a document shall be the date on which the document is deposited in the United States mail or is delivered in person.

**§ 511.17 Public participation.**

*Participant Status.* Any person interested in a proceeding commenced pursuant to the instituting order issued by the Secretary who desires to participate in the proceeding, shall file with the Documentary Services Division a notice of intention to participate in the proceeding and shall serve a copy of such notice on each party to the proceeding and the presiding officer. A notice of intention to participate shall be filed not later than 1 day prior to the commencement of the prehearing conference. Untimely filings will not be accepted absent a determination by the Presiding Officer that the person making the request has made a substantial showing of good cause for failure to file on time. Any person who files a notice to participate in the proceeding as a nonparty shall be known as a participant" and shall have the rights specified in § 511.41(d).

**§ 511.18 [Reserved]**

## Subpart C—Prehearing Procedures; Motions; Interlocutory Appeals; Summary Judgment; Settlement

**§ 511.21 Prehearing conferences.**

(a) *When held.* (1) A prehearing conference shall be held in person or by conference telephone call, except in unusual circumstances, approximately ten (10) business days after publication in the Federal Register of the instituting order to consider any or all the following:

(ii) Identification, simplification and clarification of the issues;

(iv) Stipulations and admissions of fact and of the content and authenticity of documents;

(v) Oppositions to notices of oral examination;

(vi) Motions for protective orders to limit or modify discovery;

(vii) Issuance of subpenas to compel the appearance of witnesses and the production of documents;

(viii) Limitation of the number of witnesses, particularly the avoidance of duplicate expert witnesses;

(ix) Matters of which official notice will be taken and matters which may be resolved by reliance upon findings of other Federal agencies; and

(x) Other matters which may expedite the conduct of the hearing.

**§ 511.22 [Reserved]**

**§ 511.23 Motions.**

(a) *Presentations and dispositions.* During the time a proceeding is before a Presiding Officer, all motions, whether oral or written, except those filed under § 511.42(e), shall be addressed to the Presiding Officer, who shall rule upon them promptly after affording an opportunity for response.

(b) *Written motions.* All written motions shall state the particular order, ruling, or action desired and the grounds therefor. If a motion is supported by memoranda, affidavits or other documents, they shall be served and filed with the motion. All motions shall contain a proposed order setting forth the relief sought. All written motions shall be filed with the Documentary Services Division and served on all parties, and all motions addressed to the Secretary shall be in writing.

(c) *Responses.* Within five (5) days after service of any written motion or petition or within such longer or shorter time as may be designated by these Rules or by the Presiding Officer or the Administrator, the opposing party or parties shall file a written response to such motion. Where a motion would affect only a single party, or an identifiable group of parties, the Presiding Officer or Secretary may limit the response to the motion to the affected party or parties. Failure to respond to a written motion may, in the discretion of the Presiding Officer be deemed as consent to the granting of the relief sought in the motion. The moving party shall have no right to reply, except as permitted by the Presiding Officer or the Secretary.

**§ 511.24 Interlocutory appeals.**

(a) *General.* Rulings of the Presiding Officer may not be appealed to the Secretary, except as provided herein.

(b) *Exceptions*—(1) *Interlocutory appeals to Secretary.* The Secretary may, in his or her discretion, entertain interlocutory appeals where a ruling of the Presiding Officer:

(i) Requires the production or disclosure of records claimed to be confidential;

(ii) Requires the testimony of a supervisory official of the agency other than one especially cognizant of the facts of the matter in adjudication;

(iii) Excludes an attorney from participation in a proceeding pursuant to § 511.42(b).

(2) *Procedures for interlocutory appeals.* With three (3) days of issuance of a ruling, and party may petition the Secretary to entertain an interlocutory appeal on a ruling in the categories enumerated above. The petition shall not exceed fifteen (15) pages. Any other party may file a response to the petition within three (3) days of its service. The response shall not exceed fifteen (15) pages. The Secretary shall thereupon act upon the petition, or the Secretary shall request such further briefing or oral presentation as he may deem necessary.

(3) *Interlocutory appeals from all other rulings*—(i) *Grounds.* Interlocutory appeals from all other rulings by the Presiding Officer may proceed only upon motion to the Presiding Officer and a determination by the Presiding Officer in writing, with justification in support thereof, that the ruling involves a controlling question of law or policy as to which there is substantial ground for differences of opinion and that an immediate appeal from the ruling may materially advance the ultimate termination of the litigation, or that subsequent review will be an inadequate remedy.

(ii) *Form.* If the Presiding Officer determines, in accordance with paragraph (b)(3)(i) of this section that an interlocutory appeal may proceed a petition for interlocutory appeal may be filed with and acted upon by the Secretary in accordance with paragraph (b)(2) of this section.

(c) *Proceedings not stayed.* A petition for interlocutory appeal under this part shall not stay the proceedings before the Presiding Officer unless the Presiding Officer shall so order, except that a ruling of the Presiding Officer requiring the production of records claimed to be confidential shall be automatically stayed for a period of five (5) days following the issuance of such ruling to allow an affected party the opportunity to file a petition for an interlocutory appeal pursuant to § 511.24(b)(2). The filing of such a petition shall automatically extend the stay of such a ruling pending the Secretary's action on such petition.

(d) The General Counsel of the Department of Transportation is delegated authority to consider and rule on any interlocutory appeals questions directed to the Secretary of Transportation.

**§ 511.25 [Reserved]**

**§ 511.26 Settlement.**

(a) [Reserved]

(b) *Availability.* Any party shall have the opportunity to submit an offer of settlement to the Secretary. The offer will not be made a part of the record of the proceeding, unless the offer is accepted by the Secretary.

(c) *Form.* Offers of settlement shall be in the form of a consent agreement and order, shall be signed by the party submitting the offer or his representative, and may be signed by any other party. Each offer of settlement shall be accompanied by a motion to transmit to the Secretary the proposed agreement and order, outlining the substantive provisions of the agreement, and the reasons why it should be accepted.

(d) *Contents.* The proposed consent agreement and order which constitute the offer of settlement shall contain the following:

(1) An admission of all jurisdictional facts;

(2) An express waiver of further procedural steps, and of all rights to seek judicial review or otherwise to contest the validity of the order;

(3) a description of the alleged non-compliance, or violation;

(4) Povisions to the effect that the allegation of non-compliance are resolved by the proposed consent agreement and order;

(5) listing of the acts of practices, if applicable from which the respondent shall refrain;

(6) A detailed statement of the corrective action(s) which the respondent shall execute and the amount of Federal-aid highway funds if any, that State shall have withheld.

(e) *Transmittal.* The Presiding Officer shall transmit to the Administrator for decision all offers of settlement and accompanying memoranda that meet the requirements enumerated in paragraph (d) of this section. Any party may object to a proposed consent agreement by filing a motion and supporting memorandum with the Secretary.

(f) *Stay of proceedings.* When an offer of settlement has been agreed to by the parties and has been transmitted to the Secretary, the proceedings shall be stayed until the Secretary has ruled on the offer. When an offer of settlement has been made and transmitted to the Secretary but has not been agreed to by all parties, the proceedings shall not be stayed pending the Secretary's decision on the offer.

(g) Secretary ruling. The Secretary will rule upon all transmitted offers of settlement. If the Secretary accepts the offer, the Secretary shall issue an appropriate order. The order shall become effective upon issuance. In

determining whether to accept an offer of settlement, the Secretary will consider the gravity of the alleged violation, and any good faith efforts by the respondent to comply with applicable requirements.

(h) *Rejection.* If the Secretary rejects an offer of settlement, the Secretary shall give written notice of that decision to the parties and the Presiding Officer. Promptly thereafter, the Presiding Officer shall issue an order notifying the parties of the resumption of the proceedings, including any modifications to the schedule resulting from the stay of the proceedings.

(i) *Effects of rejected offer.* Rejected offers of settlement shall not be admissible in evidence over the objection of any signatory, nor shall the fact of the proposal of the offer be admissible in evidence.

## Subpart D—Discovery; Compulsory Process

### § 511.31 General provisions governing discovery.

(a) *Applicability.* The discovery rules established in this subpart are applicable to the discovery of information among the parties to a proceeding. Parties seeking information from persons not parties may do so by subpena in accordance with § 511.38.

(b) *Discovery methods.* Parties may obtain discovery by one or more of the following methods: (1) Written interrogatories; (2) requests for production of documents or things; (3) or requests for admissions. Unless the Presiding Officer otherwise orders under paragraph (d) of this section and consistent with the instituting order the frequency of use of these methods is not limited.

(c) *Scope of discovery.* The scope of discovery is as follows:

(1) *In general.* Parties may obtain discovery regarding any matter not privileged, which is relevant to the subject matter involved in the proceedings, whether it relates to the claim or defense of the party, seeking discovery or to claim or defense of any other party. It is not ground for objection that the information sought will be inadmissible at the hearing if the information sought appears reasonably calculated to lead to the discovery of admissible evidence.

(2) *Exception.* Parties may not obtain discovery of documents which accompanied the staff's recommendation as to whether an instituting order, procedures governing these cases, or proposed sanctions should be imposed or of documents or portions thereof which would be exempt from discovery under Rule 26(b)(3) of the Federal Rules of Civil Procedure.

(3) *Hearing preparation: Experts.* A party may obtain discovery of facts known and opinions held by experts, that will be witnesses at the hearing regardless of whether they are acquired or developed in anticipation of or for litigation. Such discovery may be had by any of the methods provided in paragraph (b) of this section.

(d) *Protective orders.* Upon motion by a party or person and for good cause shown, the Presiding Officer may make any order which justice requires to protect such party or person from annoyance, embarrassment, competitive disadvantage, oppression or undue burden or expense, including one or more of the following: (1) That the discovery shall not be had; (2) that the discovery may be had only on specified terms and conditions, including a designation of the time and/or place; (3) that the discovery shall be had only by a method of discovery other than that selected by the party seeking discovery; (4) that certain matters shall not be inquired into, or that the scope of discovery shall be limited to certain matters; (5) that discovery shall be conducted with no one present except persons designated by the Presiding Officer; (6) that a trade secret or other confidential research, development, or commercial information shall not be disclosed or shall be disclosed only in a designated way or only to designated parties; and (7) that responses to discovery shall be placed *in camera* in accordance with § 511.45. If a motion for a protective order is denied in whole or in part, the Presiding Officer may, on such terms or conditions as are just, order that any party provide or permit discovery.

(e) *Sequence and timing of discovery.* Discovery may commence after the prehearing conference under the direction of, and ground rules established by, the Presiding Officer.

(f) *Supplementation of responses.* A party who has responded to a request for discovery shall supplement the response with information thereafter acquired.

(g) *Completion of discovery.* All discovery shall be completed as soon as practical and consistent with the instituting order. All discovery shall be served by a date which affords the party from whom discovery is sought an adequate time to respond, consistent with the instituting order.

(h) *Service and filing of discovery.* All discovery requests and written responses, and all notices of the taking of testimony, shall be filed with the Executive Secretary and served on all parties and the Presiding Officer.

(i) *Control of discovery.* The use of these discovery procedures is subject to the control of the Presiding Officer, who may issue any just and appropriate order for the purpose of ensuring their timely completion.

### § 511.32 Written interrogatories to parties.

(a) *Availability; procedures of use.* Any party may serve upon any other party written interrogatories to be answered by the party served or, if the party served is a public or private corporation or a partnership or association or governmental agency, by any officer or agent, who shall furnish such information as is available to the party. Interrogatories may, with leave of the Presiding Officer, be served upon any party consistent with the instituting order.

(b) *Procedures for response.* Each interrogatory shall be answered separately and fully in writing under oath, unless it is objected to, in which event the reasons for objection shall be stated in lieu of an answer. The answers are to be signed by a responsible representative of the respondent and the objections signed by the representative making them. The party upon whom the interrogatories have been served shall serve a copy of the answers, and objections if any within 5 days after service of the interrogatories. The Presiding Officer may allow a shorter or longer time for response. The party submitting the interrogatories may move for an order under § 511.36 with respect to any objection to or other failure to answer an interrogatory.

(c) *Scope of interrogatories.* Interrogatories may relate to any matters which can be inquired into under § 511.31(c)(1), and the answers may be used to the extent permitted under this part. An interrogatory otherwise proper is not objectionable merely because an answer to the interrogatory would involve an opinion or contention that relates to fact or to the application of law to fact, but the Presiding Officer may order that such an interrogatory need not be answered until a later time.

(d) *Option to produce business records.* Where the answer to an interrogatory may be derived or ascertained from the business records of the party upon whom the interrogatory has been served, or from an examination, audit or inspection of such business records, or from a compilation, abstract or summary based thereon, and the burden of deriving the answer is substantially the same for the party

serving the interrogatory as for the party served, it is a sufficient answer to the interrogatory to specify the records from which the answer may be derived or ascertained and to afford to the party serving the interrogatory reasonable opportunity to examine, audit or inspect such records and to make copies, complications, abstracts, or summaries.

**§ 511.33 Production of documents and things.**

(a) *Scope.* Any party upon leave of the Presiding Officer may request any other party (1) to produce and permit the party making the request, or someone acting on behalf behalf of that party, to inspect and copy any designated documents (including writings, drawings, graphs, charts, photographs, phonorecords, and any other data compilation from which information can be obtained, translated, if necessary, by the party in possession into reasonably usable form), or (2) to inspect and copy, test or sample tangible things which constitute or contain matters within the scope of § 511.31(c)(1) and which are in the possession, custody or control of the party upon whom the request is served.

(b) *Procedure for request.* The request may be made at the prehearing conference with leave of the Presiding Officer. The request shall set forth the items to be inspected either by individual item or by category, and shall describe each item or category with reasonable particularity. The request shall specify a reasonable time, place and manner for making the inspection and performing the related acts.

(c) *Procedure for response.* The party upon whom the request is served shall serve a written response within seven (7) days after service of the request. The Presiding Officer may allow a shorter or longer time for response. The response shall state, with respect to each item or category requested, that inspection and related activities will be permitted as requested, unless the request is objected to, in which event the reasons for objection shall be stated. If objection is made to only part of an item or category, that part shall be so specified. The party submitting the request may move for an order under § 511.36 with respect to any objection to or other failure to respond to the request or any part thereof, or to any failure to permit inspection as requested.

**§ 511.34 Requests for admission.**

(a) *Procedure for request.* A party may serve upon any other party a written request for the admission, for the purposes of the pending proceeding only, of the truth of any matters within the scope of § 511.31(c)(1) set forth in the request that relate to statements or opinions of fact or of the application of law to fact, including the genuineness of documents described in the request. Copies of documents shall be served with the request unless they have been, or are otherwise, furnished or made available for inspection and copying. The request may, with leave of the Presiding Officer, be served upon any party after filing of the answer. Each matter as to which an admission is requested shall be separately set forth.

(b) *Procedure for response.* The matter as to which an admission is requested is deemed admitted unless within seven (7) days after service of the request, or within such shorter or longer time as the Presiding Officer may allow, the party to whom the request is directed serves upon the party requesting the admission a written answer or objection addressed to the matter, signed by the party or the party's representatives. If objection is made, the reasons therefore shall be stated. The answer shall specifically admit or deny the matter or set forth in detail the reasons why the answering party cannot truthfully admit or deny the matter. A denial shall fairly meet the substance of the requested admission. When good faith requires that a party qualify an answer or deny only a part of the matter as to which an admission is requested, the party shall specify the portion that is true and qualify or deny the remainder. An answering party may not give lack of information or knowledge as a reason for failure to admit or deny, unless the party states that he or she has made reasonable inquiry and that the information known or readily available to him or her is insufficient to enable him or her to admit or deny. A party who considers that a matter as to which an admission has been requested presents a genuine issue for hearing may not, on that ground alone, object to the request but may deny the matter or set forth reasons why the party cannot admit or deny it. The party who has requested an admission may move to determine the sufficiency of the answer or objection thereto in accordance with § 511.36. If the Presiding Officer determines that an answer does not comply with the requirements of this section, he or she may order that the matter be deemed admitted or that an amended answer be served.

(c) *Effect of admission.* Any matter admitted under this section is conclusively established unless the Presiding Officer on motion permits withdrawal or amendment of such admission. The Presiding Officer may permit withdrawal or amendment when the presentation of the merits of the action will be served thereby and the party that obtained the admission fails to satisfy the Presiding Officer that withdrawal or amendment will prejudice that party in maintaining an action or defense on the merits.

**§ 511.35 [Reserved]**

**§ 511.36 Motions to compel discovery.**

If a party fails to respond to discovery, in whole or in part, the party seeking discovery may move within five (5) days for an order compelling an answer, or compelling inspection or production of documents, or otherwise compelling discovery. For purposes of this subsection, an evasive or incomplete response is to be treated as a failure to respond. If the motion is granted, the Presiding Officer shall issue an order compelling discovery. If the motion is denied in whole or in part, the Presiding Officer may make such protective order as it would have been empowered to make on a motion pursuant to § 511.3(d). When making oral examinations, the discovering party shall continue the examination to the extent possible with respect to other areas of inquiry before moving to compel discovery.

**§ 511.37 Sanctions for failure to comply with order.**

In a party fails to obey an order to provide or permit discovery, the Presiding Officer may take such action as is just, including but not limited to the following:

(a) Infer that the admission, testimony, document of other evidence would have been adverse to the party;

(b) Order that for the purposes of the proceeding, the matters regarding which the order was made or any other designated facts shall be taken to be established in accordance with the claim of the party obtaining the order;

(c) Order that the party withholding discovery not introduce into evidence or otherwise rely, in support of any claim or defense, upon the documents or other evidence withheld;

(d) Order that the party withholding discovery not introduce into evidence or otherwise use at the hearing, information obtained in discovery;

(e) Order that the party withholding discovery not be heard to object to introduction and use of secondary evidence to show what the withheld admission, testimony documents, or other evidence would have shown;

(f) Order that a pleading, or part of a pleading, or a motion or other submission by the party, concerning which the order was issued, be stricken.

or that decision on the pleadings be rendered against the party, or both; and

(g) Exclude the party or representative from proceedings, in accordance with § 511.42(b).

Any such action may be taken by order at any point in the proceedings.

**§ 511.38 Subpenas.**

(a) *Availability.* A subpena shall be addressed to any party or any person not a party for the purpose of compelling attendance, testimony and production of documents at a hearing.

(b) *Form.* A subpena shall identify the action with which it is connected; shall specify the person to whom it is addressed and the date, time and place for compliance with its provisions; and shall be issued by order of the Presiding Officer and signed by the Executive Secretary or by the Presiding Officer. A subpena *duces tecum* shall specify the books, papers, documents, or other materials or data-compilations to be produced.

(c) *How obtained*—(1) *Content of application.* An application for the issuance of a subpena stating reasons shall be submitted in triplicate to the Presiding Officer.

(2) *Procedure of application.* The original and two copies of the subpena, marked "original," "duplicate" and "triplicate," shall accompany the application. The Presiding Officer shall rule upon an application for a subpena *ex parte*, by issuing the subpena or by issuing an order denying the application.

(d) *Issuance of a subpena.* The Presiding Officer shall issue a subpena by signing and dating, or ordering the Executive Secretary to sign and date, each copy in the lower right-hand corner of the document. The "duplicate" and "triplicate" copies of the subpena shall be transmitted to the applicant for service in accordance with these Rules; the "original" copy shall be retained by or be forwarded to the Documentary Services Division for retention in the docket of the proceeding.

(e) *Service of a subpena.* A subpena may be served in person or by certified mail, return receipt requested, as provided in § 511.16(b). Service shall be made by delivery of the signed "duplicate" copy to the person named therein.

(f) *Return of service.* A person serving a subpena shall promptly execute a return of service, stating the date, time, and manner of service. If service is effected by mail, the signed return receipt shall accompany the return of service. In case of failure to make service, a statement of the reasons for the failure shall be made. The "triplicate" of the subpena, bearing or accompanied by the return of service, shall be returned forthwith to the Executive Secretary after service has been completed.

(g) *Motion to quash or limit subpena.* Within five (5) days of receipt of a subpena, the person against whom it is directed may file with the Presiding Officer a motion to quash, modify, or limit the subpena, setting forth the reasons why the subpena should be withdrawn or why it should be modified or limited in scope. Any such motion shall be answered within five (5) days of service, and shall be ruled on immediately thereafter. The order shall specify the date, if any, for compliance with the specifications of the subpena and the reasons for the decision.

(h) *Consequences of failure to comply.* In the event of failure to comply with a subpena, the Presiding Officer may take any of the actions enumerated in § 511.37 or may order any other appropriate relief to compensate for the withheld testimony, documents, or other materials. If in the opinion of the Presiding Officer such relief is insufficient, the Presiding Officer shall certify to the Secretary a request for judicial enforcement of the subpena.

**§ 511.39 Orders requiring witnesses to testify or provide other information and granting immunity.**

(a) A party who desires the issuance of an order requiring a witness to testify or provide other information upon being granted immunity from prosecution under title 18, U.S.C., section 6002, may make a motion to that effect. The motion shall be made and ruled on in accordance with § 511.22, and shall include a showing:

(1) That the testimony or other information sought from a witness or prospective witness may be necessary to the public interest; and

(2) That such individual has refused or is likely to refuse to testify or provide such information on the basis of that individual's privilege against self-incrimination.

(b) If the Presiding Officer determines that the witness' testimony appears necessary and that the privilege against self-incrimination may be invoked, he or she may certify to the Administrator a request that he or she obtain the approval of the Attorney General of the United States for the issuance of an order granting immunity.

(c) Upon application to and approval of the Attorney General of the United States, and after the witness has invoked the privilege against self-incrimination, the Presiding Officer shall issue the order granting immunity unless he or she determines that the privilege was improperly invoked.

(d) Failure of a witness to testify after a grant of immunity or after a denial of the issuance of an order granting immunity shall result in the imposition of appropriate sanctions as provided in § 511.37.

## Subpart E—Hearings

**§ 511.41 General rules.**

(a) *Public hearings.* All hearings pursuant to this part shall be public unless otherwise ordered by the Presiding Officer. Notice of the time and location of the hearing shall be served on each party and paticipant, and published in the **Federal Register**.

(b) *Expedition.* Hearings shall proceed with all reasonable speed, and insofar as practicable and with due regard to the convenience of the parties and shall continue without suspension until concluded, except in unusual circumstances.

(c) *Rights of parties.* Every party shall have the right of timely notice and all other rights essential to a fair hearing, including, but not limited to, the rights to present evidence, to conduct such cross-examination as may be necessary in the judgment of the Presiding Officer for a full and complete disclosure of the facts, and to be heard by objection, motion, brief, and argument.

(d) *Rights of participants.* Every participant shall have the right to make a written or oral statement of position, file proposed findings of fact, conclusions of law and a posthearing brief, in accordance with § 511.17(b).

(e) *Rights of witnesses.* Any person compelled to testify in a proceeding in response to a subpena may be accompanied, represented, and advised by counsel or other representative, and may obtain a transcript of his or her testimony at no cost.

**§ 511.42. Powers and duties of Presiding Officer.**

(a) *General.* A Presiding Officer shall have the duty to conduct full, fair, and impartial hearing, to take appropriate action to avoid unnecessary delay in the disposition of proceedings, and to maintain order. He or she shall have all powers necessary to that end including the following powers:

(1) To administer oaths and affirmations;

(2) To compel discovery and to impose appropriate sanctions for failure to make discovery;

(3) To issue subpenas;

(4) To rule upon offers of proof and receive relevant and probative evidence;

(5) To regulate the course of the hearings and the conduct of the parties and their representatives therein;

(6) To hold conferences for simplification of the issues, settlement of the proceedings, or any other proper purposes;

(7) To consider and rule, orally or in writing, upon all procedural and order motions appropriate in an adjudicative proceeding;

(8) To issue initial decisions, rulings, and orders, as appropriate;

(9) To certify questions to the Administrator for determination; and

(10) To take any action authorized in this part or in conformance with the provisions of title 5, U.S.C. sections 551 through 559.

(b) *Exclusion of parties by Presiding Officer.* A Presiding Officer shall have the authority, for good cause stated on the record, to exclude from participation in a proceeding any party, participant, and/or representative who shall violate requirements of § 511.76. Any party, participant and/or representative so excluded may appeal to the Administrator in accordance with the provisions of § 511.23. If the representative of a party or participant is excluded, the hearing shall be suspended for a reasonable time so that the party or participant may obtain another representative.

(c) *Substitution of Presiding Officer.* In the event of the substitution of a new Presiding Officer for the one originally designated, any motion predicated upon such substitution shall be made within five (5) days of the substitution.

(d) *Interference.* In the performance of adjudicative functions, a Presiding Officer shall not be responsible to or subject to the supervision or direction of the Secretary, NHTSA and FHWA Administrators, or of any officer, employee, or agent engaged in the performance of investigative of prosecuting functions for the Department. All directions by the Secretary, NHTSA and FHWA Administrators, to a Presiding Officer concerning any adjudicative proceeding shall appear on and be made a part of the record.

(e) *Disqualification of Presiding Officer.* (1) When a Presiding Officer deems himself or herself disqualified to preside in a particular proceeding, he or she shall withdraw by notice on the record and shall notify the Chief Administrative Law Judges and the Documentary Services Division of the withdrawal.

(2) Whenever, for any reason, any party shall deem the Presiding Officer to be disqualified to preside, or to continue to preside, in a particular proceeding, that party may file with the Documentary Services Division a motion to disqualify and remove, supported by affidavit(s) setting forth the alleged grounds for disqualification. A copy of the motion and supporting affidavit(s) shall be served by the Documentary Services Division on the Presiding Officer whose removal is sought. The Presiding Officer shall have five (5) days from service to reply in writing. Such motion shall not stay the proceeding unless otherwise ordered by the Presiding Officer or the Secretary. If the Presiding Officer does not disqualify himself or herself, the Administrator will determine the validity of the grounds alleged, either directly or on the report of another Presiding Officer appointed to conduct a hearing for that purpose, and shall in the event of disqualification take appropriate action, by assigning another Presiding Officer or requesting loan of another Administrative Law Judge through the Office of Personnel Management.

### § 511.43 Evidence.

(a) *Applicability of Federal Rules of Evidence.* The Federal Rules of Evidence shall apply to proceedings held under this part only as a general guide. The Presiding Officer may admit any relevent and probative evidence.

(b) *Burden of proof.* (1) This matter is discussed in the instituting order.

(2) Any party who is the proponent of a legal and/or factual proposition shall have the burden of sustaining the proposition.

(c) *Presumptions.* A presumption imposes on the party against whom it is directed the burden of going forward with evidence to rebut or meet the presumption, but does not shift to such party the burden of proof in the sense of the risk of nonpersuasion which remains throughout the hearing upon the party on whom it was originally cast.

(d) *Admissibility.* All relevant and reliable evidence is admissible, but may be excluded if its probative value is substantially outweighed by unfair prejudice or by considerations of undue delay, waste of time, immateriality, or needless presentation of cumulative evidence.

(e) *Official notice*—(1) *Definition.* Official notice means use by the Presiding Officer of extra-record facts and legal conclusions drawn from those facts. An officially noticed fact or legal conclusion must one not subject to reasonable dispute in that it is either (i) generally known within the jurisdiction of the Presiding Officer or (ii) known by the Presiding Officer in areas of his or her expertise; or (iii) capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned.

(2) *Method of taking official notice.* The Presiding Officer may at any time take official notice upon motion of any party or upon its own initiative. The record shall reflect the facts and conclusions which have been officially noticed.

(3) *Opportunity to challenge.* Any party may upon application in writing rebut officially noticed facts and conclusions by supplementing the record. The Presiding Officer shall determine the permissible extent of this challenge; that is, whether to limit the party to presentation of written materials, whether to allow presentation of testimony, whether to allow cross-examination, or whether to allow oral argument. The Presiding Officer shall grant or deny the application on the record.

(f) *Objections and exceptions.* Objections to evidence shall be timely interposed, shall appear on the record, and shall contain the grounds upon which they are based. Rulings on all objections, and the bases therefore, shall appear on the record. Formal exception to an adverse ruling is not required to preserve the question for appeal.

(g) *Offer of proof.* When an objection to proffered testimony or documentary evidence is sustained, the sponsoring party may make a specific offer, either in writing or orally, of what the party expects to prove by the testimony or the document. When an offer of proof is made, any other party may make a specific offer, either in writing or orally, of what the party expects to present to rebut or contradict the offer of proof. Written offers of proof or of rebuttal, adequately marked for identification, shall accompany the record and be available for consideration by any reviewing authority.

### § 511.44 Expert witnesses.

(a) *Definition.* An expert witness is one who, by reason of education, training, experience, or profession, has peculiar knowledge concerning the matter of science or skill to which his or her testimony relates and from which he or she may draw inferences based upon hypothetically stated facts or from facts involving scientific or technical knowledge.

(b) *Method of presenting testimony of expert witness.* Except as may be otherwise ordered by the Presiding Officer, a detailed written statement of the elements of the direct testimony of an expert witness shall be filed on the record and exchanged between the

parties as part of direct and/or rebuttal exhibits. The statement must contain a full explanation of the methodology underlying any analysis, and a full disclosure of the basis of any opinion. The direct testimony of an expert witness shall not include points not contained in the written statement. A party may waive direct examination of an expert witness by indicating that the written statement be considered the testimony of the witness. In such a case, the written testimony shall be incorporated into the record and shall constitute the testimony of the witness.

(c) *Cross-examination and redirect examination of expert witness.* Cross-examination, redirect examination, and re-cross-examination of an expert witness will proceed in due course based upon the written testimony and any amplifying oral testimony.

(d) *Failure to file and/or to exchange written statement.* Failure to file and/or to exchange the written statement of an expert witness as provided in this section shall deprive the sponsoring party of the use of the expert witness and of the conclusions which that witness would have presented.

**§ 511.45 In camera materials.**

(a) *Definition. In camera* materials are documents, testimony, or other data which by order of the Presiding Officer or the Secretary, as appropriate under this Part, are kept confidential and excluded from the public record. Only materials exempt under the Freedom of Information Act may be kept confidential and excluded from the public record. The General Counsel of the DOT is responsible for determining whether an alleged confidential business record is exempt from the Freedom of Information Act. The right of the Presiding Officer, the Secretary and reviewing courts to order disclosure of *in camera* materials is specifically reserved.

(b) *In Camera Treatment of documents and testimony.* The Presiding Officer or the Secretary, as appropriate under this part, shall have authority, when good cause is found on the record, to order documents or testimony offered in evidence, whether admitted or rejected, to be received and preserved *in camera.* The order shall specify the length of time for *in camera* treatment and shall include:

(1) A description of the documents and/or testimony;

(2) The reasons for granting *in camera* treatment for the specified length of time.

(c) *Access and disclosure to parties.* (1) The Secretary and Presiding Officer, and their immediate advisory staffs shall have complete access to all *in camera* materials. All other parties shall also have complete access to all *in camera* materials, except that these parties may seek access only in accordance with paragraph (c)(2) of this section when:

(i) The *in camera* materials consist of information obtained by the government from persons not parties to the proceeding; or

(ii) The *in camera* materials consist of information provided by one of the parties to the proceeding which is confidential as to the other parties to the proceeding.

(2) Any party desiring access to and/or disclosure of the *in camera* materials specified in paragraph (c)(1) (i) and (ii) of this section for the preparation and presentation of that party's case shall make a motion which sets forth the justification therefor. The Presiding Officer or the Secretary, as appropriate under this part, may grant such motion on the record for substantial good cause shown and shall enter a protective order prohibiting unnecessary disclosure and requiring other necessary safeguards. The Presiding Officer or the Secretary, as appropriate, may examine the *in camera* materials and excise portions thereof before disclosing the materials to the moving party.

(d) *Segregation of* in camera *materials. In camera* materials shall be segregated from the public record and protected from public view.

(e) *Public release of* in camera *materials. In camera* materials constitute a part of the confidential records of the Department and shall not be released to the public until the expiration of *in camera* treatment.

(f) *Reference to* in camera *materials.* In the submission of proposed findings, conclusions, briefs, or other documents, all parties shall refrain from disclosing specific details of *in camera* materials. Such refraining shall not preclude general references to such materials. To the extent that parties consider it necessary to include specific details of *in camera* materials, the references shall be incorporated into separate proposed findings, briefs, or other documents marked "CONFIDENTIAL, CONTAINS *IN CAMERA* MATERIAL," which shall be placed *in camera* and become part of the *in camera* record. These documents shall be served only on parties accorded access to the *in camera* materials in accordance with paragraph (c)(2) of this section.

**§ 511.46 Proposed findings, conclusions, and order.**

Within a reasonable time after the closing of the record and receipt of the transcript, all parties and participants may, simultaneously, file post-hearing briefs, including proposed findings of fact, conclusions of law and a proposed order, together with reasons therefor. The Presiding Officer, consistent with the instituting order, shall establish a date certain for the filing of the briefs. The briefs shall be in writing, shall be served upon all parties, and shall contain adequate references to the record and authorities relied on. Replies shall be filed within Seven (7) days of the date for the filing of briefs unless otherwise established by the Presiding Officer. The parties and participants may waive either or both submissions.

**§ 511.47 Record.**

(a) *Reporting and transcription.* Hearings shall be recorded and transcribed under the supervision of the Presiding Officer by a reporter appointed by the Chief Administrative Law Judge. The original transcript shall be a part of the record and the official transcript. Copies of transcripts are available from the reporter at a cost not to exceed the maximum rates fixed by contract between the DOT and the reporter.

(b) *Corrections.* Corrections of the official transcript may be made only when they involve errors affecting substance and then only in the manner herein provided. The Presiding Officer may order corrections, either on his or her own motion or on motion of any party. The Presiding Officer shall determine the corrections to be made and so order. Corrections shall be interlineated or otherwise inserted in the official transcript so as not to obliterate the original text.

**§ 511.48 Official docket.**

(a) The official docket in adjudicatory proceedings will be maintained in the Docket Section, Room 4107, 400 Seventh Street S.W., Washington, D.C. and will be available for public inspection during normal working hours 9:00 a.m.–5:00 p.m. Monday through Friday.

(b) Fees for production or disclosure of records contained in the official docket shall be levied as prescribed in the DOTs Procedures for Disclosure or Production of Information under the Freedom of Information Act.

(Sec. 9, Pub. L. 89-670, 80 Stat. 981 (49 U.S.C 1657); sec. 301, Pub. L. 94-163, 89 Stat. 911 (15 U.S.C. 2008))

[45 FR 81578, Dec. 11, 1980, as amended at 48 FR 44081, Sept. 27, 1983]

**§ 511.49 Fees.**

(a) *Witnesses.* Any person compelled to appear in person in response to a

subpena or notice of oral examination shall be paid at least the same attendance and mileage fees as are paid witnesses in the courts of the United States, in accordance with title 28, U.S.C., section 1821.

(b) *Responsibility.* The fees and mileage referred to in this section shall be paid by the party at whose instance witnesses appear.

## Subpart F—Decision

### § 511.51 Initial decision.

(a) *When filed.* The Presiding Officer shall file a Recommended Decision with the Secretary on or before sixty (60) days of the issuance of the instituting order.

(b) *Content.* The Recommended Decision shall be based upon a consideration of the entire record and it shall be supported by reliable probative, and substantial evidence. It shall include:

(1) Findings and conclusins, as well as the reasons or bases therefore, upon the material questions of fact, material issues of law, or discretion presented on the record and should where practicable, be accompanied by specific page citations to the record and to legal and other materials relied upon.

(c) *By whom made.* The Recommended Decision shall be made and filed by the Presiding Officer who presided over the hearing.

(d) *Reopening of proceeding by presiding officer; termination of jurisdiction.* (1) At any time prior to or concommitant with the filing of the Recommended Decision, the Presiding Officer may reopen the proceedings for the reception of further evidence.

(2) Except for the correction of clerical errors, the jurisdiction of the Presiding Officer is terminated upon the filing of the Recommended Decision, unless and until the proceeding is remanded to the Presiding Officer by the Secretary.

### § 511.52 [Reserved]

### § 511.53 [Reserved]

## Subpart G—[Reserved]

## Subpart H—Appearances; Standards of Conduct

### § 511.71 Who may make appearances.

A party or participant may appear in person, or by a duly authorized officer, partner, regular employee, or other agent of this party or participant, or by or with counsel or other duly qualified representative, in any proceeding under the part.

### § 511.72 Authority for representation.

Any individual acting in a representative capacity in any adjudicative proceeding may be required by the Presiding Officer or the Administrator to show his or her authority to act in such capacity. A regular employee of a party who appears on behalf of the party shall be required by the Presiding Officer or the Secretary to show his or her authority to so appear.

### § 511.73 Written appearances.

(a) Any person who appears in a proceeding shall file a written notice of appearance with the Documentary Services Division deliver a written notice of appearance to the reporter at the pre-hearing conference, stating for whom the appearance is made and the name, address, and telephone number (including area code) of the person making the appearance and the date of the commencement of the appearance. The written appearance shall be made a part of the record.

(b) Any person who has previously appeared in a proceeding may withdraw his or her appearance by filing a written notice of withdrawal of appearance with the Documentary Services Division. The notice of withdrawal of appearance shall state the name, address, and telephone number (including area code) of the person withdrawing the appearance, for whom the appearance was made, and the effective date of the withdrawal of the appearance, and such notice of withdrawal shall be filed within five (5) days of the effective date of the withdrawal of the appearance.

### § 511.74 Attorneys.

An attorney at law who is admitted to practice before the Federal courts or before the highest court of any State, the District of Columbia, or any territory or Commonwealth of the United States, may practice before the Department. An attorney's own representation that he or she is in good standing before any of such courts shall be sufficient proof thereof, unless otherwise ordered by the Presiding Officer or the Administrator.

### § 511.75 Persons not attorneys.

(a) Any person who is not an attorney at law may be admitted to appear in an adjudicative proceeding if that person files proof to the satisfaction of the Presiding Officer that he or she possesses the necessary legal, technical, or other qualifications to render valuable service in the proceeding and is otherwise competent to advise and assist in the presentation of matters in the proceedings. An application by a person not an attorney at law for admission to appear in a proceeding shall be submitted in writing not later than five (5) days prior to the prehearing conference in the proceedings. The application shall set forth in detail the applicant's qualifications to appear in the proceedings.

(b) No person who is not an attorney at law and whose application has not been approved shall be permitted to appear in the proceedings. However, this provision shall not apply to any person who appears before the Department on his or her own behalf or on behalf of any corporation, partnership, or association of which the person is a partner, officer, or regular employee.

### § 511.76 Qualifications and standards of conduct.

(a) The Department expects all persons appearing in proceedings before it to act with integrity, with respect, and in an ethical manner. Business transacted before and with the Department shall be in good faith.

(b) To maintain orderly proceedings, the Presiding Officer or the Administrator, as appropriate under this part, may exclude parties, participants, and their representatives for refusal to comply with directions, continued use of dilatory tactics, refusal to adhere to reasonable standards of orderly and ethical conduct, failure to act in good faith, or violation of the prohibition against certain ex parte communications. The Presiding Officer may, in addition to the above sanctions, deny access to additional *in camera* materials when a party or participant publicly releases such materials without authorization.

(c) An excluded party, participant, or representative thereof may petition the Secretary to entertain an interlocutory appeal in accordance with § 511.24. If, after such appeal, the representative of a party or participant, is excluded, the hearing shall, at the request of the party or participant, be suspended for a reasonable time so that the party or participant may obtain another representative.

### § 511.77 Restrictions as to former members and employees.

The postemployee restrictions applicable to former Administrators and Department employees, as set forth in 18 U.S.C. 207, shall govern the activities of such employees in matters connected with their former duties and responsibilities.

### § 511.78 Prohibited communications.

(a) *Applicability.* This section is applicable during the period

commencing with the date of issuance of an instituting order and ending upon final action in the matter.

(b) *Definitions.* (1) "Decision-maker" means those NHTSA, FHWA, and Department personnel who render decisions in adjudicative proceedings under this part, or who advise officials who render such decisions, including:

(i) The FHWA and NHTSA Administrators, the Office of the Secretary,

(ii) The Administrative Law Judges;

(2) "Ex parte communications" means:

(i) Any written communication other than a request for a status report on the proceeding made to a decisionmaker by any person other than a decisionmaker which is not served on all parties.

(ii) Any oral communication other than a request for a status report on the proceeding made to a decisionmaker by any person other than a decisionmaker without advance notice to the parties to the proceeding and opportunity for them to be present.

(c) *Prohibited ex parte communications.* Any oral or written ex parte communication relative to the merits of a proceeding under this part is a prohibited ex parte communication, except as provided in paragraph (d) of this section.

(d) *Permissible ex parte communications.* The following communications shall not be prohibited under this section:

(1) Ex parte communications authorized by statute or by this part.

(2) Any staff communication concerning judicial review or judicial enforcement in any matter pending before or decided by the Department.

(e) *Procedures for handing prohibited ex parte communication.* (1) Prohibited written ex parte communication. To the extent possible, a prohibited written ex parte communication received by any Department employee shall be forwarded to the Documentary Services Division rather than to a decisionmaker. A prohibited written ex parte communication which reaches a decisionmaker shall be forwarded by the decisionmaker to the Documentary Services Division. If the circumstances in which a prohibited ex parte written communication was made are not apparent from the communication itself, a statement describing those circumstances shall be forwarded with the communication.

(2) Prohibited oral ex parte communication.

(i) If a prohibited oral ex parte communication is made to a decisionmaker, he or she shall advice the person making the communication that the communication is prohibited and shall terminate the discussion.

(ii) In the event of a prohibited oral ex parte communication, the decisionmaker shall forward to the Documentary Services Division a dated statement containing such of the following information as is known to him/her:

(A) The title and docket number of the proceeding;

(B) The name and address of the person making the communication and his/her relationship (if any) to the parties to the proceeding;

(C) The date and time of the communication, its duration, and the circumstances (telephone call, personal interview, etc.) under which it was made;

(D) A brief statement of the substance of the matters discussed;

(E) Whether person making the communication persisted in doing so after being advised that the communication was prohibited.

(3) *Filing.* All communications and statements forwarded to the Documentary Services Division under this section shall be placed in a public file which shall be associated with, but not made a party of, the record of the proceedings, to which the communication or statement pertains.

(4) *Service on parties.* The Documentary Services Division shall serve a copy of each communication and statement forwarded under this section on all parties to the proceedings. However, if the parties are numerous, or if other circumstances satisfy the Documentary Services Division that service of the communication or statement would be unduly burdensome, he or she may, in lieu of service, notify all parties in writing that the communication or statement has been made and filed and that it is available for inspection and copying.

(5) *Service on maker.* The Documentary Services Division shall forward to the person who made the prohibited ex parte communication a copy of each communication and/or statement filed under this section.

(f) *Effect of ex parte communications.* No prohibited ex parte communication shall be considered as part of the record for decision unless introduced into evidence by a party to the proceedings.

(g) *Sanctions.* A party or participant who makes a prohibited ex parte communication, or who encourages or solicits another to make any such communication, may be subject to any appropriate sanction or sanctions, including but not limited to, exclusion from the proceedings and adverse rulings on the issues which are the subject of the prohibited communication.

**Appendix C—Service List**

*Arizona Proceeding*

The Honorable Bruce E. Babbitt, Governor of Arizona, State House, Phoenix, AZ 85007

Charles L. Miller, Director, Arizona Department of Transportation, 206 17th Avenue, Phoenix, AZ 85007

Diane K. Steed, Administrator, NHTSA, 400 7th Street, SW., Washington, DC 20590

Ray A. Barnhart, Administrator, FHWA, 400 7th Street, SW, Washington, DC 20590

Sam Whitehorn, Office of the Assistant General Counsel for Regulation and Enforcement, C–50, Room 10424, 400 7th Street, SW., Washington, DC 20590

Judge Elias C. Rodriquez, Chief, Administrative Law Judge, M–50, Room 9400A, 400 7th Street, SW., Washington, DC 20590

*Maryland-Proceeding*

The Honorable Harry R. Hughes, Governor of Maryland, State House, Annapolis, MD 21404

Ralph S. Tyler, Assistant Attorney General, Office of the Attorney General, Munsey Building, 2nd Floor, No. Calvert Street, Baltimore, MD 21202

Ben C. Clyburn, Assistant Attorney General, Maryland Department of Transportation, P.O. Box 8755, BWI Airport, Baltimore, MD 21240

Diane K. Steed, Administrator, NHTSA, 400 7th Street, SW., Washington, DC 20590

Ray A. Barnhart, Administrator, FHWA, 400 7th Street, SW., Washington, DC 20590

Sam Whitehorn, Office of the Assistant General Counsel for Regulation and Enforcement, C–50, Room 10424, 400 7th Street, SW., Washington, DC 20590

Judge Elias C. Rodriquez, Chief, Administrative Law Judge, M–50, 400 7th Street, SW., Washington, DC 20590

*Vermont Proceeding*

The Honorable Madeleine Kunin, Governor of Vermont, State House, Montpelier, VT 05602

Susan C. Crampton, Secretary, Vermont Agency of Transportation, 133 State Street, State Administration Building, Montpelier, VT 05602

Diane K. Steed, Administrator, NHTSA, 400 7th Street, SW., Washington, DC 20590

Ray A. Barnhart, Administrator, FHWA, 400 7th Street, SW., Washington, DC 20590

Sam Whitehorn, Office of the Assistant General Counsel for Regulation and Enforcement, C-50, Room 10424, 400 7th Street, SW., Washington, DC 20590
Judge Elias C. Rodriquez, Chief, Administrative Law Judge, M-50, Room 9400A, 400 7th Street, SW., Washington, DC 20590

[FR Doc. 85-29827 Filed 12-19-85; 8:45 am]
BILLING CODE 4910-62-M

**Agreements Filed Under Sections 408, 409, 412 and 414 During the Week Ending December 13, 1985**

Answers may be filed within 21 days from the date of filing.

| Date filed | Docket No. | Parties | Subject | Proposed effective date |
|---|---|---|---|---|
| 12/09/85 | 43643 R-1—R-2 | Members of International Air Transport Association | GIT fares Japan-Brazil | 04/01/86 |
| 12/09/85 | 43644 | Members of International Air Transport Association | Cargo Agency Conference | 01/01/86 |
| 12/09/85 | 43645 | Members of International Air Transport Association | Baggage charges North Atlantic-Israel | 01/01/86 |
| 12/09/85 | 43646 R-1—R-6 | Members of International Air Transport Association | Fares within Middle East | 04/01/86 |
| 12/10/85 | 43650 R-1—R-10 | Members of International Air Transport Association | Middle East-Africa fare structure | 04/01/86 |
| 12/12/85 | 43651 | Members of International Air Transport Association | Amend rates for gold from Brazil to TC1 and 2 | 12/15/85 |
| 12/12/85 | 43663 | Members of International Air Transport Association | Excess baggage charges North Atlantic Middle East | 01/01/86 |
| 12/12/85 | 43664 | Members of International Air Transport Association | Specific commodity rates Denmark to Canada/United States | 12/18/85 |
| 12/12/85 | 43665 | Members of International Air Transport Association | Fares—Cuba/Paraguay-Brazil | 01/01/86 |

Phyllis T. Kaylor,
*Chief, Documentary Services Division.*
[FR Doc. 85-30178 Filed 12-19-85; 8:45 am]
BILLING CODE 1910-62-M

**Applications for Certificates of Public Convenience and Necessity and Foreign Air Carrier Permits Filed Under Subpart Q of Procedural Regulations (See 14 CFR 302.1701 et seq.); Week Ended December 13, 1985**

**Subpart Q Applications**

The due date for answers, conforming application, or motions to modify scope are set forth below for each application following the answer period DOT may process the application by expedited procedures. Such procedures may consist of the adoption of a show-cause order, a tentative order, or in appropriate cases a final order without further procedings.

| Date filed | Docket No. | Description |
|---|---|---|
| Dec. 12, 1985 | 43659 | Air Illinois, Inc., d/b/a Atlantic Gulf Airlines, Stephen L. Gelband, Hewes, Morella, Gelband & Lamberton, 1010 Wisconsin Ave., NW., Washington, DC 20007<br>Application of Air Illinois, Inc., d/b/a Atlantic Gulf Airlines pursuant to section 401 of the Act and Subpart Q of the Regulations applies for a certificate of public convenience and necessity to authorize it to engage in the air transportation of persons, property and mail, in scheduled and charter services, as follows:<br>Between a point or points in Florida and a point or points in the Dominican Republic, including, but not limited to, Santo Domingo and Puerto Plata<br>Conforming Applications, Motions to Modify Scope and Answers may be filed by January 9, 1985 |

Phyllis T. Kaylor,
*Chief, Documentary Services Division.*
[FR Doc. 85-30179 Filed 12-19-85; 8:45 am]
BILLING CODE 4910-62-M

## Federal Aviation Administration

**Radio Technical Commission for Aeronautics (RTCA), Special Committee 147—Traffic Alert and Collision Avoidance System; Meeting**

Pursuant to section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463; 5 U.S.C. App. I) notice is hereby given of a meeting of RTCA Special Committee 147 on Traffic Alert and Collision Avoidance System to be held on January 29-31, 1986, in the RTCA Conference Room, One McPherson Square, 1425 K Street, NW, Suite 500, Washington, DC commencing at 9:30 a.m.

The Agenda for this meeting is as follows: (1) Chairman's Introductory Remarks; (2) Approval of Minutes of the Meeting Held on October 23-25, 1985; (3) Review of TCAS I Working Group Activities; (4) Review of Pilot Working Group Activities; (5) Review of TCAS III Activities; (6) Consideration of Additional Changes to RTCA Document DO-185, "Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment"; (7) Review of Horizontal Miss Distance Filtering Study; (8) Review and Discussion of Interoperability Issues; (9) Assignment of New Tasks; (10) Other Business.

Attendance is open to the interested public but limited to space available. With the approval of the Chairman, members of the public may present oral statements at the meeting. Persons wishing to present statements or obtain information should contact the RTCA Secretariat, One McPherson Square, 1425 K Street, NW., Suite 500, Washington, DC 20005; (202) 682-0266. Any member of the public may present a written statement to the committee at any time.

Issued in Washington, DC on December 13, 1985.

Karl F. Bierach,
*Designated Officer.*
[FR Doc. 85-30094 Filed 12-19-85; 8:45 am]
BILLING CODE 4910-13-M

**Radio Technical Commission for Aeronautics (RTCA), Executive Committee; Meeting**

Pursuant to section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463; 5 U.S.C. App. I) notice is hereby given of a meeting of RTCA Executive Committee to be held on January 17, 1986, in the RTCA Conference Room, One McPherson Square, 1425 K Street, NW., Suite 500, Washington, DC commencing at 9:30 a.m.

The Agenda for this meeting is as follows: (1) Chairman's Opening Remarks; (2) Approval of Minutes of the Meeting Held on November 18, 1985; (3) Chairman's Report on RTCA

Administration and Activities; (4) Special Committee Activities Report for November and December, 1985; (5) Consideration of Proposals to Establish Special Committees; (6) Approval of Proposed Change 2 to RTCA Document DO-181, "Minimum Operational Performance Standards for Air Traffic Control Radar Beacon System/Mode Select (ATCRBS/Mode S) Airborne Equipment"; (7) Approval of Proposed Change 1 to RTCA Document DO-183, "Minimum Operational Standards for Emergency Locator Transmitters Automatic Fixed—ELT (AF), Automatic Portable—ELT (AP), Automatic Deployable—ELT (AD), Survival—ELT (S) Operating on 121.5 and 243.0 Megahertz"; (8) Approval of Proposed Revisions to Special Committee 159 Terms of Reference; (9) Approval of Proposed Special Committee 156 Correspondence to the Federal Communications Commission; (10) Consideration of Appointments as RTCA Technical Advisers; (11) Approval of Revised Procedures and Guidelines for the RTCA Awards Committee and (12) Other Business.

Attendance is open to the interested public but limited to space available. With the approval of the Chairman, members of the public may present oral statements at the meeting. Persons wishing to present statements or obtain information should contact the RTCA Secretariat, One McPherson Square, 1425 K Street, NW., Suite 500, Washington, DC 20005; (202) 682-0266. Any member of the public may present a written statement to the committee at any time.

Issued in Washington, DC, on December 13, 1985.

**Karl F. Bierach,**

*Designated Officer.*

[FR Doc. 85-30095 Filed 12-19-85; 8:45 am]

BILLING CODE 4910-12-M

## Maritime Administration

### Approval of Applicant as Trustee; Manufacturers Hanover Trust Co.

Notice is hereby given that Manufacturers Hanover Trust Company of California, with offices at 50 California Street, San Francisco, California 94111, has been approved as Trustee pursuant to Pub. L. 89-346 and 46 CFR 221.21-221.30.

Dated: December 16, 1985.

By Order of the Maritime Administrator.

**Georgia P. Stamas,**

*Secretary.*

[FR Doc. 85-30156 Filed 12-19-85; 8:45 am]

BILLING CODE 4910-61-M

## VETERANS ADMINISTRATION

### Change to Schedule of Productivity (MEO) Reviews (Not To Be Cost Compared With Private Industry) for the Department of Medicine and Surgery

**AGENCY:** Veterans Administration.

**ACTION:** Notice of change to schedule.

**SUMMARY:** In accordance with OMB Circular No. A-76 the Veterans Administration, Department of Medicine and Surgery serves notice to the public that the schedule of productivity (MEO) reviews, not to be cost compared with private industry, published in the **Federal Register** on June 13, and October 28, 1985, has been substantially changed. The schedule has been adjusted to compress the time frame allowed for each productivity review from eight months to six months, change the implementation dates so that scheduled reviews do not extend beyond September 1987, and rearrange facilities to reflect regional realignment.

**FOR FURTHER INFORMATION CONTACT:** Questions relating to this Department of Medicine and Surgery Schedule may be directed to Jack Beranek, Gerard Schroko or Harold Wilder at (202) 389-2491 or 2851.

Requests for single copies of the schedule should be made in writing to: Director, Office of Procurement and Supply (91), Veterans Administration, 810 Vermont Avenue, NW., Washington, DC 20420.

Questions relating to local matters about the conduct of these reviews should be referred to the Director of the VA medical facility concerned.

Dated: December 12, 1985.

By direction of the Administrator.

**Everett Alvarez, Jr.,**

*Deputy Administrator.*

SCHEDULE OF PRODUCTIVITY (MEO) REVIEWS

[Not to be cost compared with private industry]

Department of Medicine and Surgery, VA Medical Centers

| Field facility | Study start date | Completion date | Implementation date |
|---|---|---|---|
| **Housekeeping Services** | | | |
| **Region No. 1** | | | |
| Bedford, MA | October 1985 | December 1985 | March 1986 |
| Boston, MA | do | do | Do. |
| Brockton, MA | do | do | Do. |
| Manchester, NH | do | do | Do. |
| Northampton, MA | do | do | Do. |
| Providence, RI | do | do | Do. |
| Togus, ME | do | do | Do. |
| White River Junction, VT | do | do | Do. |
| Albany, NY | January 1986 | March 1986 | June 1986 |
| Batavia, NY | do | do | Do. |
| Bath, NY | do | do | Do. |
| Buffalo, NY | do | do | Do. |
| Canandaigua, NY | do | do | Do. |
| Syracuse, NY | do | do | Do. |
| Bronx, NY | June 1986 | August 1986 | November 1986 |
| Brooklyn, NY | do | do | Do. |
| Castle Point, NY | do | do | Do. |
| Montrose, NY | do | do | Do. |
| Newington, CT | do | do | Do. |
| New York, NY | do | do | Do. |
| Northport, NY | do | do | Do. |
| San Juan, PR | do | do | Do. |
| West Haven, CT | do | do | Do. |

SCHEDULE OF PRODUCTIVITY (MEO) REVIEWS—Continued

[Not to be cost compared with private industry]

Department of Medicine and Surgery, VA Medical Centers

| Field facility | Study start date | Completion date | Implementation date |
|---|---|---|---|
| **Region No. 2** | | | |
| Coatesville, PA | April 1987 | June 1987 | September 1987 |
| East Orange, NJ | do | do | Do. |
| Lebanon, PA | do | do | Do. |
| Lyons, NJ | do | do | Do. |
| Philadelphia, PA | do | do | Do. |
| Wilkes Barre, PA | do | do | Do. |
| Wilmington, DE | do | do | Do. |
| Altoona, PA | do | do | Do. |
| Butler, PA | do | do | Do. |
| Clarksburg, WV | do | do | Do. |
| Erie, PA | do | do | Do. |
| Pittsburgh (UD), PA | do | do | Do. |
| Baltimore, MD | October 1985 | December 1985 | March 1986 |
| Ft. Howard, MD | do | do | Do. |
| Martinsburg, WV | do | do | Do. |
| Perry Point, MD | do | do | Do. |
| Washington, DC | do | do | Do. |
| Beckley, WV | April 1987 | June 1987 | September 1987 |
| Hampton, VA | do | do | Do. |
| Huntington, WV | do | do | Do. |
| Richmond, VA | do | do | Do. |
| Salem, VA | do | do | Do. |
| Asheville, NC | January 1986 | March 1986 | June 1986 |
| Fayetteville, NC | do | do | Do. |
| Mountain Home, TN | do | do | Do. |
| Salisbury, NC | do | do | Do. |
| **Region No. 3** | | | |
| Augusta, GA | April 1987 | June 1987 | September 1987 |
| Charleston, SC | do | do | Do. |
| Columbia, SC | do | do | Do. |
| Atlanta (Decatur), GA | do | do | Do. |
| Dublin, GA | do | do | Do. |
| Biloxi, MS | July 1986 | September 1986 | December 1986 |
| Birmingham, AL | do | do | Do. |
| Jackson, MI | do | do | Do. |
| Monigomery, AL | do | do | Do. |
| Tuscaloosa, AL | do | do | Do. |
| Tuskegee, AL | do | do | Do. |
| Lexington, KY | April 1987 | June 1987 | September 1987 |
| Louisville, KY | do | do | Do. |
| Memphis, TN | do | do | Do. |
| Murfreesboro, TN | do | do | Do. |
| Nashville, TN | do | do | Do. |
| Bay Pines, FL | January 1987 | March 1987 | June 1987 |
| Gainesville, FL | do | do | Do. |
| Lake City, FL | do | do | Do. |
| Miami, FL | do | do | Do. |
| Tampa, FL | do | do | Do. |
| **Region No. 4** | | | |
| Chillicothe, OH | October 1985 | December 1985 | March 1986 |
| Cincinnati, OH | do | do | Do. |
| Cleveland, OH | do | do | Do. |
| Dayton, OH | do | do | Do. |
| Allen Park, MI | January 1987 | March 1987 | June 1987 |
| Ann Arbor, MI | do | do | Do. |
| Battle Creek, MI | do | do | Do. |
| Saginaw, MI | do | do | Do. |
| Dancille, IL | February 1987 | April 1987 | July 1987 |
| Ft. Wayne, IN | do | do | Do. |
| Indianopolis, IN | do | do | Do. |
| Marion, IL | do | do | Do. |
| Iron Mountain, MI | April 1987 | June 1987 | September 1987 |
| Madison, WI | do | do | Do. |
| Tomah, WI | do | do | Do. |
| Wood, WI | do | do | Do. |
| Chicago (LS), IL | December 1986 | February 1987 | May 1987 |
| Chicago (WS), IL | do | do | Do. |
| North Chicago, IL | do | do | Do. |
| Hines, IL | do | do | Do. |
| Columbia, MO | July 1986 | September 1986 | December 1986 |
| Poplar Bluff, MO | do | do | Do. |
| St. Louis, MO | do | do | Do. |
| **Region No. 5** | | | |
| Fargo, ND | January 1987 | March 1987 | June 1987 |
| Minneapolis, MN | do | do | Do. |
| Sioux Falls, SD | September 1986 | November 1986 | February 1987 |
| St. Cloud, MN | November 1986 | January 1987 | April 1987 |
| Kansas City, MO | February 1987 | April 1987 | July 1987 |
| Leavenworth, KS | do | do | Do. |
| Topeka, KS | March 1987 | May 1987 | August 1987 |
| Wichita, KS | do | do | Do. |
| Des Moines, IA | April 1987 | June 1987 | September 1987 |
| Ft. Meade, SD | do | do | Do. |
| Grand Island, NE | do | do | Do. |
| Hot Springs, SD | do | do | Do. |

SCHEDULE OF PRODUCTIVITY (MEO) REVIEWS—Continued

[Not to be cost compared with private industry]

Department of Medicine and Surgery, VA Medical Centers

| Field facility | Study start date | Completion date | Implementation date |
|---|---|---|---|
| Knoxville, IA | do | do | Do. |
| Lincoln, NE | do | do | Do. |
| Omaha, NE | do | do | Do. |
| Cheyrne, WY | March 1987 | May 1987 | August 1987 |
| Denver, CO | do | do | Do. |
| Ft. Harrison, MT | do | do | Do. |
| Ft. Lyon, CO | do | do | Do. |
| Grand Juction, CO | do | do | Do. |
| Miles City, MT | do | do | Do. |
| Salt Lake City, UT | do | do | Do. |
| Sheridan, WY | do | do | Do. |
| **Region No. 6** | | | |
| Loma Linda, CA | January 1987 | March 1987 | June 1987 |
| Long Beach, CA | do | do | Do. |
| San Diego, CA | do | do | Do. |
| Sepulveda, CA | do | do | Do. |
| West Los Angeles, CA | do | do | Do. |
| Fresno, CA | December 1986 | February 1987 | May 1987 |
| Livermore, CA | do | do | Do. |
| Martinez, CA | do | do | Do. |
| Palo Alto, CA | do | do | Do. |
| Reno, NV | do | do | Do. |
| San Francisco, CA | do | do | Do. |
| American Lake, WA | January 1987 | March 1987 | June 1987 |
| Boise, ID | do | do | Do. |
| Portland, OR | do | do | Do. |
| Rosenburg, OR | do | do | Do. |
| Seattle, WA | do | do | Do. |
| Spokane, WA | do | do | Do. |
| Walla Walla, WA | do | do | Do. |
| White City, OR | do | do | Do. |
| **Region No. 7** | | | |
| Alexandria, LA | October 1986 | December 1986 | March 1987 |
| Fayetteville, AR | do | do | Do. |
| Little Rock, AR | do | do | Do. |
| Muskogee, OK | February 1987 | April 1987 | July 1987 |
| New Orleans, LA | October 1986 | December 1986 | March 1987 |
| Oklahoma City, OK | February 1987 | April 1987 | July 1987 |
| Bonham, TX | September 1986 | November 1986 | February 1987 |
| Dallas, TX | February 1987 | April 1987 | July 1987 |
| Houston, TX | do | do | Do. |
| Kerrville, TX | do | do | Do. |
| Marlin, TX | do | do | Do. |
| San Antonio, TX | do | do | Do. |
| Temple, TX | do | do | Do. |
| Waco, TX | do | do | Do. |
| Albuquerque, NM | do 1987 | do | do |
| Amarillo, TX | do | do | Do. |
| Big Spring, TX | do | do | Do. |
| Phoenix, AZ | do | do | Do. |
| Prescott, AZ | do | do | Do. |
| Tucson, AZ | do | do | Do. |
| **Plant Maintenance** | | | |
| **Region No. 1** | | | |
| Bedford, MA | January 1986 | March 1986 | June 1986 |
| Boston, MA | do | do | Do. |
| Brockton, MA | do | do | Do. |
| Manchester, NH | do | do | Do. |
| Northampton, MA | do | do | Do. |
| Providence, RI | do | do | Do. |
| Togus, ME | do | do | Do. |
| White River Junction, VT | do | do | Do. |
| Albany, NY | July 1986 | September 1986 | December 1986 |
| Batavia, NY | do | do | Do. |
| Buffalo, NY | do | do | Do. |
| Canandaigua, NY | do | do | Do. |
| Syracuse, NY | do | do | Do. |
| Bronx, NY | September 1986 | November 1986 | February 1987 |
| Brooklyn, NY | do | do | Do. |
| Castle Point, NY | do | do | Do. |
| Montrose, NY | do | do | Do. |
| New York, NY | do | do | Do. |
| Northport, NY | do | do | Do. |
| San Juan, PR | do | do | Do. |
| West Haven, CT | do | do | Do. |
| **Region No. 2** | | | |
| Coatsville, PA | January 1987 | March 1987 | June 1987 |
| East Orange, NJ | do | do | Do. |
| Lebanon, PA | do | do | Do. |
| Lyons, NJ | do | do | Do. |
| Philadelphia, PA | do | do | Do. |
| Wilkes Barre, PA | do | do | Do. |
| Butler, PA | April 1987 | June 1987 | September 1987 |
| Pittsburg (UD) PA | do | do | Do. |

SCHEDULE OF PRODUCTIVITY (MEO) REVIEWS—Continued

[Not to be cost compared with private industry]

Department of Medicine and Surgery, VA Medical Centers

| Field facility | Study start date | Completion date | Implementation date |
|---|---|---|---|
| Baltimore, MD | February 1986 | April 1986 | July 1986 |
| Ft. Howard, MD | do | do | Do. |
| Martinsburg, WV | do | do | Do. |
| Perry Point, MD | do | do | Do. |
| Washington, DC | do | do | Do. |
| Hampton, VA | March 1987 | May 1987 | August 1987 |
| Huntington, WV | do | do | Do. |
| Richmond, VA | do | do | Do. |
| Salem, VA | do | do | Do. |
| Asheville, NC | July 1986 | September 1986 | December 1986 |
| Fayetteville, NC | do | do | Do. |
| Moutain Home, TN | do | do | Do. |
| Salisbury, NC | do | do | Do. |
| **Region No. 3** | | | |
| Augusta, GA | January 1987 | March 1987 | June 1987 |
| Charleston, SC | do | do | Do. |
| Columbia, SC | do | do | Do. |
| Atlanta (Decatur), GA | do | do | Do. |
| Dublin, GA | do | do | Do. |
| Biloxi, MS | do | do | Do. |
| Birmingham, AL | do | do | Do. |
| Jackson, MI | do | do | Do. |
| Montgomery, AL | do | do | Do. |
| Tuscaloosa, AL | do | do | Do. |
| Tuskegee, AL | do | do | Do. |
| Louisville, KY | April 1987 | June 1987 | September 1987 |
| Memphis, TN | do | do | Do. |
| Murfreesboro, TN | do | do | Do. |
| Nashville, TN | do | do | Do. |
| Bay Pines, FL | February 1987 | April 1987 | July 1987 |
| Gainesville, FL | do | do | Do. |
| Lake City, FL | do | do | Do. |
| Miami, FL | do | do | Do. |
| Tampa, FL | do | do | Do. |
| **Region No. 4** | | | |
| Chillicothe, OH | February 1986 | April 1986 | July 1986 |
| Cleveland, OH | do | do | Do. |
| Dayton, OH | do | do | Do. |
| Allen Park, MI | March 1987 | May 1987 | August 1987 |
| Ann Arbor, MI | do | do | Do. |
| Battle Creek, MI | do | do | Do. |
| Saginaw, MI | do | do | Do. |
| Danville, IL | January 1987 | March 1987 | June 1987 |
| Indianapolis, IN | do | do | Do. |
| Iron Mountain, MI | February 1987 | April 1987 | July 1987 |
| Madison, WI | do | do | Do. |
| Tomah, WI | do | do | Do. |
| Wood, WI | do | do | Do. |
| Chicago, (LS), IL | April 1987 | June 1987 | September 1987 |
| Chicago, (WS), IL | do | do | Do. |
| North Chicago, IL | do | do | Do. |
| Hines, IL | do | do | Do. |
| Columbia, MO | March 1987 | May 1987 | August 1987 |
| Marion, IL | do | do | Do. |
| Poplar Bluff, MO | do | do | Do. |
| St. Louis, MO | do | do | Do. |
| **Region No. 5** | | | |
| Fargo, ND | April 1987 | June 1987 | September 1987 |
| Minneapolis, MN | do | do | Do. |
| Sioux Falls, SD | November 1986 | January 1987 | April 1987 |
| Kansas City, MO | February 1987 | April 1987 | July 1987 |
| Leavenworth, KS | do | do | Do. |
| Topeka, KS | do | do | Do. |
| Wichita, KS | do | do | Do. |
| Des Moines, IA | do | do | Do. |
| Grand Island, NE | do | do | Do. |
| Hot Springs, SD | do | do | Do. |
| Knoxville, IA | do | do | Do. |
| Omaha, NE | do | do | Do. |
| Denver, CO | do | do | Do. |
| Ft. Lyon, CO | July 1986 | September 1986 | December 1986 |
| Salt Lake City, UT | do | do | Do. |
| Sheridan, WY | do | do | Do. |
| **Region No. 6** | | | |
| Loma Linda, CA | April 1987 | June 1987 | September 1987 |
| Long Beach, CA | do | do | Do. |
| San Diego, CA | do | do | Do. |
| Sepulveda, CA | do | do | Do. |
| West Los Angeles, CA | do | do | Do. |
| Fresno, CA | March 1987 | May 1987 | August 1987 |
| Livermore, CA | do | do | Do. |
| Martinez, CA | do | do | Do. |
| Palo Alto, CA | do | do | Do. |
| Reno, NV | do | do | Do. |
| San Francisco, CA | do | do | Do. |
| American Lake, WA | February 1987 | April 1987 | July 1987 |

SCHEDULE OF PRODUCTIVITY (MEO) REVIEWS—Continued

[Not to be cost compared with private industry]

Department of Medicine and Surgery, VA Medical Centers

| Field facility | Study start date | Completion date | Implementation date |
|---|---|---|---|
| Boise, ID | do | do | Do. |
| Portland, OR | do | do | Do. |
| Roseburg, OR | do | do | Do. |
| Seattle, WA | do | do | Do. |
| Spokane, WA | do | do | Do. |
| Walla Walla, WA | do | do | Do. |
| **Region No. 7** | | | |
| Alexandria, LA | April 1987 | June 1987 | September 1987 |
| Little Rock, AR | do | do | Do. |
| Muskogee, OK | February 1987 | April 1987 | July 1987 |
| New Orleans, LA | April 1987 | June 1987 | September 1987 |
| Oklahoma City, OK | February 1987 | April 1987 | July 1987 |
| Bonham, TX | November 1986 | January 1987 | April 1987 |
| Dallas, TX | February 1987 | April 1987 | July 1987 |
| Houston, TX | do | do | Do. |
| Kerrville, TX | do | do | Do. |
| Marlin, TX | do | do | Do. |
| San Antonio, TX | do | do | Do. |
| Temple, TX | do | do | Do. |
| Waco, TX | do | do | Do. |
| Albuquerque, NM | January 1987 | March 1987 | June 1987 |
| Amarillo, TX | do | do | Do. |
| Big Spring, TX | do | do | Do. |
| Phoenix, AZ | do | do | Do. |
| Prescott, AZ | do | do | Do. |
| Tucson, AZ | do | do | Do. |
| **Dietetic Foods** | | | |
| **Region No. 1** | | | |
| Bedford, MA | July 1986 | September 1986 | December 1986 |
| Boston, MA | do | do | Do. |
| Brockton, MA | do | do | Do. |
| Manchester, NH | do | do | Do. |
| Northampton, MA | do | do | Do. |
| Providence, RI | do | do | Do. |
| Togus, ME | do | do | Do. |
| White River Junction, VT | do | do | Do. |
| Albany, NY | September 1986 | November 1986 | February 1987 |
| Batavia, NY | do | do | Do. |
| Bath, NY | do | do | Do. |
| Buffalo, NY | do | do | Do. |
| Canandaigua, NY | do | do | Do. |
| Syracuse, NY | do | do | Do. |
| Bronx, NY | January 1987 | March 1987 | June 1987 |
| Brooklyn, NY | do | do | Do. |
| Castle Point, NY | do | do | Do. |
| Montrose, NY | do | do | Do. |
| Newington, CT | do | do | Do. |
| New York, NY | do | do | Do. |
| Northport, NY | do | do | Do. |
| San Juan, PR | do | do | Do. |
| West Haven, CT | do | do | Do. |
| **Region No. 2** | | | |
| Coatesville, PA | January 1987 | March 1987 | June 1987 |
| East Orange, NJ | do | do | Do. |
| Lebanon, PA | do | do | Do. |
| Lyons, NJ | March 1987 | May 1987 | August 1987 |
| Philadelphia, PA | do | do | Do. |
| Wilkes Barre, PA | do | do | Do. |
| Wilmington, DE | do | do | Do. |
| Altoona, PA | do | do | Do. |
| Butler, PA | | do | Do. |
| Clarksburg, WV | do | do | Do. |
| Erie, PA | do | do | Do. |
| Pittsburgh (UD), PA | do | do | Do. |
| Baltimore, MD | November 1986 | January 1987 | April 1987 |
| Ft. Howard, MD | do | do | Do. |
| Martinsburg, WV | do | do | Do. |
| Perry Point, MD | do | do | Do. |
| Washington, DC | do | do | Do. |
| Beckley, WV | March 1987 | May 1987 | August 1987 |
| Hampton, VA | do | do | Do. |
| Huntington, WV | do | do | Do. |
| Richmond, VA | do | do | Do. |
| Salem, VA | do | do | Do. |
| Asheville, NC | January 1987 | March 1987 | June 1987 |
| Durham, NC | do | do | Do. |
| Fayetteville, NC | do | do | Do. |
| Mountain Home, TN | do | do | Do. |
| Salisbury, NC | do | do | Do. |
| **Region No. 3** | | | |
| Augusta, GA | April 1987 | June 1987 | September 1987 |
| Charleston, SC | do | do | Do. |
| Columbia, SC | do | do | Do. |
| Atlanta, (Decatur), GA | do | do | Do. |

SCHEDULE OF PRODUCTIVITY (MEO) REVIEWS—Continued

[Not to be cost computed with private industry]

Department of Medicine and Surgery, VA Medical Centers

| Field facility | Study start date | Completion date | Implementation date |
|---|---|---|---|
| Dublin, GA | do | do | Do. |
| Biloxi, MS | February 1987 | April 1987 | July 1987 |
| Birmingham, AL | do | do | Do. |
| Jackson, MI | do | do | Do. |
| Montgomery, AL | do | do | Do. |
| Tuscaloosa, AL | do | do | Do. |
| Tuskegee, AL | do | do | Do. |
| Lexington, KY | do | do | Do. |
| Louisville, KY | do | do | Do. |
| Memphis, TN | do | do | Do. |
| Murfreesboro, TN | do | do | Do. |
| Nashville, TN | do | do | Do. |
| Bay Pines, FL | March 1987 | May 1987 | August 1987 |
| Gainesville, FL | do | do | Do. |
| Lake City, FL | do | do | Do. |
| Miami, FL | do | do | Do. |
| Tampa, FL | do | do | Do. |
| **Region No. 4** | | | |
| Chillicothe, OH | August 1986 | October 1986 | January 1987 |
| Cincinnati, OH | do | do | Do. |
| Cleveland, OH | do | do | Do. |
| Dayton, OH | do | do | Do. |
| Allen Park, MI | January 1987 | March 1987 | June 1987 |
| Ann Arbor, MI | do | do | Do. |
| Battle Creek, MI | do | do | Do. |
| Saginaw, MI | do | do | Do. |
| Danville, IL | March 1987 | May 1987 | August 1987 |
| Ft. Wayne, IN | January 1987 | March 1987 | June 1987 |
| Indianapolis, IN | February 1987 | April 1987 | July 1987 |
| Marion, IL | do | do | Do. |
| Marion, IN | do | do | Do. |
| Iron Mountain, MI | April 1987 | June 1987 | September 1987 |
| Madison, WI | do | do | Do. |
| Tomah, WI | do | do | Do. |
| Wood, WI | do | do | Do. |
| Chicago (LS) IL | February 1987 | April 1987 | July 1987 |
| Chicago (WS), IL | do | do | Do. |
| North Chicago, IL | January 1987 | March 1987 | June 1987 |
| Hines, IL | do | do | Do. |
| Columbia, MO | do | do | Do. |
| Poplar Bluff, MO | do | do | Do. |
| St. Louis, MO | April 1987 | June 1987 | September 1987 |
| **Region No. 5** | | | |
| Fargo, ND | March 1987 | May 1987 | August 1987 |
| Minneapolis, MN | do | do | Do. |
| Sioux Falls, SD | February 1987 | April 1987 | July 1987 |
| St. Cloud, MN | January 1987 | March 1987 | June 1987 |
| Kansas City, MO | March 19877 | May 1987 | August 1987 |
| Leavenworth, KS | do | do | Do. |
| Topeka, KS | September 1986 | November 1986 | February 1987 |
| Wichita, KS | do | do | Do. |
| Des Moines, IA | August 1986 | October 1986 | January 1987 |
| Ft. Meade, SD | do | do | Do. |
| Grand Island, NE | do | do | Do. |
| Hot Springs, SD | do | do | Do. |
| Iowa City, IA | do | do | Do. |
| Knoxville, IA | do | do | Do. |
| Lincoln, NE | do | do | Do. |
| Omaha, NE | do | do | Do. |
| Cheyenne, WY | July 1986 | September 1986 | December 1986 |
| Denver, CO | do | do | Do. |
| Ft. Lyon, CO | do | do | Do. |
| Ft. Harrison, MT | do | do | Do. |
| Grand Junction, CO | do | do | Do. |
| Miles city, MT | do | do | Do. |
| Salt Lake City, UT | do | do | Do. |
| Sheridan, WY | do | do | Do. |
| **Region No. 6** | | | |
| Loma Linda, CA | April 1987 | June 1987 | September 1987 |
| Long Beach, CA | do | do | Do. |
| San Diego, CA | do | do | Do. |
| Sepulveda, CA | do | do | Do. |
| West Los Angeles, CA | February 1987 | April 1987 | July 1987 |
| Fresno, CA | April 1987 | June 1987 | September 1987 |
| Livermore, CA | do | do | Do. |
| Martinez, CA | do | do | Do. |
| Palo Alto, CA | do | do | Do. |
| Reno, NV | do | do | Do. |
| San Francisco, CA | do | do | Do. |
| American Lake, WA | December 1986 | February 1987 | May 1987 |
| Boise, ID | do | do | Do. |
| Portland, OR | do | do | Do. |
| Roseburg, OR | do | do | Do. |
| Seattle, WA | do | do | Do. |
| Spokane, WA | do | do | Do. |
| Walla Walla, WA | do | do | Do. |
| White City, OR | do | do | Do. |

SCHEDULE OF PRODUCTIVITY (MEO) REVIEWS—Continued

[Not to be cost compared with private industry]

Department of Medicine and Surgery, VA Medical Centers

| Field facility | Study start date | Completion date | Implementation date |
|---|---|---|---|
| **Region No. 7** | | | |
| Alexandria, LA | March 1987 | May 1987 | August 1987 |
| Fayetteville, AR | do | do | Do. |
| Little Rock, AR | do | do | Do. |
| Muskogee, OK | do | do | Do. |
| New Orleans, LA | do | do | Do. |
| Oklahoma City, OK | do | do | Do. |
| Shreveport, LA | December 1986 | February 1987 | May 1987 |
| Bonham, TX | March 1987 | May 1987 | August 1987 |
| Dallas, TX | do | do | Do. |
| Houston, TX | do | do | Do. |
| Kerrville, TX | do | do | Do. |
| Marlin, TX | December 1986 | February 1987 | May 1987 |
| San Antonio, TX | March 1987 | May 1987 | August 1987 |
| Temple, TX | do | do | Do. |
| Waco, TX | do | do | Do. |
| Albuquerque, NM | May 1986 | July 1986 | October 1986 |
| Amarillo, TX | do | do | Do. |
| Big Spring, TX | do | do | Do. |
| Phoenix, AZ | do | do | Do. |
| Prescott, AZ | do | do | Do. |
| Tuscon, AL | do | do | Do. |
| **Medical information** | | | |
| **Region No. 1** | | | |
| Boston, MA | October 1986 | December 1986 | March 1987 |
| Brockton, MA | do | do | Do. |
| Albany, NY | November 1986 | January 1987 | April 1987 |
| Buffalo, NY | do | do | Do. |
| Bronx, NY | April 1987 | June 1987 | September 1987 |
| Brooklyn, NY | do | do | Do. |
| New York, NY | do | do | Do. |
| Northport, NY | do | do | Do. |
| West Haven, CT | do | do | Do. |
| **Region No. 2** | | | |
| Baltimore, MD | January 1987 | March 1987 | June 1987 |
| Washington, DC | March 1987 | May 1987 | August 1987 |
| Asheville, NC | do | do | Do. |
| **Region No. 3** | | | |
| Augusta, GA | November 1986 | January 1987 | April 1987 |
| Columbia, SC | do | do | Do. |
| Atlanta (Decatur), GA | do | do | Do. |
| Biloxi, MS | April 1987 | June 1987 | September 1987 |
| Birmingham, AL | April 1986 | June 1986 | September 1986 |
| Lexington, KY | December 1986 | February 1987 | May 1987 |
| Miami, FL | April 1987 | June 1987 | September 1987 |
| Tampa, FL | do | do | Do. |
| **Region No. 4** | | | |
| Cincinnati, OH | January 1987 | March 1987 | June 1987 |
| Cleveland, OH | do | do | Do. |
| Dayton, OH | do | do | Do. |
| Allen Park, MI | July 1986 | September 1986 | December 1986 |
| Battle Creek, MI | do | do | Do. |
| Wood, WI | November 1986 | January 1987 | April 1987 |
| Chicago (LS), IL | October 1986 | December 1986 | March 1987 |
| Chicago (WS), IL | do | do | Do. |
| Hines, IL | do | do | Do. |
| Columbia, MO | June 1986 | August 1986 | November 1986 |
| St. Louis, MO | do | do | Do. |
| **Region No. 5** | | | |
| Minneapolis, MN | October 1986 | December 1986 | March 1987 |
| **Region No. 6** | | | |
| Long Beach, CA | September 1986 | November 1986 | February 1987 |
| Sepulveda, CA | do | do | Do. |
| West Los Angeles, CA | do | do | Do. |
| Portland, OR | March 1986 | May 1986 | August 1986 |
| **Region No. 7** | | | |
| Alexandria, LA | December 1986 | February 1987 | May 1987 |
| Houston, TX | September 1986 | November 1986 | February 1987 |
| San Antonio, TX | do | do | Do. |
| Albuquerque, NM | January 1986 | March 1986 | June 1986 |
| **Office Operations** | | | |
| **Region No. 1** | | | |
| Boston, MA | December 1986 | February 1987 | May 1987 |
| Brockton, MA | do | do | Do. |
| Providence, RI | October 1986 | December 1986 | March 1987 |
| Albany, NY | February 1987 | April 1987 | July 1987 |
| Buffalo, NY | do | do | Do. |
| Bronx, NY | March 1987 | May 1987 | August 1987 |

SCHEDULE OF PRODUCTIVITY (MEO) REVIEWS—Continued

[Not to be cost compared with private industry]

Department of Medicine and Surgery, VA Medical Centers

| Field facility | Study start date | Completion date | Implemintation date |
|---|---|---|---|
| Brooklyn, NY | do | do | Do. |
| Montrose, NY | do | do | Do. |
| New York, NY | do | do | Do. |
| Northport, NY | do | do | Do. |
| San Juan, PR | do | do | Do. |
| West Haven, CT | do | do | Do. |
| **Region No. 2** | | | |
| Coatesville, PA | December 1986 | February 1987 | May 1987 |
| East Orange, NHJ | do | do | Do. |
| Lyons, NJ | do | do | Do. |
| Wilkes Barre, PA | do | do | Do. |
| Pittsburgh (UDI), PA | do | do | Do. |
| Martinsburg, WV | January 1987 | March 1987 | June 1987 |
| Perry Point, MD | do | do | Do. |
| Washington, DC | do | do | Do. |
| Richmond, VA | do | do | Do. |
| Salem, VA | July 1986 | September 1986 | December 1986 |
| Asheville, NC | December 1986 | February 1987 | May 1987 |
| Mountain Home, TN | do | do | Do. |
| **Region No. 3** | | | |
| Augusta, GA | February 1987 | April 1987 | July 1987 |
| Charleston, SC | do | do | Do. |
| Columbia, SC | do | do | Do. |
| Atlanta (Decatur), GA | do | do | Do. |
| Biloxi, MS | November 1986 | January 1987 | April 1987 |
| Birmingham, AL | do | do | Do. |
| Jackson, MI | do | do | Do. |
| Tuskegee, AL | do | do | Do. |
| Lexington, KY | January 1987 | March 1987 | June 1987 |
| Louisville, KY | do | do | Do. |
| Memphis, TN | do | do | Do. |
| Murfreesboro, TN | do | do | Do. |
| Nashville, TN | do | do | Do. |
| Bay Pines, FL | December 1986 | February 1987 | May 1987 |
| Gainesville, FL | do | do | Do. |
| Miami, FL | do | do | Do. |
| Tampa, FL | do | do | Do. |
| **Region No. 4** | | | |
| Chillicothe, OH | April 1987 | June 1987 | September 1987 |
| Cincinnati, OH | do | do | Do. |
| Cleveland, OH | do | do | Do. |
| Dayton, OH | do | do | Do. |
| Allen Park, MI | November 1986 | January 1987 | April 1987 |
| Ann Arbor, MI | do | do | Do. |
| Battle Creek, MI | do | do | Do. |
| Indianapolis, IN | October 1986 | December 1986 | March 1987 |
| Madison, WI | November 1986 | January 1987 | April 1987 |
| Wood, WI | May 1986 | July 1986 | October 1986 |
| Chicago (LS), IL | do | do | Do. |
| Chicago (WS), IL | do | do | Do. |
| North Chicago, IL | do | do | Do. |
| Hines, IL | do | do | Do. |
| Columbia, MO | December 1986 | February 1987 | May 1987 |
| St. Louis, MO | do | do | Do. |
| **Region No. 5** | | | |
| Minneapolis, MN | December 1986 | February 1987 | May 1987 |
| Kansas City, MO | September 1986 | November 1986 | February 1987 |
| Topeka, KS | December 1985 | February 1986 | May 1986 |
| Des Moines, IA | January 1986 | March 1986 | June 1986 |
| Denver, CO | do | do | Do. |
| **Region No. 6** | | | |
| Loma Linda, CA | December 1986 | February 1987 | May 1987 |
| Long Beach, CA | do | do | Do. |
| San Diego, CA | do | do | Do. |
| Sepulveda, CA | do | do | Do. |
| West Los Angeles, CA | do | do | Do. |
| Palo Alto, CA | March 1986 | May 1986 | August 1986 |
| San Francisco, CA | do | do | Do. |
| Seattle, WA | September 1986 | November 1986 | February 1987 |
| Portland, OR | do | do | Do. |
| **Region No. 7** | | | |
| Little Rock, AR | December 1986 | February 1987 | May 1987 |
| New Orleans, LA | do | do | Do |
| Oklahoma City, OK | September 1986 | November 1986 | February 1987 |
| Dallas, TX | January 1987 | March 1987 | June 1987 |
| Houston, TX | do | do | Do. |
| San Antonio, TX | do | do | Do. |
| Temple, TX | September 1986 | November 1986 | February 1987 |
| Waco, TX | do | do | Do. |
| Albuquerque, NM | November 1985 | January 1986 | April 1986 |
| Phoenix, AZ | do | do | Do. |
| Tucson, AZ | do | do | Do. |

[FR Doc. 85-30022 Filed 12-19-85; 8:45 am]

BILLING CODE 8320-01-M

### Station Committee on Education Allowances; Meeting

Notice is hereby given pursuant to section V, Review Procedure and Hearing Rules, Station Committee on Educational Allowances that on February 12, 1986, at 9:00 a.m., the Portland, Oregon Regional Office Station Committee on Educational Allowances shall at Room 1427, Federal Building, 1220 SW Third Avenue, Portland, Oregon 97204, conduct a hearing to determine whether Veterans Administration benefits to all eligible persons enrolled in Apprenticeship Training Programs at Lloyd Corporation Ltd., Portland, Oregon, should be continued, as provided in 38 CFR 21.4134, because a requirement of law is not being met or a provision of the law has been violated. All interested persons shall be permitted to attend, appear before, or file statements with the committee at that time and place.

Dated: December 13, 1985.

**Robert L. Winters,**

*Director, VA Regional Office.*

[FR Doc. 85-30160 Filed 12-19-85; 8:45 am]

BILLING CODE 8320-21-M

## UNITED STATES INFORMATION AGENCY

### Performance Review Board Members

**AGENCY:** United States Information Agency.

**ACTION:** Notice.

**SUMMARY:** This Notice is issued to revise the membership of the United States Information Agency (USIA) Performance Review Board.

**DATE:** Upon Publication.

**FOR FURTHER INFORMATION CONTACT:** Mr. Harlan Rosacker (Co-Executive Secretary), Chief, Domestic Personnel Division, Office of Personnel, U.S. Information Agency, 301 4th Street, SW., Washington, DC 20547. Tel: (202) 485-2617;

or

Ms. Johnnie Manzo (Co-Executive Secretary), Chief, Recruitment and Placement Division, Office of Personnel, Voice of America, U.S. Information Agency, 300 C Street, SW., Washington, DC 20547. Tel: (202) 485-8117.

**SUPPLEMENTARY INFORMATION:** In accordance with section 4314(c) (1) through (5) of the Civil Service Reform Act of 1978 (Pub. L. 95-454), the following list supersedes the U.S. Information Agency Notice (49 FR 38217, September 27, 1984).

*Chairperson:* Associate Director for Management—Woodward Kingman (Presidential Appointee).

*Deputy Chairperson:* Acting Associate Director, Voice of America—Morton Smith, Senior Foreign Service Officer.

*Career SES Members:*

Acting Associate Director, Bureau of Programs—Michael Schneider;
Inspector General—Anthony Gabriel;
News and Current Events Manager, Television and Film Service—William Eames;
Director for News and English Broadcasts, Voice of America—Edward DeFontaine;
Director, Office of Engineering and Technical Operations, Voice of America—Robert Frese;
Deputy for Operations, Office of Engineering and Technical Operations, Voice of America—Walter LaFleur.

*Alternate Career SES Members:*

Deputy General Counsel, Office of General Counsel and Congressional Relation—C. Normand Poirier;
Deputy for Systems Engineering, Office of Engineering and Technical Operations, Voice of America—Ronald J. Linz.

This supersedes the previous U.S. Information Agency Notice (49 FR 38217, September 27, 1984).

**Woodward Kingman,**

*Associate Director for Management, U.S. Information Agency.*

[FR Doc. 85-30180 Filed 12-19-85; 8:45 am]

BILLING CODE 8230-01-M

# Sunshine Act Meetings

Federal Register
Vol. 50, No. 245
Friday, December 20, 1985

This section of the FEDERAL REGISTER contains notices of meetings published under the "Government in the Sunshine Act" (Pub. L. 94-409) 5 U.S.C. 552b(e)(3).

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| | Item |
|---|---|
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| Tennessee Valley Authority | 3 |

1

### FEDERAL DEPOSIT INSURANCE CORPORATION

Pursuant to the provisions of subsection (e)(2) of the "Government in the Sunshine Act" (5 U.S.C. 552b(e)(2)), notice is hereby given that at its closed meeting held at 2:30 p.m. on Monday, December 16, 1985, the Corporation's Board of Directors determined, on motion of Chairman L. William Seidman, seconded by Director Irvine H. Sprague (Appointive), concurred in by Director Robert L. Clarke (Comptroller of the Currency), that Corporation business required the addition to the agenda for consideration at the meeting, on less than seven days' notice to the public, of the following matter:

Memorandum regarding the Corporation's assistance agreement with an insured bank pursuant to section 13 of the Federal Deposit Insurance Act.

The Board further determined, by the same majority vote, that no earlier notice of this change in the subject matter of the meeting was practicable; that the public interest did not require consideration of the matter in a meeting open to public observation; and that the matter could be considered in a closed meeting by authority of subsections (c)(4), (c)(6), (c)(9)(B), and (c)(10) of the "Government in the Sunshine Act" (5 U.S.C. 552b (c)(4), (c)(6), (c)(9)(B), and (c)(10)).

Dated: December 17, 1985.

Federal Deposit Insurance Corporation.

**Hoyle L. Robinson,**

*Executive Secretary.*

[FR Doc. 85-30238 Filed 12-18-85; 12:53 pm]

BILLING CODE 6714-01-M

2

### FEDERAL DEPOSIT INSURANCE CORPORATION

Pursuant to the provisions of subsection (e)(2) of the "Government in the Sunshine Act" (5 U.S.C. 552b(e)(2)), notice is hereby given that at its open meeting held at 2:00 p.m. on Monday, December 16, 1985, the Corporation's Board of Directors determined, on motion of Chairman L. William Seidman, seconded by Director Irvine H. Sprague (Appointive), concurred in by Director Robert L. Clarke (Comptroller of the Currency), that Corporation business required the addition to the agenda for consideration at the meeting, on less than seven days' notice to the public, of the following matters:

(A)(1) acceptance of the bid submitted by a newly organized national bank subsidiary of First Alamogordo Bancshares, Inc., Alamogordo, New Mexico, for the purchase of certain assets of and the assumption of the liability to pay deposits made in First National Bank of Lincoln County, Ruidoso, New Mexico, which was closed by the Senior Deputy Comptroller for Bank Supervision, Office of the Comptroller of the Currency, on Friday, December 13, 1985; and (2) adoption of a resolution providing such financial assistance, pursuant to section 13(c)(2) of the Federal Deposit Insurance Act (12 U.S.C. 1823(c)(2)), as was necessary to effect the purchase and assumption transaction; and

(B) Memorandum regarding the purchase of a leasehold agreement in the Corporation's 1776 F Street office building.

By the same majority vote, the Board further determined that no earlier notice of these changes in the subject matter of the meeting was practicable.

Dated: December 17, 1985.

Federal Deposit Insurance Corporation.

**Hoyle L. Robinson,**

*Executive Secretary.*

[FR Doc. 85-30239 Filed 12-18-85; 12:54 am]

BILLING CODE 6714-01-M

3

### TENNESSEE VALLEY AUTHORITY

**"FEDERAL REGISTER" CITATION OF PREVIOUS ANNOUNCEMENT:** 50 FR 50984 (December 13, 1985).

**PREVIOUSLY ANNOUNCED TIME AND DATE OF MEETING:** 10:30 a.m. (est), Tuesday, December 17, 1985.

**PREVIOUSLY ANNOUNCED PLACE OF MEETING:** TVA West Tower Auditorium, 400 West Summit Hill Drive, Knoxville, Tennessee.

**STATUS:** Open.

**ADDITIONAL MATTER:** The following item is added to the previously announced agenda:

**E. Real Property Transactions**

5. Proposed Auction Sale of the 9.92-Acre North Shannon Substation Property Located in Lee County, Mississippi, and Abandonment of Associated Unused Transmission Line Easement Tracts.

**CONTACT PERSON FOR MORE INFORMATION:** Craven H. Crowell, Jr., Director of Information, or a member of his staff can respond to requests for information about this meeting. Call 615-632-8000, Knoxville, Tennessee. Information is also availabe at TVA's Washington Office, 202-245-0101.

**SUPPLEMENTARY INFORMATION:**

**TVA Board Action**

The TVA Board of Directors has found, the public interest not requiring otherwise, that TVA business requires the subject matter of this meeting be changed to include the additional item shown above and that no earlier announcement of this change was possible.

The members of the TVA Board voted to approve the above findings and their approvals are recorded below:

Dated: December 16, 1985.

Approved:

**C.H. Dean, Jr.,**

*Director and Chairman.*

**Richard M. Freeman,**

*Director.*

**John B. Waters,**

*Director.*

[FR Doc. 85-30203 Filed 12-18-85; 10:56 am]

BILLING CODE 8120-01-M

Federal Register

Friday
December 20, 1985

Part II

# Nuclear Regulatory Commission

10 CFR Parts 19, et al.
Standards for Protection Against Radiation; Proposed Rule

## NUCLEAR REGULATORY COMMISSION

### 10 CFR Parts 19, 20, 30, 31, 32, 34, 40, 50, 61, and 70

### Standards for Protection Against Radiation

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Proposed rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is proposing a major revision of its regulations in 10 CFR Part 20 which provide the requirements for the protection of individuals who are exposed, both within and outside of the workplace, to ionizing radiation from routine activities (normal operations) which are licensed by the NRC. Since these regulations contain basic standards for protection against radiation, the proposed revision would affect all categories of NRC licensees. The intent of the revision is to improve NRC radiation protection standards by reflecting developments in the principles that underlie radiation protection and advances in related sciences that have occurred since the promulgation of 10 CFR Part 20 nearly thirty years ago. In particular the revision would put into practice many of the more recent recommendations of the International Commission on Radiological Protection (ICRP) set forth in ICRP Publications 26, 30, and 32.[1] The expected result of promulgating and implementing the proposed revised rule is an improved rule that provides better assurance of protection; establishes a clear health protection basis for limits and other regulatory actions taken to protect public health; applies to all licensees in a consistent manner; and reflects current information on health risk, dosimetry, and radiation protection practices and experiences. Some small decreases are expected in the number of workers exposed at the higher levels and in the doses received by those workers engaged in milling and fabrication of uranium fuel. While these reductions may not justify a Part 20 revision per se, they do result in a favorable ratio between estimated cost of implementing the revised rule and expected collective dose savings.

**DATE:** Comments must be submitted in writing on or before April 21, 1986. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given except as to comments filed on or before this date.

**ADDRESSES:** Submit written comments and any other information relevant to NRC consideration of this matter to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch. Copies of the environmental impact appraisal regulatory analysis, other referenced documents, and comments received may be examined and copied for a fee at the Commission's Public Document Room at 1717 H Street NW., Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Robert E. Alexander, Division of Radiation Programs and Earth Sciences, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301) 427–4370.

**SUPPLEMENTARY INFORMATION:**

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## I. Background

The NRC's standards for protection against radiation were developed and published by the Atomic Energy Commission (AEC) in the late 1950s. Their development reflected scientific knowledge, radiation protection parctices, and recommendations of expert groups available at the time and coincided with development of Federal Guides approved by President Eisenhower in 1960. These standards provided what, at that time, was considered to be "a very substantial margin of safety for exposed individuals," which infers a threshold value for health damage or no observable clinical effects. In promulgating these standards, the AEC emphasized "that the standards are subject to change with the development of new knowledge, with significant increase in the average exposure of the whole population to radiation, and with further experience in the administration of the Commission's regulatory program" (22 FR 543; January 29, 1957). Consistent with this emphasis, the proposed revision reflects new knowledge, increased uses of radiation and generation of radiation sources, and experience gained during the past twenty years.

None of these factors, upon examination, suggest that there have been significant increases in radiation exposure or in health detriment of workers or members of the public since 1957; on the contrary, protection has been good and has improved over the twenty plus years since the Commission established its regulatory program. This may be partially due to a substantial number of revisions of Part 20 to reflect technical and administrative changes. However, these revisions have not kept the regulations in accord with more recent recommendations of scientific organizations (namely, those having expertise in radiation protection and biological effects of ionizing radiation) to improve overall protection and establish a clear health risk rationale. The basic approach to radiation protection in the original regulation (i.e., margin of safety ) has been retained throughout the previous revisions without any effort to relate the approach more directly to any associated health risk. Limits were derived by implicit judgments on health effects associated with the use of licensed materials. In the proposed revision, limits are derived explicitly by quantifying risk, and then by judging the acceptability of the risk

[1] ICRP Publication 26, "Recommendations of the International Commission on Radiological Protection," adopted January 17, 1977. ICRP Publication 30, "Limits for Intake of Radionuclides by Workers," adopted July 1978. ICRP Publication 32, "Limits for Inhalation of Radon Daughters by Workers," adopted March 1981.

through a comparison of risks experienced by workers in industries not involving radiation exposures or a comparison of risks normally encountered by the general public.

A most important development in radiation protection is a recognition of the extensive knowledge concerning the probability or risk of suffering radiation-induced health damage and the merit of using this knowledge to form a rationale for standards. Establishing this approach for the limits and the expected improvements in radiation protection programs derived from new knowledge and operating experience are the basis for the proposed revision.

The capability to develop such health risk-based standards is greatly enhanced by contemporary computer technology, which permits consideration of many physical, biological and chemical variables that can affect the health risk and dose estimates required for developing and implementing the standards. For internally deposited radionucclides, the otherwise complex calculations are reducible to simple tables of intake and derived media concentrations.

The ICRP used these advancements to derive a system for radiation protection based on limiting the "effective" whole body dose and, thus, the estimated risk of health damage. Use of this "effective" whole body risk concept is a major departure from the premises of the present Part 20, which is based on the concept of protecting the (single) "critical organ." Its important advantage lies in permitting any type of exposure to radiation or radioactive materials to be considered as if the exposure were to the whole body.

The ICRP system of dose limitations has three basic components:

(1) No practice or operation involving exposures to radiation should be adopted unless its introduction produces a net benefit, i.e., the practice must be justified;

(2) All exposures shall be kept as low as is reasonably achievable (ALARA),[2] technologic, economic, and social factors being taken into account; and

(3) The effective dose equivalent to individuals shall not exceed the limits selected for the appropriate circumstances.

The ICRP approach provides for selecting dose limits based on estimated risks, comparing health risks in the nuclear industry with health risks in other industries and risks to members the public with everyday risks, and adding doses from dissimilar exposure modes to obtain the total risk. The system uses two constraints. The first is a limit to constrain the occurrence of radiation-induced stochastic (random) health effects (carcinogenesis and hereditary diseases), in which the severity of the damage in independent of dose. The second is an additional limit to prevent the occurence of radiation-induced non-stochastic health effects (such as cataract formation), in which no clinical damage occurs unless the dose exceeds a given level (threshold) and the severity of the damage is dose dependent. The proposed revision would adopt, in part, the approach to radiation protection and much of the system of dose limitations recommended by the ICRP.

Implementation of the recommendations of ICRP in Publications 26, 30, and 32 leads to the use of many new terms. Since there is a need to understand the new terminology in order to understand the Part 20 revision, these terms have been defined in § 20.3 of the proposed revision. Most of these terms—shallow, eye, and deep dose equivalent; effective dose equivalent; committed dose equivalent; and committee effective dose equivalent—result in greater specificity of meaning (less ambiguity) in assigning the dose to organs or tissues and in being able to sum the external and internal dose equivalent.

The proposed revisions of Part 20 would supersede proposed amendments to 10 CFR Parts 19 and 20 published by the Atomic Energy Commission (AEC) on January 3, 1975 (40 FR 799) requiring control of doses to an embryo or fetus as low as is reasonably achievable, proposed amendments to 10 CFR Part 20 published by the NRC on February 20, 1979 (44 FR 10388) deleting the 5(N–18) dose-averaging formula, and proposed amendments to 10 CFR Part 20 published by the NRC on May 9, 1983 (48 FR 20721) modifying its reporting requirements for the lose or theft of licensed material.

To having consistency between proposed changes in Part 20 and related parts of NRC's regulations, conforming amendments are proposed to change the affected sections of Parts 19, 30, 31, 32, 34, 40, 50, 61, and 70. These proposed conforming amendments can be found after Appendix F of the proposed revision of Part 20.

Some other 10 CFR parts, such as Part 50 (Appendix I), Part 61 and Part 100, contain dose values which should also be expressed in terms of effective dose equivalent to be consistent with the proposed revision. These adjustments or revisions would not be simple and no attempt has been made to propose amendments to such provisions in these parts at this time.

Subpart E, 10 CFR Part 140, contains the criteria for determination of extraordinary nuclear occurrences (ENO) and includes a table of Total Projected Radiation Doses, which are expressed as organ doses. Any revision of these values constitutes a substantive change and will be considered as part of an ongoing rulemaking proceeding to modify the ENO criteria rather than in conjunction with the Part 20 revision.

## II. Comment Response

The NRC has had the benefit of receiving and reviewing many comments which have been valuable in preparing the proposed revision. About 70 responses were received on the Advance Notice of Proposed Rulemaking (ANPRM) on this revision that was published on March 20, 1980 (45 FR 18023) and about 80 responses were received on the notice of proposed deletion of the 5(N–18) provision that was published on February 20, 1979 (44 FR 10388). Although the responses were widely varied, the general conclusion was that revision of NRC's standards for protection against radiation was favored. The NRC also benefited from its participation in the public meetings associated with the guidelines proposed by the Environmental Protection Agency (EPA) for occupational radiation exposure (46 FR 7836; January 23, 1981) and review of comments received by EPA.

In addition, the NRC had valuable discussions with members of national and international radiation protection organizations, licensees, representatives of labor unions, and other groups. These discussions provided useful views, particularly in regard to technical and administrative problems foreseen in implementing the revision. This revision reflects and attempts to resolve many of the concerns identified, while maintaining the central thrust of the revision—to ensure that radiation protection is adequate and defendable when judged by good protection practices and contemporary standards.

A comparison of salient issues in the present Part 20 with the proposed revision is presented in Table 1. It is noteworthy that some limits for external radiation will be lower (e.g., hands) in the revisions and others will be higher (e.g., lens of eye). For internal emitters, specific organ limits will be higher than present values.

BILLING CODE 7509-01-M

[2] ALARA—see § 20.3 in proposed rule for definition.

TABLE 1. COMPARISON OF SALIENT ISSUES IN THE PRESENT 10 CFR PART 20 WITH THE PROPOSED REVISION

| Issue | Present 10 CFR Part 20 | | Proposed Revision | |
|---|---|---|---|---|
| OCCUPATIONAL | | | | |
| Limits | External | | | |
| | Whole body, head and trunk, active blood-forming organs, lens of eye, or gonads | 1.25 rems/qtr or 3 rems/qtr with lifetime occupational exposure history and within 5(N-18) dose-averaging formula. | Whole body, head, trunk, arm above elbow, and leg above knee | 5 rems/year (0.05 Sv/year) - includes summation of (external) deep dose equivalent and (internal) committed* effective dose equivalent.<br><br>3 rems (0.03 Sv) (external) maximum deep dose equivalent in any quarter. |
| | | | Lens of eye | 15 rems/year (0.15 Sv/year) |
| | Hand and forearms; feet and ankles | 18 3/4 rems/qtr (75 rems/yr) | Hand, elbow, arm below elbow, foot, knee, and leg below knee | 50 rems/year (0.5 Sv/year) |
| | Skin of whole body | 7 1/2 rems/qtr (30 rems/yr) | Skin (10 $cm^2$) | 50 rems/year (0.5 Sv/year) |
| | No summation of internal (organ) doses. | | Weighted organ doses for all organs are summed. | |
| | No summation of external and internal doses. | | Doses from external and internal sources are summed. | |

*Except for selected uranium and transuranic radionuclides for which the derived air concentrations (DACs) and annual limits of intake (ALIs) are hard to measure at levels found in the workplace. For these nuclides, the regulation may be based upon the effective dose equivalent received in the year rather than the committed effective dose equivalent.



Enclosure 1

TABLE 1. (Continued)

| Issue | Present 10 CFR Part 20 | Proposed Revision |
|---|---|---|
| | Internal | |
| | Intake equivalent to 520 MPC-hours/qtr. Calculated to result in a 50-year committed dose of:<br>Whole body 1.25 rems (5 rems/yr)<br>Bone, thyroid, and skin 7.5 rems (30 rems/yr)<br>Other organs 3.75 rems (15 rems/yr) | Annual limit of intake (ALI) equivalent to 2000 DAC-hours/year. Calculated DACs are based on the following: Organs are assigned weighting factors, based on the estimates of risk to that organ per unit of dose relative to the estimate of risk per unit of dose for uniform whole body exposure. "Capping" dose limit of 50 rems/year (0.5 Sv/year) used to avoid non-stochastic effects. For body parts other than those listed above: |

| Tissue | $w_T$ | Inferred* Dose Limit (rems/year) | Actual Dose Limit (rems/year) |
|---|---|---|---|
| Gonads | 0.25 | 20 | 20 |
| Breast | 0.15 | 33 | 33 |
| Red bone marrow | 0.12 | 42 | 42 |
| Lung | 0.12 | 42 | 42 |
| Thyroid | 0.03 | 167 | 50 |
| Bone surfaces | 0.03 | 167 | 50 |
| Each of 5 remaining organs with the largest dose | 0.06 | 83 | 50 |

| | | |
|---|---|---|
| Planned Special | 5(N-18) dose averaging provided - with quarterly limits. | Planned special exposures allowed in addition to the annual limits from routine exposures. Limits set at 1 x annual limits/year from all events in a year and 5 x annual limits/lifetime from all events. 5(N-18) dose averaging provision is eliminated. |

Enclosure 1

9

TABLE 1. (Continued)

| Issue | Present 10 CFR Part 20 | Proposed Revision |
|---|---|---|
| Embryo/Fetus | Not addressed. | 0.5 rem (5 mSv) during the entire pregnancy due to occupational exposure of the "declared" pregnant woman. |
| ALARA | Recommended. | ALARA program required. |
| Occupational reference level | None | Investigation level--set by licensee below annual limit. |
| BASIS FOR LIMITS | Biological damage or health effects would not be statistically observable. | "Acceptable" risk ($10^{-4}$ per year for workers, $10^{-6}$ to $10^{-5}$ per year for members of the public) based on estimated radiation-induced fatal cancers and serious hereditary disorders. Upper limit of organ dose set to avoid non-stochastic (threshold) effects, such as cataracts. |
| INTERNAL DOSIMETRIC METHODOLOGY | | |
| Irradiation | Dose to the most irradiated organ, i.e., "critical organ," used to limit intake via "Maximum Permissible Concentrations" (MPC). | Dose to each organ is calculated, weighted by a factor equating risk from dose to that organ to risk from 5 rems (0.05 Sv) of whole-body irradiation, and then the products are summed. Values for ALIs and DACs have been calculated for each radionuclide. |
| | Doses from radionuclides deposited in non-critical organs are ignored. | Weighted doses to organs from radionuclides deposited anywhere in the body are summed. |
| Lung model | 1959 ICRP-2 model used. | Improved 1966 model of ICRP Task Group on Lung Dynamics used. |
| Retention in lung | Aerosols ranked "Soluble" or "Insoluble." | Aerosols ranked by translocation and elimination rates, i.e., D (days), W (weeks), and Y (years). |

10 Enclosure 1

TABLE 1. (Continued)

| Issue | Present 10 CFR Part 20 | Proposed Revision |
|---|---|---|
| | No consideration given for aerosol aerodynamic properties. | Assumes 1 μm AMAD. Adjustments for other aerosol size distributions, and physical and chemical properties are possible. |
| Translocation | Based on 1959 biological data. | Based on 1978 biological data from ICRP-30. |
| PUBLIC | | |
| Limit | Implied limit for individuals of 0.5 rem/year to whole body, blood-forming organs, and gonads; 3 rems/year to bone and thyroid; and 1.5 rems/year to other organs. No summation of external and internal dose. No consideration of food pathways. | Explicit limit of 0.5 rem/year (5 mSv/year) for individuals from all sources. Includes summation of external and internal doses and food pathways. |
| Reference level | None. | 0.1 rem/year (1 mSv/year) to member of the public as action level for licensee. |
| Collective dose cutoff level | None. | 0.001 rem/year (0.01 mSv/year) per person cutoff level for evaluating collective doses to general population. |
| MONITORING | | |
| Adult | Required at 25% of the basic quarterly limit (0.312 rem). | Required at 10% of the annual limit for deep dose equivalent (0.5 rem or 5 mSv). Required at 10% of the annual limit for eyes, skin, or extremities. |
| | Required for intakes greater than 25% of 520 MPC-hours in a quarter. | Required at 30% of the ALIs. |
| Minor | Required at 5% of the basic quarterly limit (0.0625 rem). | Required at 5% of the external annual limits for adults. Required at 5% of the ALIs for adults. |

TABLE 1. (Continued)

| Issue | Present 10 CFR Part 20 | Proposed Revision |
|---|---|---|
| SEWER DISPOSAL | Concentration limits equivalent to 5 rems/year by potential ingestion. | Concentration limits equivalent to 0.5 rem/year (5 mSv/year) by potential ingestion. |
| RECORDS | | |
| Determination of prior dose | Occupational exposure history required as condition for allowing 3 rems per quarter and use of 5(N-18) dose-averaging formula. Signed statements of dose during last quarter required upon employment. | Occupational exposure history (effective dose equivalent received during the current year and, when appropriate, all planned special exposures and over-exposures received during the lifetime of the individual) required for all individuals requiring provision of individual monitoring devices or services. |
| Current exposure records | Form NRC-5 includes only external dose. Includes items for calculating status under 5(N-18). | Revised Form NRC-5 includes external dose, internal dose, summation, and dose received during planned special exposures and as overexposures. |
| Effluent releases | Implied under survey requirement. | Explicitly required. |
| Planned special exposures | No provision. | Records required. |
| REPORTS | | |
| Criteria for immediate notification of incidents | 20 times the basic quarterly dose limits. | 5 times the annual dose limits. |
| | Property damage $200,000. | Loss of facility use and property damage criteria deleted. |
| Overexposures of public | Required if limits for short-term radiation levels or annual effluent releases to unrestricted areas are exceeded. | Required if any individual in an unrestricted area exceeds 0.5 rem (5 mSv) in one year. |

TABLE 1. (Continued)

| Issue | Present 10 CFR Part 20 | Proposed Revision |
|---|---|---|
| REPORTS (Continued) | | |
| Planned special exposures | No provisions for planned special exposures. | Report required. |
| Exceeding reference level | No provisions. | Report required for exceeding 0.1-rem (1 mSv) level to members of public, unless licensee received prior approval for conducting operations which result in doses in excess of the reference level. |
| Individual monitoring reports | Annual statistical summary report required of 7 categories of licensees. | Same as present Part 20, except that doses will be effective dose equivalents. |
| | Termination report required of same 7 categories of licensees. | Same as present Part 20, except that doses will be effective dose equivalents. |
| Reports to individuals | Required by § 19.13(d) for any information reported to NRC. Applies only to overexposures and termination reports. Pursuant to § 19.13, other reports on exposures are available to the individual on request. | Same requirements as present Part 20, except that doses reported will be effective dose equivalents. In addition, licensees would report to individuals any planned special exposures; and licensees operating under § 20.205 (the exception for certain uranium and transuranic nuclides having very long effective half-lives) would report estimates of both annual effective dose equivalent and 50-year committed effective dose equivalent to their employees. |

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Enclosure 1

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### III. Radiation Protection Principles

Prior to ICRP Publication 26 (1977) and the associated Publication 30 (1978), recommendations for dose limits for internal emitters were based on the concept of protecting the "critical organ" at risk, as described in ICRP Publication 2 (1959). Under this concept, protection was provided by limiting the dose to that single body organ or tissue which accumulated the greatest concentration of radioactive material and consequently received the highest dose. In a few cases, sensitivity to radiation damage and other factors were considered. By protecting the "critical organ," a degree of protection was also provided to all other organs. To satisfy the dose limit to the critical organ, intake of radioactive material was controlled by specifying the maximum permissible concentration (MCP) of a given radionuclide in air and water, corresponding to the major routes of intake by inhalation (breathing) and by drinking. These concentrations were set for a given radionuclide either by the critical organ dose limit, such as 15 rems/year to lung for occupational exposures, or by equating the dose delivered by the radionuclide to the skeleton (bone) to that given by a total body content of 0.1 μCi of radium-226. (Evidence of biological effects caused by radium-226 in humans was available at that time.) The limit for exposure of the whole body was set by the organs that had been assigned the lowest dose limits. These organs were bone marrow, gonads, and lens of the eye because of concerns for inducing leukemia, hereditary effects, and cataracts, respectively. The present Part 20 is based on this concept of protecting the critical organ. Summation of external and internal radiation doses is not required in the present Part 20, even though the need and desirability for summation of doses has been recognized since 1959 (see ICRP Publication 2).

Control measures have often been based on the maximum permissible body or organ content (or "burden") of radionuclides. The burden is calculated to deliver the maximum permissible annual dose to a critical organ. These burdens generally correspond to the quantity of radionuclide calculated to be present after an exposure period long enough for equilibrium to be reached between the continuing rate of intake at the "maximum permissible concentration" and the rate of elimination by body excretion and radioactive decay. At equilibrium the body burden is that which corresponds to the annual dose limit. For example, for insoluble plutonium in the lung, the maximum permissible lung burden of 16 nanocuries is that which results in a dose of 15 rem to the lung in the 50th year following continuing intake. For short-lived radioactive materials, which deliver their entire dose for any given single intake or reach equilibrium for continuous intake within a year or so, maximum permissible body and organ burdens can be appropriate measures for assessing protection. However, for control or intake of long-lives radioactive materials (such as uranium and plutonium, for which equilibrium cannot be attained in a lifetime) the use of the maximum permissible body burden as a limit and the corresponding annual dose equivalent limit is less protective unless adequate consideration is also given to the retention and accumulation of the material over the remaining lifetime. For these long-lived radionuclides, retention of material taken into the body during a year can constitute a chronic source of irradiation for many years, perhaps for a lifetime, and a comparison of the annual dose to the anual limit can be misleading.

Since 1960, an extensive research program to determine the biological effects of ionizing radiation has yielded substantial information concerning risk of damage to health. Comparable estimates of the risk of cancer mortality and morbidity and of hereditary damage per unit of dose were published in 1972 and 1980 (BEIR I and III Reports) by the National Academy of Sciences (NAS) and in 1977 and 1982 by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR).[3]

Using the UNSCEAR risk estimates, ICRP Publication 26 introduced the terms "effective dose equivalent" and "committed effective dose equivalent" to describe concepts which would permit combining doses received from external and internal exposures. This method assigns each organ a weighting factor, which is proportional to the estimate of risk to that organ per unit of dose relative to the estimate of risk per unit of dose for a uniform whole body exposure. Except for gonad exposures, these weighting factors are presumed to represent the risk of inducing a fatal cancer in the different tissues relative to the total risk (cancer and hereditary diseases) from uniform whole body exposure for the same dose equivalent. The risk coefficient for gonads is based on the potential risk of serious hereiditary damage in the first two generations of offspring of the exposed person. The proposed revision would adopt the relative sensitivity values or weighting factors in ICRP Publication 26. These values and the appropriate risk per unit dose equivalent estimates are shown in Table 2. Also shown is the probability of suffering disease of the irradiated organ, given a unit dose equivalent.

The risk coefficients in Table 2, which are used to determine the relative sensitivity values for radiation-induced fatal cancers in organs, are based primarily on studies of human populations exposed to ionizing radiation at higher dose rates and at higher dose levels than generally found in the workplace and are truly estimates in the statistical sense only. There is no evidence which unequivocally demonstrates an increased incidence of cancers or hereditary effects in humans exposed to radiation at the exposure levels found in the workplace or in the environs of facilities licensed by the NRC. The observed incidence rate of fatal cancers, the observed fluctuations in normal incidence rates, and the relatively low radiation risk make demonstration of any slight increase due to radiation exposure essentially impossible to detect. It is generally prudent to assume in the interest of public health and radiation protection, however, that risk to health is proportional to dose. The risk coefficients, which were derived for exposure conditions with doses and dose rates higher than are expected to occur in the workplace, are believed more likely than not to overestimate the true risk under this assumption.

[3] One segment of these data is currently under review and reevaluation, i.e., the data from Japanese survivors of the A-bombs during World War II. It appears that the reevaluation will require at least 2 years for resolution. The data being challenged are the primary source of information that cover a wide range of exposures and that provide the principal basis for the shape of the dose-health effect response curves. However, the Japanese A-bomb survivor data constitute only one of several sources of human exposure data and, in the opinion of many experts, the risk coefficients are not likely to be changed substantially as a result of the ongoing reevaluation of the data. Consequently, the Commission sees no reason for delaying this rulemaking proceeding until the study is completed.

TABLE 2.—RELATIVE SENSITIVITIES OF ORGANS AND TISSUES OF THE BODY FOR THE INDUCTION OF FATAL CANCERS AND SERIOUS HEREDITARY EFFECTS

| Organ or tissue | Weighting factor (relative sensitivity) | Risk coefficient per rem | Probability per rem |
|---|---|---|---|
| Gonads | 0.25 | $(4X10^{-4})$ | 1 in 25,000. |
| Breast | 0.15 | $(2.5X10^{-4})$ | 1 in 40,000. |
| Red bone marrow | 0.12 | $(2X10^{-4})$ | 1 in 50,000. |
| Lung | 0.12 | $(2X10^{-4})$ | 1 in 50,000. |
| Thyroid | 0.03 | $(5X10^{-5})$ | 1 in 200,000. |
| Bone surfaces | 0.03 | $(5X10^{-5})$ | 1 in 200,000. |
| Any remaining five organs or tissues receiving the highest dose at a relative sensitivity of 0.06 each | 0.30 | $(5X10^{-4})$ | 1 in 20,000. |
| Total for whole body | 1.0 | $(1.65X10^{-4})$ | 1 in 6,000. |

The fractional contribution of the risk to individual organs is determined by dividing the risk to the organ by the risk from uniform whole body irradiation, allowing for no differences in seriousness of damage between serious hereditary diseases and fatal cancers or between different types of fatal cancers. For example, irradiation of the gonads alone would, theoretically, casue about ¼ of the health effects (occurring as hereditary effects in the first two generations of offspring) caused by uniform irradiation of the entire body (occurring as cancer deaths plus serious hereditary diseases) at the same dose level. Irradiation of the lung alone would, theoretically, cause about ⅛ of the health effects (potential lung cancer deaths) caused by uniform whole body irradiation at the same dose level.

Some organs and tissues, such as the thyroid or bone surfaces, are less prone than others to be the site of fatal radiation-induced cancers. If the dose equivalent permitted to those organs were to be based entirely on the relative sensitivity for fatal cancers, the dose might be sufficient to cause functional damage, rather than cancers, to those organs. Therefore, functional damage (non-stochastic) to organs or tissues must be prevented by an overriding or "capping" dose limit.

Explicit in the recommendations of ICRP Publication 26 is that the sum of the (external) deep dose equivalent and the committed effective dose equivalent in one year should not exceed the annual dose equivalent limits. For members of the public (i.e., those persons who are not occupational associated with radiation industries and activities), the dose limits are ⅒ of the limits for workers, which are numerically the same as the present Part 20 except that internal and external doses are summed and internal doses are committed effective dose equivalents. The annual effective dose equivalent limit implicitly places a limit on the calculated risk of dying of radiation-induced cancer in the future and of transmitting radiation-induced hereditary damage to future offspring.

## IV. Acceptability of Risk

Intrinsic in the assumption of a direct proportionality between dose and health damage is the presumption that radiation-induced health damage can occur at any non-zero value of dose, unless a threshold dose for damage is also assumed. (Keep in mind that this adoption of proportionality is made for reason of prudence in protecting public health and does not mean proportionaluity is supporfed by the best scientific evidence available.) In selecting values for dose limits, therefore, it is necessary to consider the issue of what level of risk is acceptable or what level of risk is unacceptable. The dose limits selected are then surrogates (substitutes) for risk, and doses at or below the limits are generally acceptable and those above the limits are generally unacceptable. The term "generally" is included here because the level cannot be absolute without exceptions.

The ICRP judged the acceptability of the level of risks to individuals exposed in the workplace (i.e., workers occupationally exposed and often referred to as radiation workers) at the dose limit by comparing this risk with that of workers in industries which do not involve radiation and which are recognized as having high standards of safety. In making this judgment the ICRP recognized the basic question of equality between two different types of death; namely, the risk of fatal cancer from radiation exposure versus the risk of accidental death in other occupations. These inherent problems in developing an index of harm are discussed in ICRP Publication 27 (1977). "Safe" industries were considered to be those in which the average annual mortality due to occupational hazards does not exceed $10^{-4}$. It would be desirable to compare the risks to the individual workers whom might be exposed at the annual limit for a substantial fraction of their lifetime to the individual workers in higher (rather than average) risk categories in "safe" industries. However, data are inadequate to determine the number of individual workers who might be exposed at the annual limit for a substantial fraction of heir working lifetime. In addition, there are currently no data available on the range of individual (rather than average) risks in "safe" industries. Consequently, the only comparison that can be made at present is between the calculated risk to individuals exposed at the dose limits and the average risk to workers in safe industries.

An acceptable level of risk for member of the public was judged, by the ICRP, to be in the range of $10^{-6}$ to $10^{-5}$ per year. This range is a substantive judgment of risk normally accepted in everday life as producing no undue concern.

## V. Quantification of Risks From Occupational Exposures

If a worker were to receive a uniform whole body dose equivalent of 5 rems or 0.05 Sv (which is the dose equivalent limit in a year for workers), the mathematical expecption of radiation-induced health damage can be estimated using the risk coefficients in Table 2. This risk is about 5 rems $\times 1.65 \times 10^{-4}$ mortality per rem $= 8 \times 10^{-4}$ to the exposed individual over the individual's remaining lifetime, including a risk of $2 \times 10^{-4}$ serious hereditary damage in two generations of offspring. If the worker were ot receive the 5 rems every year, the annual risk for the worker (after several years) would also be $8 \times 10^{-4}$, which is about eight times higher than the "acceptable" average annual occupational risk in "safe" industries. For perspective on the above risk of cancer, the naturally occurring lifetime risk of cancer death is one in six (NAS BEIR III, 1980). If a different end point, such as years of life lost, were selected, the radiation-induced risk would be substantially less relative to loss of lifetime from many other industrial causes. This is so because death from radiation-induced cancer in adults is likely to occur late in life owing to latency periods (which range from a few years to several decades) between exposure and incidence, whereas many industrial deaths are casued by accidents and are expressed promptly.

The annual occupational dose equivalent limit of 5 rems (0.05 Sv) was recommended by the ICRP for several reasons.

1. With an annual dose limit of 5 rems, few individuals acctually receive whole body dose equivalents of 5 rems or more

in any year, and very few (if any) individuals receive whole body annual dose equivalents which average near 5 rems over an extended time interval. Radiation workers receive an average annual dose equivalent of less than 0.5 rem which implies an associated risk less than the ICRP accepted value of $10^{-4}$.

2. ALARA programs, which would be required in the revised Part 20, would usually maintain exposure levels well below the dose limits.

3. The annual risk value for "safe" industries, $10^{-4}$, is an average value for the industry. By definition, some workers would be at higher or lower than the average risk for the industry.

The Commission recognizes that there are essential tasks which could require some individuals to receive annual doses which might approach or, on some special occasions, exceed 5 rems. The proposed revision would adopt the 5-rem (0.05 Sv) annual dose limit,as recommended by ICRP, but would limit the external component to 3 rems (0.03 Sv) any quarter. The proposed revision would also permit a "planned special exposure" which might result in an individual receiving 5 rems (0.05 Sv) in one year in addition to the dose received from routine operations. The estimated risk from a 5-rem planned special exposure would also be about $8 \times 10^{-4}$. Thus, the estimated total risk from 10 rems, which could be received in one year from both routine and planned special exposures (a very unlikely situation), would be about $1.6 \times 10^{-3}$.

## VI. Quantification of Risks From Exposures of Individuals in the General Population

If a very young individual were to receive a whole body dose equivalent of 0.5 rem or 5 mSv (which is the dose equivalent limit in a year for a member of the general public), the mathematical expectation of radiation-induced cancer and of genetic effects in two generations of offspring would be about $8 \times 10^{-5}$ over the individual's lifetime. In the unlikely event that the individual were to receive 0.5 rem every year for a lifetime, the calculated annual risk for the individual would be about $8 \times 10^{-5}$, which is about an order of magnitude higher than the estimated $10^{-6}$ to $10^{-5}$ per year average annual risk which is considered by the ICRP to be the "acceptable" range.

The revision of Part 20 would retain a dose equivalent limit of 0.5 rem (5 mSv) in a year for individual members of the general public, but it would also contain a "reference level" of 0.1 rem (1 mSv) in a year. The 0.1-rem reference level, in conjunction with the constraints of the EPA regulations 40 CFR Part 190 and the NRC regulations in 10 CFR Part 50 (§ 50.34a, § 50.36a, and Appendix I) for uranium fuel cycle facilities and light-water-cooled reactors, respectively, and with a required ALARA program for all licensees, is believed to be adequate to ensure that the annual average risk to any individual member of the public is within, or below, the range of $10^{-6}$ to $10^{-5}$. Licensees would be required to report to the NRC when a dose equivalent of 0.1 rem (1 mSv) is received (or is likely to be received) in a year by an individual member of the public from the licensee's activities. The licensee would also be required to report on efforts to reduce the dose level.

## VII. Justification

Recommendations for requiring a justification for exposures are not new. Admonitions to consider the necessity for an activity that is known to produce radiation and that has some individual and public health significance have been called for by the ICRP, National Council on Radiation Protection and Measurements (NCRP), and the former Federal Radiation Council (FRC) for more than a decade. Justification is a basic tenent of radiation protection. The Commission endorses the principle that a licensed activity should produce some social benefits. In instances where practices are pursuant to, or consistent with, national policy statements or Federal legislative actions, it is concluded that a judgment on social benefit has been made a priority as an intrinsic part of the policy or legislative process. The issue of benefit trade-offs is thus broader than providing protection against radiation, and the revision of Part 20 contains no requirements to justify the activity or to determine net benefit derived.

## VIII. As Low as Is Reasonable Achievable

The present Part 20 [in § 20.1(c)] contains an admonition that licensees ". . . should . . . make every reasonable effort to maintain radiation exposures . . . as low as is reasonably achievable." This provision was added to Part 20 more than a decade ago, replacing the view that an activity was acceptable if the exposures were below a specific limit. Through various license provisions (e.g., technical specifications and license conditions) and through rulemaking (e.g., § 50.34a, § 50.36a, and Appendix I in 10 CFR Part 50 and 40 CFR Part 190), substantial ALARA program and efforts are presently required for certain categories of licensed activities, such as operation of uranium fuel cycle facilities.

The Commission recognizes the importance of ALARA considerations in achieving adequate radiation protection and in the revision would required, rather than merely exhort, all licensees to have a radiation protection program which includes ALARA provisions. However, the Part 20 revision would not required quantified optimization studies, in the sense described below, because of the difficulties in performing the analyses and because it is recognized that the decisions must be largely judgmental in any event.

The ICRP recommends that quantatives optimization evaluations be provided, where practicable, for decisionmaking in radiation protection activities. These evaluations require solutions to differential cost-benefit equations and quantification of technical and socioeconomic factors, including the selection of monetary values for a unit of collective dose (e.g., dollars per person-rem). While optimization has been done for radiation protection activities, the studies can be costly, the methods are not familiar to most persons, the range of uncertainty is substantial, and the quantification of judgmental factors involves difficult social-political considerations as, for example, in dealing with collective dose. For these reasons, the Commission has decided not to require optimization evaluations. However, licensees may apply such evaluations when they consider it beneficial for decisionmaking.

## IX. Radiation Protection Program

Only in certain instances are licensees now required to provide a formal radiation protection program for review as part of licensing actions, and even those are not required by the present Part 20. The Part 20 revision would establish a uniform requirement for all licensees to have a radiation protection program which would include provisions for keeping doses ALARA. The revision does not state specifically what must be included in the program, other than provisions for review by management and for internal (licensee) investigation levels. Guidance on the general content and format of the programs would be provided. Since there is a broad range in activities among licensees, the specific provisions of the radiation protection program would be commensurate with the potential for radiation exposures to individual workers and to members of the public.

The revision would not specifically require that the program be reviewed by the NRC. However, the licensee's program would be available for

inspection. The licensee should be able to demonstrate that investigation levels, which will serve to keep doses to individuals well below the dose limits, have been selected and that a procedure for investigating conditions that cause or permit these levels to be exceeded has been established. No formal report to the NRC is required or anticipated for the licensee actions in dealing with the internal investigation levels.

Consideration was given to specifying a numerical value for the ALARA investigation level, rather than leaving it for the licensee to select. However, a single value would not be appropriate for all categories of licensees and, therefore, no value has been specified.

## X. Units and Conversion Factors

In accordance with the Metric Conversion Act of 1975, the revision introduces the International System of Units (SI) involving the becquerel, gray, and sievert. This action was also recommended by the ICRP, International Commission on Radiation Units and Measurements (ICRU), and the NCRP in its comments to NRC on earlier drafts of the proposed revision. The proposed radiation protection limits are presented in dual notation so that the regulations do not impede the voluntary transition to the use of the metric system by the Federal agencies, State or local governments, or private sector of the nuclear industry. However, much of the general discussion in the supplementary information used the so-called "special unit," the curie, rad, and rem, which are more familiar to licensees, regulators and workers. This is important in conveying information on the health protection basis for the proposed limits in a format which is as understandable as possible. There has been concern that use of the SI units might be viewed as an attempt to be misleading by using units that are numerically different from the more familiar units. In addition, there has been considerable concern about the potential for errors in the application of the SI units, such as in medical practice. The values in the appendices are given in the traditional units because that is the system in general use by the individual who will use these values. The rule contains the definitions, prefixes, and conversion factors for the SI units so that licensees may use these units in their radiation control programs and their recordkeeping and reporting requirements.

The present Part 20 and the proposed revision equate an exposure of 1 roentgen due to x- or gamma-radiation to a dose equivalent of 1 rem, except for personnel monitoring purposes. Consideration was given to including in the Part 20 revision a table of factors for converting exposure (in roentgens) to dose equivalent (in rems) for a number of photon energies. Properly calibrated personnel dosimeters take this into account. However, it was recognized that such an extensive of conversion factors could have been interpreted as requiring licenses to have on-going knowledge of the spectral distribution of photon energies in each portion of the licensee's facilities. Such a requirement would be impractical amd unwarranted. Consequently, a simple conversion factor of 1.0 has been proved for all photon energies. The same conversion value would be applicable to shallow, eye, and deep dose equivalent.

The mean quality factors and fluence per unit dose equivalent for monenergetic neutrons (Table 2 of the revised rule) have been changed slightly from those in the present Part 20. The values in Table 2 of the revised rule have been adapted from NCRP Reports 38 and 39, National Bureau of Standards Handbook 107, and American National Standards Institute Standard N43.1 (the same values are presented in each of these documents). The fluence of neutrons of unknown energy equivalent to 1 rem has been changed from 14 to 25 million neutrons $cm^{-2}$. The vaule of 14 million neutrons $cm^{-2}$ $rem^{-1}$ would apply to neutrons of about 40 MeV, well above those emitted by licensed materials.

The proposed revision includes a definition for a "controlled area" which does not exist in the present Part 20. The intent is to codify and clarify current regulatory practice and to remove an existing ambiguity by introducing the term. The present Part 20 defines a restricted area. Logic would seem to indicate that any area which is not a restricted area would be an unrestricted area. However, in many instances there is an area between the restricted area and the truly unrestricted area where dose limits applicable to unrestricted areas are applied, e.g., at the boundary of power reactor sites where there might be limited control of access by individual members of the general public. By recongnizing the existence of the area between the restricted area and the truly unrestricted area and by defining it as the controlled area, a current ambiguity is removed.

The proposed revision contains definitions of occupational dose and of public dose. These definitions reflect current practice and remove some ambiguities in applying the different limits.

## XI. Standards for Occupational Exposure of Individuals

Table 3 presents a summary of the dose limits specified in the proposed revision. These dose limits have been based upon ICRP Publication 26 with modifications to translate the recommendations into practical regulatory requirements that satisfy NRC's statutory mandate to protect the health of workes in NRC-licensed facilities and activities.

TABLE 3.—SUMMARY OF DOSE LIMITS

| Occupational exposures of individuals | Dose limits |
|---|---|
| Sum of deep dose equivalent and committed effective dose equivalent [1]. | 5 rems (0.05 Sv) in one year. |
| Deep dose equivalent (external only). | 3 rems (0.03 Sv) in one quarter. |
| Any organ or tissue, extremities and skin. | 50 rems (0.5 Sv) in one year. |
| Lens of the eye | 15 rems (0.15 Sv) in one year. |
| Minors | 1/10 of annual limits for adults. |
| Embryo/fetus | 0.5 rem (5 mSv) during entire pregnancy period. |
| Planned special exposures: | |
| Annual limit from all events | 1 × annual limits. |
| Lifetime limit from all events | 5 × annual limits. |
| Exposures of members of the public: Sum of deep dose equivalent and committed effective dose equivalent [1]. | 0.5 rem (5 mSv) in one year. |

[1] The sum of weighted 50-year dose commitments from the intake of radioactive material and (external) deep dose equivalent. "Deep dose equivalent" used in this summation is the highest dose equivalent at a tissue depth of 1 cm to the head, trunk, arm above the elbow, or leg above the knee. (See § 20.3.) For intakes of certain long effective half-lived radioactive material, annual rather than committed effective dose equivalents may be used. (See § 20.205.)

### *Combined Internal and External Doses*

A limit of 5 rems (0.05 Sv) in a calendar year would be established on the sum of the doses from sources internal and external to the body. The deep dose equivalent from external sources and the product of the weighting factors and the 50-year committed dose equivalent to the organs would be summed. The quarterly limit of 3 rems (0.03 Sv) deep dose equivalent from external sources in the present Part 20 would be retained, but the 5(N–18) provisions for cumulative occupational dose in the present Part 20 would be deleted.

The dose equivalents to the extremities (e.g., hand, elbow, forearm below the elbow, foot, knee, and leg below the knee), the skin, and the lens of the eye are not considered in computing the effective dose equivalent, but are subject to limits that would have to be met separately.

Although not recommended by the ICRP, the 3-rem (0.03 Sv) limit for any calendar quarter is retained for the (external) deep dose equivalent to further ensure that short-term workers.

transient workers, or workers who are rotated between fossil and nuclear facilities will be afforded no less protection under the proposed revision than is provided by the present Part 20. Quarterly limits allow for earlier identification of occupational overexposures and the subsequent earlier investigation into and correction of the causes of such exposures. Further, the dose records do not support a demonstrated need for exceeding 3 rems per quarter, particularly when planned special exposure provisions are available. Retention of the quarterly limit was recommended by some representatives of labor unions and by some representatives of industry management.

*Derived Limits*

In many working situations, it is difficult to assess doses to the various organs and tissues of an individual from inhaled and ingested radionuclides. Consequently, it is necessary to derive more practical indicators of the exposure, such as annual limits of intake (ALIs) and derived air concentrations (DACs), that might serve as surrogates for dose estimates.

An ALI is the quantity of a radionuclide which, if taken into the body of a reference man (as described in ICRP Publication 23) by inhalation or by ingestion in one year, would not exceed a 5-rem (0.05 Sv) committed effective dose equivalent to the whole body or a 50-rem (0.5 Sv) committed dose equivalent to any organ or tissue.

About 1,800 of the ALI values listed in the proposed Table 1 of Appendix B were determined by limiting the committed effective dose equivalent in order to minimize stochastic health damage. The remaining 270 ALIs were determined by limiting the committed dose equivalent to a specific organ in order to prevent non-stochastic health damage. All ALI values may be considered to produce a risk comparable to that of receiving a uniform whole body dose equivalent of 5 rems.

A DAC is the derived air concentration of a radionuclide which, if inhaled by a reference man with an inhalation rate of 0.02 $m^3$ per minute for 2,000 hours a year, would result in the intake of one ALI. DAC values would replace the inhalation "MPC" values in Table 1 of Appendix B of the present 10 CFR Part 20. The proposed DAC values are in Table 1 of the revised Appendix B. Section XXIX in this Supplementary Information generally compares the proposed DAC and ALI values with the concentration limits (MPCs) currently listed in Appendix B, 10 CFR Part 20.

ALI and DAC values can generally be used to demonstrate compliance with the annual effective dose equivalent limits by verifying that the sum of the fraction of the external (whole body) deep dose equivalent limit and the fractions of the ALIs (or DACs) does not exceed 1. Thus, dose equivalents from internal and external exposure modes may be added and compared to the annual effective dose equivalent limits. Exposures or intakes at or above the ALIs and exposures for substantial periods of time at or above the DAC values given in the proposed Table 1 of Appendix B are generally unacceptable. Application of ALARA principles should provide sufficient control so that sustained intakes and exposures are kept lower than the ALI and DAC values.

Consider the example in Table 4 in order to compare the methods and degree of difficulty of operation using the existing 10 CFR Part 20 and using the proposed revision of Part 20. The example will demonstrate that the familiar terms and techniques, such as MPC-hours and fractions of MPC, may still be used as DAC-hours and fractions of DAC; and that the changes involved in summation under the proposed rule are relatively simple and straightforward.

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TABLE 4. A COMPARATIVE EXAMPLE

| PRESENT 10 CFR PART 20 | PROPOSED REVISION TO 10 CFR PART 20 |
|---|---|
| **LIMITS** | |
| External (whole body) 1.25 rems/quarter, or<br>3 rems/quarter within 5(N-18) and with occupational exposure history | 5 rems/year effective dose equivalent (Includes summation of external deep dose equivalent and internal committed effective dose equivalent.) |
| Internal Intake equivalent to 520 MPC-hours/quarter | $\frac{H_d}{5} + \sum_j \frac{I_{i,j}}{ALI_{i,j}} \leq 1$ |
| No requirement for summation of external and internal dose. However, fractional intakes of radionuclides would be summed, in compliance with Note 1 of Appendix B, even though the critical organs are different and there would be few organs that would receive appreciable doses from both radionuclides. | Where:<br>$H_d$ is the deep dose equivalent in rems,<br>5 is the annual dose limit in rems,<br>$I_{i,j}$ is the annual intake of radionuclide j by inhalation, i,<br>$ALI_{i,j}$ is the annual limit of intake of radionuclide j by inhalation, and<br>$\sum_j$ is the summation of the ratios for all radionuclides included in the intake. |
| EXAMPLE An individual receives 1 rem deep dose equivalent from external exposure, plus 10 days (80 hours) of exposure at the present maximum permissible concentrations of "soluble" iodine-131 and "soluble" cesium-137 in air. | |
| 1 rem/1.25 rems = 0.8 or 80% of quarterly limit, which is 20% of annual dose. | 1 rem/5 rems = 0.2 or 20% of annual dose limit |
| $^{131}I$ intake: | $^{131}I$ intake: |
| (10 days) x (9.6 x $10^6$ ml air inhaled/8-hour work day) x (9 x $10^{-9}$ µCi $^{131}I$/ml (MPC)) = 0.9 µCi $^{131}I$ (intake) | Assumed to be the same, 0.9 µCi $^{131}I$ (intake) |

TABLE 4. (Continued)

| PRESENT 10 CFR PART 20 | PROPOSED REVISION TO 10 CFR PART 20 |
|---|---|
| EXAMPLE - Continued | |
| Permissible $^{131}I$ intake: | Permissible $^{131}I$ intake: |
| (6.3 x $10^6$ ml air inhaled/quarter) x (9 x $10^{-9}$ µCi $^{131}I$/ml (MPC)) = 5.7 µCi $^{131}I$ (permissible intake). | 50 µCi $^{131}I$ (ALI, given in Appendix B). |
| Percent of annual limit of intake: | Percent of annual limit of intake: |
| 0.9 µCi/5.7 µCi = 0.16 or 16% of quarterly intake limit = 0.04 or 4% of annual limit of intake. | (0.9 µCi $^{131}I$ (intake))/(50 µCi $^{131}I$ (ALI)) = 0.018 or 1.8% of annual limit of intake. |
| $^{137}Cs$ intake: | $^{137}Cs$ intake: |
| (10 days) x (9.6 x $10^6$ ml air inhaled/8-hour work day) x (6 x $10^{-8}$ µCi $^{137}Cs$/ml (MPC)) = 6 µCi $^{137}Cs$ (intake) | Assumed to be the same, 6 µCi $^{137}Cs$ (intake). |
| Permissible $^{137}Cs$ intake: | Permissible $^{137}Cs$ intake: |
| (6.3 x $10^6$ ml air inhaled/quarter) x (6 x $10^{-8}$ µCi $^{137}Cs$/ml (MPC)) = 38 µCi $^{137}Cs$ (permissible intake). | 2 x $10^2$ µCi $^{137}Cs$ (ALI, given in Appendix B) |
| Percent of annual limit of intake: | Percent of annual limit of intake: |
| 6 µCi/37.8 µCi = 0.16 or 16% of quarterly limit = 4% of annual limit of intake. | (6 µCi $^{137}Cs$ (intake))/(2 x $10^2$ µCi $^{137}Cs$ (ALI)) = 0.03 or 3% of annual limit of intake |
| Summation: | Summation: |
| Not required.<br>However, if the fraction of the external dose limit and the fractions of the $^{131}I$ and $^{137}Cs$ intakes were added, it would show: 0.20 + 0.04 + 0.04 = 0.28 or 28% of the annual limit | $\frac{1 \text{ rem}}{5 \text{ rems}} + \frac{0.9 \text{ µCi } ^{131}I \text{ (intake)}}{50 \text{ µCi (ALI)}} + \frac{6 \text{ µCi } ^{137}Cs \text{ (intake)}}{2 \times 10^2 \text{ µCi (ALI)}}$<br>= 0.25 or 25% of the annual effective dose equivalent limit |

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TABLE 4 (Continued)

| PRESENT 10 CFR PART 20 | PROPOSED REVISION TO 10 CFR PART 20 |
|---|---|
| EXAMPLE - Continued | |
| Alternatively - the intake portions of the example could have been expressed in terms of air concentrations. | |
| $^{131}I$ (10 days) x (8 hours/day) x MPC = 80 MPC-hours. | Because the DAC for $^{131}I$ is 2 x $10^{-8}$ µCi/ml, larger than the current MPC of 9 x $10^{-9}$ µCi/ml, the intake would be (80 hours) x (9 x $10^{-9}$ µCi/ml (MPC))/(2 x $10^{-8}$ µCi/ml (DAC)) = 36 DAC-hours. |
| $^{137}Cs$ (10 days) x (8 hours/day) x MPC = 80 MPC-hours. | The MPC and the DAC for $^{137}Cs$ are the same, 6 x $10^{-8}$ µCi/ml, and the example exposure would equal 80 DAC-hours. |
| or a total of 160 MPC-hours of intake | $^{131}I$ 36 DAC-hours/2,000 (DAC-hours per year) = 0.018 or 1.8% of annual intake limit. |
| | $^{137}Cs$ 80 DAC-hours/2,000 (DAC-hours/per year) = 0.04 or 4% of annual intake limit. |
| 160 MPC-hours/520 (MPC-hours permitted per quarter) or 32% of the quarterly limit or 8% of the annual limit of intake. | The summation of internal (only) doses would be expressed as: $\frac{36\ (DAC\ hrs)}{2000\ (DAC\ hrs)}\ ^{131}I + \frac{80\ (DAC\ hrs)}{2000\ (DAC\ hrs)}\ ^{137}Cs = 0.06$ or 6% of the annual (internal) dose equivalent limit |
| Summation, while not required, would be $\frac{1\ rem}{5\ rems} + 0.08 = 0.28$ | The summation of doses would be $\frac{1\ rem}{5\ rems} + 0.06 = 0.26$ |
| or 28% of the annual limit. | or 26% of the annual limit |

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Note that iodine-131 is one of the radionuclides whose ALI and DAC were constrained by the 50-rem "capping dose" to prevent the occurrence of non-stochastic effects in a particular organ or tissue, e.g., the thyroid for iodine-131. Use of the non-stochastic ALI could be unduly conservative (e.g., overestimates risk) in some instances. In that case, the "stochastic" ALIs for these radionuclides may be used in the equation to determine effective dose equivalent. However, if the stochastic ALIs are used, the licensee must also show that the 50-rem capping dose to any organ or tissue is not exceeded.

Some concern has been expressed about how to demonstrate compliance with the proposed revision when the exposures involve the assessment of incremental intakes of radionuclides. Such assessment would be required at 30% or more of annual intake limits under the proposed rule, compared to 25% of quarterly limits under the current rule. The internal dose assessments may be based on data from the analyses of air samples, bioassays, or combinations of those techniques. As indicated in the example Table 4, assessment may be in familiar terms, MPC-hours (now called DAC-hours), as well as ALIs. All of these terms are readily converted to committed effective dose equivalent, except in cases where DAC values are based upon the 50-rem capping dose limit for avoiding non-stochastic effects to some organ or tissue. Conservatism is introduced if the DAC and ALI values constrained by capping doses are considered equivalent to 5 rems effective dose equivalent, but this is a reasonable simplification which may be chosen by the licensee.

Part of the concern about assessment of intake results from the more restrictive values of ALIs and DACs proposed for certain radionuclides, particularly for some forms of uranium and transuranics. These more restrictive values have resulted primarily from the use of updated biologic and dosimetrict models, rather than by the use of the ICRP system of dose limitation per se.

Demonstration of compliance using the proposed requirement for summation of external dose and internal committed effective dose equivalent is simple and straightforward. It is believed that relatively few licensees operate under conditions in which individuals receive both external doses greater than 10% of the deep dose equivalent annual limit

and intakes greater than 30% of the ALIs so that summation would be required.

*Adjustments for Site-Specific Parameters*

The assumptions made in deriving the ALIs and DACs in Appendix B place limitations on their use. ALI and DAC values can be derived for the actual work conditions. Such derived limits, specific for the licensed condition, would not necessarily require conservative assumptions which would overestimate doses. Actual exposure times and occupancy of the area could be considered. Detailed investigations would be required to provide the necessary information for NRC approval of the revised ALI and DAC values.

It is recognized that, in some cases, it might be necessasry to make additional tests and measurements in order to determine the actual composition of mixtures of radionuclides or of chemical and physical forms which affect translocation within the body. Where specific information is available on the behavior of radionuclides in the body of an individual, the licensee may document or reference the information in the individual's record and use the specific information to assess the dose to the individual. The licensee is encouraged to use such data, when available, because the ICRP values in Publication 30 are derived for average metabolic behavior in an adult population, and the individual's metabolic behavior might differ substantially from the average.

*Committee Dose*

The proposed system of dose limitations recommended by the ICRP in 1977 (ICRP Publication No. 26) would assign to the year of intake of the radionuclides the entire caculated 50-year committed dose equivalent received from the year's intake. It is indicative of the 50-year risk of health injury resulting from one year of intake of radionuclides that are retained in the body. The technique of regulating exposures by using committed dose equivalent is less burdensome, in most cases, than the alternative technique of accounting, in each year of the individual's life, for the dose actually received from radioactive material deposited in the body that year and the dose received that year from material deposited in each of the previous years. The committed dose equivalent has been reflected in concentration values listed in Appendix B, 10 CFR Part 20, for many years. The technique is recognized to be conservative for several reasons:

(1) An individual might not live long enough (as a result of risks to life other than from radiation) to receive the 50-year committed dose, particularly when exposures occur late in life.

(2) Because of tissue repair mechanisms, doses of low LET radiation which are delivered at a low dose rate are generally believed to result in less risk than similar doses which are delivered promptly. (However, the selected risk estimators include an adjustment for dose rate.)

(3) During the latent period between the radiation exposure and observation of most types of radiation-induced cancer, individuals would be subject to death from other causes.

*Exceptions to the Use of Committed Dose Equivalents*

Even at the annual limit, it is difficult to assess, by body counting and bioassays, very small intakes of some radionuclides that would deliver a 50-year committed effective dose equivalent. Surrogates for small intakes, such as intake estimates based on exposure hours, generally must be used.

Exposures to certain airborne radioactive material with very long effective half-lives, such as uranium and transuranic elements, pose especially difficult problems with respect to the licensee's being able to demonstrate compliance with the basic dose limit.

The biological, chemical, and physical characteristics of certain radionuclides are such that the air concentrations found in restricted areas at, or below, the DAC values and the amounts of radionuclide found in vivo at, or below, the ALIs might be difficult to measure in a practical manner with sufficient accuracy to permit projections of committed effective dose equivalent to be used to demonstrate compliance with the limits. Further, assessment of the intake (and the associated 50-year committed dose equivalent) from air sampling data, whether from fixed air samplers in the work area or from individual (lapel) air samplers, may show poor correlation with amounts of radioactive material assessed by bioassay.

It is also recognized that processing of the more hazardous long effective half-lived radioactive materials, such as plutonium, routinely takes place within confinement, such as glove-boxes, and that intake by workers results from some failure of that containment that is neither readily anticipated nor controlled. The facilities which process these radionuclides are designed and operated so that intakes from routine operations are within the ALIs, and bioassays are performed to quantify intake amounts.

Licensed operations wherein uranium compounds are processed have not routinely been subject to the same degree of confinement as plutonium because uranium constitutes a much lesser potential health hazard and compliance with the present Part 20 Appendix B (MPC) values could be demonstrated by air sampling at work stations and estimating exposure times at those air concentrations. However, the proposed revision of Part 20 includes DAC values for uranium which are a factor of 5 less than the MPC values in the present Part 20, and the present method of demonstrating compliance might not be practical.

The problem of demonstrating compliance is even more complex if the worker is exposed to a mixture of chemical and physical forms of a given radionuclide. A single measurement would not indicate which inhalation class (D, W, or Y; see § 20.3) or combination of classes of material might be present. The licensee could assume the material to be Class Y, and thereby potentially overestimate the dose and associated risk. Additional measurements of the characteristics of the individual, the bioassay specimens, and the airborne radioactive material would be needed in order to characterize more accurately the material and the 50-year committed effective dose equivalent which would result from the intake of the mixture.

Another potential problem might be demonstrating compliance with the limits if an individual has previously received an intake of a long-lived radionuclide, such as plutonium (for example, at a Department of Energy facility), before being employed by a licensee such as a uranium fuel fabricator. In this case, it might be difficult to assess either the small incremental intakes of uranium, because of the presence of the radionuclide already deposited in the individual's body, or to assess the dose from the deposited plutonium if the emissions from the plutonium were masked by depositions and emissions from uranium.

In view of these and associated difficulties, an exception to the limitations in § 20.201 would be made in § 20.205 for control of occupational exposures to the radionuclides which are listed in Table 3 of the proposed rule. The radionuclides in Table 3 of the rule include those which are within the most restrictive four decades of DAC values; have radioactive half-lives greater than one year, and are Class Y in lung clearance time. Under the exception in § 20.205, licensees would be permitted to control occupational exposure to these radionuclides in terms of the sum of the (external) deep dose equivalent and the effective dose equivalent actually received in one year from all radioactive material retained in the body of the individual, provided that a number of other conditions are met. In addition to design and operational requirements, and to the annual 5-rem (0.05 Sv) effective dose equivalent limit, these conditions include: (1) Limiting the individual's annual effective dose equivalent from the intake of radionuclides in Table 3 during the licensee's operations to 3 rems or 0.03 Sv (including the contributions from materials carried over from previous years); (2) providing the worker the best estimate of the committed effective dose equivalent for the radioactive material remaining in the body of the worker subsequent to the year of intake; (3) revising the committed dose estimate at least annually; and (4) instructing the worker about the significance of both the annual and the committed dose and the uncertainty of the estimates. The 3-rem (0.03 Sv) annual effective dose equivalent limit is included to constrain individual intakes that could deliver a dose equivalent approaching the limit each year for the rest of the individual's life. This value of 3 rems per year is high enough to permit adequate monitoring and job flexibility, but sufficiently below the basic annual dose limit to ensure that the associated risk to the worker would be within the range found in safe industries. The exception would not apply to the dose limit for individuals in the public.

The 5-rem (0.05 Sv) annual effective dose equivalent limit for the individual applies to the dose from *all* known exposures, e.g., external sources, radioactive material deposited internally from previous exposures, and radioactive material deposited internally during the licensee's operations. The 3-rem (0.03 Sv) limit applies *only* to the annual effective dose equivalent resulting from all long-lived material retained in the individual's body.

If the individual were to receive 3 rems from internally retained radionuclides with long effective half-lives, it would be possible to receive a committed dose equivalent equal to 60% of the annual limit each year for a lifetime from the intake during a single year. If this were to occur, the individual could receive 3 rems from the internal deposition each year and would not be permitted to receive any additional intake of long-lived radionuclides which might add to the annual dose. However, it is unlikely that metabolic behavior of such nuclides will remain so stable over a lifetime that this dose would not decrease somewhat in time. In addition, ALARA efforts should be adequate to keep internal depositions well below the limit.

The Commission believes that these conditions are practical, reflect state-of-the-art health physics practice, and permit adjustment of the committed dose equivalent estimates as better data become available.

### XII. Minors and Pregnant Women

In developing the proposed revision, consideration was given to regulating the exposure of classes of workers who might be at a relatively higher-than-average risk from radiation exposures, e.g., minors, fertile women, pregnant women, and embryos/fetuses. For minors (persons less than 18 years of age), the annual limits are 1/10 of those for an adult worker.

The present NRC regulations in 10 CFR Part 19 require that all individuals who might be exposed to radiation in their workplace be informed about the potential risks associated with the exposures. As as matter of policy, the NRC has used a single annual limit for both sexes and has relied on information provided in Regulatory Guide 8.13 ("Instruction Concerning Prenatal Radiation Exposure") to all workers regarding risk to an embryo/fetus.

The susceptibility of the embryo/fetus to damage by radiation is well established and recent information suggests that the period from 10 weeks to 17 weeks in development may be especially critical. In view of the greater sensitivity, it is generally considered desirable to limit the dose to the embryo/fetus to not more than 0.5 rem (5 mSv) during the entire pregnancy. To avoid possible greater damage at higher exposure rates, particularly at some critical time during the development of the embryo/fetus, efforts should be made to avoid substantial variation above a uniform monthly exposure rate which would satisfy this limit. Unfortunately, during one of the critical periods of embryonic organ development (the first two or three months of pregnancy), a woman might not realize that she is pregnant. In order to protect an embryo/fetus before a woman is aware of her pregnancy, a lower dose limit for all fertile women might appear to be desirable. However, establishment of a lower dose limit for all fertile women would result in undue restriction when there is no embryo/fetus to protect and could, therefore,

restrict the employment of virtually all women in the nuclear workforce.

The NCRP recommended in Report No. 39 (1971) that "During the entire gestation period, the maximum permissible dose equivalent to the fetus from occupational exposure of the expectant mother should not exceed 0.5 rem." The ICRP recommended a constraint on the dose to the pregnant woman by selecting working conditions so that she would be unlikely to receive more than about 1.5 rem per year. Because of the shielding provided to the fetus by fluids and the mother's overlying tissues and fluids and the duration of the pregnancy, it is likely that the fetus would receive less than 0.5 rem under such selected working conditions.

Under its responsibility to develop Federal guidance for the protection of workers exposed to ionizing radiation, the Environmental Protection Agency (EPA) has proposed guidance for the protection of the embryo/fetus. This guidance includes a recommendation that the dose equivalent to an embryo/fetus as a result of occupational exposure of a woman declared to be pregant should not exceed 0.5 rem (5 mSv) during the entire gestation period. This recommendation is accompanied by a futher recommendation that conformance to this limitation should be achieved without economic penalty or loss of job opportunity and security to workers. As with previous Federal guidance, the NRC, as a matter of policy will implement the final Federal guidance on protection of the embryo/fetus in its regulations.

Consistent with the proposed guidance to Federal agencies, the proposed revision of Part 20 would require the licensee, following a voluntary declaration of pregnancy by the employee, to limit to 0.5 rem (5 mSv) the dose to an embryo/fetus from occupational exposure of the declared pregnant woman throughout the period of pregnancy unless, as noted below, the embryo/fetus may have alreay received a dose in excess of the limit prior to the declaration. To provide adequate radiation protection for the embryo/fetus, and to minimize the restriction on employment, the Commission recognizes the importance of female workers voluntarily informing their employers of their pregnancy and the estimated date of conception, so that arrangements can be made to restrict potential exposures.

Licensees would be required to use, as dose to an embryo/fetus, the sum of the external radiation (deep dose equivalent) and two times the effective dose equivalent assigned to the expectant mother from the radionuclides which enter the mother's body. The factor of two is the same age-specific factor which was used in deriving the values in Appendix B, Table 2, used in the assessment and control of radiation doses to the public.

The Commission would not consider the licensee in violation of the proposed revision for exceeding the 0.5 rem dose limit if the embryo/fetus had received 0.5 rem, or more, before the pregnant woman notified the licensee of her pregnancy. In order to permit continued employment of the pregnant woman during the remainder of the pregnancy, and recognizing that it is not possible to avoid some additional exposure in a nuclear facility, the proposed revision would permit an additional 1% of the annual dose limit for workers, e.g., 0.05 rem, to be received by the embryo/fetus during the remainder of the pregnancy.

Consistent with the Federal guidance proposed by EPA for protection of an embryo/fetus from occupational radiation exposure of female workers, the proposed amendments to Parts 19 and 20 published by the Atomic Energy Commission on January 3, 1975 (40 FR 799) regarding maintenance of doses to an embryo or fetus as low as is reasonably achievable would be superseded.

### XIII. Planned Special Exposures

Removal of the 5 (N–18) "dose-averaging" provision in the present Part 20 could limit the flexibility in the management of some occupational exposures necessary to accomplish tasks in high radiation areas. In order to provide some compensating flexibility, the proposed revision contains a provision from "planned special exposures." However, the provision is designed to be used only in exceptional situation when alternatives which might avoid the higher exposure are unavailable or impractical.

In the proposed provision for planned special exposures, an individual's dose due to all such exposures in a calendar year may not exceed an increment equal to the annual dose limits. Thus, an individual could be permitted to receive 5 rems (0.05 Sv) from planned special exposures in a given year in addition to 5 rems (0.05 Sv) from routine activities (assuming the exposures were all ALARA). No more than five times the annual dose limit may be permitted from all planned special exposures during a "working" lifetime. Doses received from planned special exposures would be recorded along with doses received from normal activities, but would not affect the individual's availability for normal work activities.

The annual and lifetime limits on planned special exposures would be reduced by subtracting from them all doses in excess of the annual limits for normal operating conditions. In other words, overexposures due to accidental or emergency exposure would be added to the planned special exposures for purposes of meeting the annual and lifetime limits of 5 and 25 rems, respectively

A number of limitations would be imposed on licensees prior to the use of the planned special exposure provision. The licensee would be required: To ascertain the dose equivalent from all previous planned special exposures and overexposures for all individuals involved; to inform the individuals involved of the purpose of the planned special exposure event, the estimated doses and special radiation or other conditions that might be involved in performing the task, to provide instruction in measures to be taken to keep the radiation dose and other risks ALARA; and to provide to the employee a written report of the radiation dose actually received. These limitations are designed to ensure protection of the workers and to discourage unwarranted use of this provision.

Consideration was given to permitting a whole body dose equivalent as high as 10 rems from a single planned special exposure event. The 10 rems would be consistent with the ICRP recommendations. However, supporting data have not been found to demonstrate the need for a 10-rem supplemental dose in a year.

Planned special exposures will be restricted to external exposures only. The intake of radioactive material during planned special exposures must be controlled within the limits on committed effective dose equivalent for normal operating conditions. Respiratory protection equipment should be used for planned special exposures when an individual might encounter high airborne concentrations of radioactive material.

Consideration was given to making the use of planned special exposures subject to voluntary action on the part of the individuals receiving the exposure. This approach was not proposed because the risk of suffering health damage from these limited exposures is small and the justification for having the planned special exposure feature is the recognized need of the licensee to accomplish important occasional tasks vital to continued operations. The revision is believed to contain adequate features to permit the licensee to have the assured labor

resources when they are needed while providing adequate worker protection.

Consideration also was given to prohibiting fertile women from participation in planned special exposures. A planned special exposure could result in a whole body effective dose equivalent of 5 rems at the limit, plus an additional 5 rems received during normal working conditions. This theoretical dose equivalent of 10 rems for a possibly pregnant woman could represent a significant increase in risk of damage to the embryo/fetus above the risk from the 0.5 rem limit specified for declared pregnancies.

However, this prohibition has not been included in the revision because of consideration of the following factors. The prohibition would require licensees to either exclude all women from planned special exposures or to question, with the associated invasion of privacy, the reproductive capability of female employees. The prohibition could unnecessarily restrict the work opportunities for women who could choose not to become pregnant during the time intervals involving the higher planned special exposures. The availability and effectiveness of birth control methods now available provides a reduced probability of an unplanned or unexpected pregnancy. Moreover, the dose limit that would be specified for the embryo/fetus would prevent declared pregnant women from participating in planned special exposures.

### XIV. Overexposures

The present Part 20 does not specifically address overexposures of workers. However, the present Part 20 does restrict the further exposure of a worker who has exceeded the quarterly limits (1.25 rems per quarter or 3 rems per quarter if the 5(N–18) "bank" has not been "used up") only for the remainder of the quarter in which the overexposure occurs.

The proposed revision would limit the dose equivalent for workers to 3 rems (0.03 Sv) in any quarter and 5 rems (0.05 Sv) in a year. If an individual were to receive more than 3 rems, but less than 5 rems, in a quarter, the worker would still be limited to 5 rems for the year, unless the dose was permitted under the planned special provisions.

The proposal revision would also provide that, except for planned special exposures, individuals who receive occupational doses in excess of the 5-rem annual limits before the end of the calendar year could not be assigned tasks involving more than 1 rem (0.01 Sv) effective dose equivalent each quarter during the remainder of the calendar year, including the quarter in which the overexposure occurred. The additional dose is allowed to permit the continued employment of the individual in the licensed facility, recognizing that it would not be possible to work in the facility without receiving some additional exposure. The risk associated with an overexposure generally would not warrant the removal of the individual from employment in the licensed facility during the remainder of the calendar year. The Commission believes that for those individuals who do not exceed the annual dose limits, the regulations should not present a potential for adversely affecting an individual's availability for continued employment within the basic dose limits, provided that there is no medical advice to the contrary and the individual chooses to do so.

Any portion of the dose received in excess of the annual limits would be subtracted from the annual and lifetime planned special exposure limits and would be required to be reported in every case. Overexposures and use of planned special exposures are expected to be uncommon occurrences, and few individuals would reach the planned special exposure lifetime limit of 25 rems (0.25 Sv).

Consideration was given to limiting additional doses to overexposed workers to 1% of the annual limits. The reason for this suggestion was that it would place more emphasis on the unacceptability of overexposures and to stress the desirability of ALARA levels. This alternative was rejected because of the difficulty in being able to demonstrate compliance through measurements of doses at 1% of the annual limits.

Other limitations such as 6% of the annual limits and 6% of the annual limits per quarter were rejected in favor of the proposed 1 rem per quarter increments because of considerations relating to employability of exposed workers.

### XV. Emergency and Accident Conditions

The revision of Part 20 specifically states that the dose limits for normal operating conditions do not apply to emergency conditions. Emergency conditions cannot be detailed in advance of their occurrence, i.e., the conditions will be entirely event-specific. During emergency conditions, it might be necessary to make prompt decisions on actions that could involve some individuals being exposed to high radiation levels in order to prevent even higher exposures to other workers or to members of the public or the spread of radioactive contamination. Because of this, the Commission may require, as part of the licensing process, licensees to develop contingency plans, including how they intend to make prompt decisions on the use of exposure levels that are higher than the proposed regulations would permit. Doses received during emergency conditions or from an accident would become part of the individual's annual occupational dose record and would be subtracted from the annual and lifetime planned special exposure dose limits.

Accidental occurrences, such as tears in rubber gloves or cuts from broken contaminated glassware, can be a principal cause of exposures, particularly for operations which are performed in confinement systems. Such accidents occur with sufficient frequency that the provisions of Part 20 for normal operating conditions should apply. An accidental occurrence does not necessarily constitute an emergency

### XVI. Transient and Moonlighting Workers

In situations where the worker is likely to receive more than 25% of the basic quarterly dose limits, the present Part 20 requires a licensee to obtain a written signed statement of each individual's previous occupational dose. This statement must be obtained prior to first entry of the individual into the licensee's restricted area during each employment or work assignment (if the worker is not an employee of the licensee). If, for a given individual worker, the licensee wishes to permit doses up to 3 rems per quarter (within the 5(N–18) dose-averaging formula), the licensee must obtain the lifetime occupational exposure history of that individual on NRC Form 4.

In the proposed revision, licensees would continue to be required to assess and control the total occupational dose received by all individual workers, including transient workers and moonlighters. The licensee must ascertain the occupational exposure history during the current year for all workers likely to require provision of individual monitoring devices or services, and to control additional occupational exposures so that the total dose does not exceed the limits. NRC Form 4 would be revised for this purpose.

There is also a requirement in the present Part 20 (§ 20.408) for termination reports to be filed by seven categories of licensees.[4] The requirement was

[4] Power reactors, industrial radiographers, fuel processors, high-level waste repositories, independent spent fuel installations, certain large

Continued

designed to provide information on the use of, and exposure experience of, individuals who work for more than one licensee in a calendar quarter (transient workers), or who work for more than one licensee at the same time (moonlighters). The categories of licensees required to submit termination reports were believed to involve the greatest potential for use and significant exposure of transient and moonlighting workers.

The requirement for termination reports in the present Part 20 would be continued in the proposed revision for those seven categories of licensees presently required to report. The reporting would be in terms of annual and committed effective dose equivalent, as appropriate.

The proposed revision would retain the 3 rems (0.03 Sv) per quarter limit for deep dose equivalent, similar to the present Part 20 (see the discussion of combined internal and external doses). Retention of the 3-rems quarterly limit would ensure that the proposed revision will not permit transient workers to receive greater doses than the present Part 20, even for short-term employment.

## XVII. Standards for Individuals in the General Public

*Dose Limits*

The present Part 20 does not contain dose limits, as such, for the general public. Rather, it presents values for concentrations of specific radionuclides in air and water and levels of radiation in unrestricted areas from which one may infer a dose limit equal to $\frac{1}{10}$ the limit for radiation workers. This "inferred" dose limit is 0.5 rem per year, which is consistent with the Federal Radiation Protection Guidance developed by the Federal Radiation Council and promulgated by the President May 18, 1960 (25 FR 4402).

There is no provision in the present Part 20 for summation of external and internal doses to the public. The short-term dose rate limits in the present Part 20 are based on the assumption that the dose rates will not persist for significant fractions of the year. The limitations on effluents are calculated so that an individual continuously present at the boundary of the restricted area could receive 0.5 rem whole body dose equivalent, or the dose equivalent limit to other single organs and tissues, from the air or water effluents. There is an additional provision that the Commission may limit quantities of radioactive materials released if it appears that the intake from air, water, and food by a suitable sample of an exposed population group, averaged over a period of a year, would exceed one-third of the limit (§ 20.106(e)).

One of the important differences between the present Part 20 and the proposed revision is the treatment of limitations. In the present Part 20 the basic approach is that if a licensed activity results in exposures which result in doses at or below stated limits, it is generally acceptable and requires no further effort to reduce the exposures. There is a sharp line of demarcation which occurs at the limits. In the proposed revision, there is a graded scale of actions which occurs between the limiting dose conditions and zero doses. This is accomplished by: Specifying limiting dose conditions (upper bound); requiring doses to be as low as reasonably achievable (ALARA); and specifying reference levels (below the dose limits) which require specified actions to be performed at that level.

The proposed revision of Part 20 would explicitly set the annual dose limit at 0.5 rem (5 mSv) to an individual member of the public, considering all known sources of both external and internal dose, other than natural background and medical diagnosis and therapy. The short-term dose rate and the effluent concentration features used as limits in the present Part 20 are carried as reference levels in the proposed revision. In this context, they provide precautionary control procedures while meeting the annual limits on dose equivalent to individuals in the public.

An individual member of the general public might receive exposure to radiation or radioactive material from several sources—some subject to regulatory requirements under the Atomic Energy Act, others not—and from several pathways. (Some facilities operated by or for the Department of Energy (DOE) and the Department of Defense (DOD) are not subject to NRC regulation. X-ray machines, accelerators, and most naturally occurring radioactive material also are not subject to NRC regulation.) If effluents containing radionuclides are released, external exposures occur directly from the passing plumes, from radionuclides in the environs, or from radionuclides taken into the body by inhalation or by ingestion of water or locally produced foodstuff. The exposures of such individuals can be substantially more difficult to estimate accurately than that of a worker who will generally be exposed only to the licensed radioactive source and only by one or two exposure modes (generally by direct exposure to an external source, and, in some instances, by inhalation of airborne radionuclides). The individual worker's exposure can be readily monitored, but exposures of the individual member of the public cannot be easily determined, because it requires detailed knowledge of living conditions and habits. Where these uncertainties exist, the Commission believes that conservative, but reasonable, values for parameters generally should be selected by the licensees when estimating public doses.

Numerically lower limits for doses to the general public in the vicinity of uranium fuel cycle facilities have been established by EPA (40 CFR Part 190), and limiting conditions for operation of light-water-cooled nuclear power reactors have been set by the NRC (§ 50.34a, § 50.36a and Appendix I in 10 CFR Part 50.) These limits were based on ALARA considerations at the time of development.

*0.1-rem (1 mSv) Per Year Reference Level*

Dose limits are intended to apply to real doses to persons actually exposed. However, it is impossible to accurately determine such doses because of incomplete information about personal food intake and habits, individual metabolism, spatial and temporal considerations, and other confounding factors.

To compensate for this lack of information, it is necessary for licensees to assume values for these factors that are conservative (i.e., tending to overestimate the dose). Compliance with the dose limits can then generally be established in a practical manner by evaluating exposures against a reference level that is a small fraction of the annual dose limit. This assumes that the annual dose to the maximally exposed real person is not likely to exceed a fraction of the limits, and almost certainly will not exceed the limits even if there are other licensed and unlicensed radiation sources in the vicinity. For these reasons , a dose equivalent reference level of 0.1 rem (1 mSv) per year is proposed for individual members of the public. Table 2 of Appendix B contains derived air and water concentrations which are based on 0.1 rem per year to an individual in the general public. This table can be used in making dose projections. Licensees operating within this reference level would be confident that no individual member of the public would be likely to exceed a dose

commercial suppliers of byproduct material, and licensees receiving radioactive waste from other persons for disposal under Part 61.

equivalent of 0.1 rem per year for a substantial fraction of the individual's lifetime. Thus, the lifetime calculated risk to any individual member of the public is unlikely to exceed $1 \times 10^{-5}$ per year when exposed continuously to a dose rate of 0.1 rem per year over a lifetime.

If a license has reason to believe that an individual in the general public might have received, or is likely to receive, greater than 0.1 rem (1 mSv) in a year as a consequence of the licensed activity, the licensee would be required to report this to the NRC. In the report, the licensee would be required to provide evidence that the 0.5-rem (5 mSv) dose limit will not be exceeded, describe the application of ALARA provisions of the radiation protection program, and provide the reason why the estimated dose exceeds 0.1 rem per year.

While it is anticipated that essentially all licensees can and will operate within the 0.1-rem reference level, applicants or licensees who anticipate difficulty in demonstrating operation within the 0.1-rem (per year) reference level may apply to the NRC for prior approval to operate in a manner which might cause estimates of dose to individuals in the public greater than 0.1 rem (per year). Information which would be submitted to the NRC for this prior approval would include: Demonstration of a clear need to operate in excess of the reference level; the licensee's program to assess and control dose within the 0.5-rem annual limit; and the licensee's procedures to be followed to maintain public exposures ALARA.

It is emphasized that the reference levels are not limits for permitted dose, but rather define actions required to be taken by the licensees at specific exposure levels. The 0.1-rem reference level will have the effect of constraining the dose to individuals to 0.1 rem per year, or less, and will be in accord with the recommendations of the ICRP for potential long-term exposures of individuals. These proposed regulations should result in exposures to members of the general public being well below the 0.5 rem per year dose limit.

### XVIII. De Minimis Level and Collective Dose Evaluations

The need has long been recognized for a de minimus feature in the standards for protection against radiation in order to avoid extending regulatory actions beyond what is needed to adequately protect public health. Applied to radiological protection, de minimis could be a level of risk (or dose rate, as a surrogate measure) so low that it would be a trifle in comparison to the risks which the individual is subjected to daily as part of normal living habits and activities. It would constitute a level of risk so low that no resources could be justified to control it, or to be further concerned with it. The Food and Drug Administration (FDA) has used, in essence, such a rationale in a notice of proposed rulemaking to establish an acceptable level for the presence of carcinogens in food additives (44 FR 17092, March 20, 1979). The FDA concluded that a risk of 1 diethylstilbestrol (DES)-induced cancer death in 1 million persons over a lifetime would constitute such a level. See also, *Monsanto Co. v. Kennedy* (D.C. Cir.) 613 F. 2d 947,954 (1979). This risk value appears acceptable in that it is an insignificant incremental risk to the "normal expectation" risk of about one chance in four of contracting cancer. Normal risks of accidental harm are even greater.

There are a number of ways to establish a de minimis level where exposures to radiation are encountered. Many suggestions have been made to select a de minimis value based on variations of the naturally occurring "background" radiation from cosmic and terrestrial sources. Background levels are highly dependent on local geology and altitude. Background levels varying from less than 0.1 rem to over 0.2 rem per year can be found in the United States. Reference to natural radiation background levels provides a good perspective on radiation exposures, but it is not clear how this range could be used to select a de minimis level that has unique advantages over a judgment on risk in terms of cancer deaths and hereditary diseases.

In view of the Commission's policy to use quantified risk as an important factor in decisionmaking, the de minimis level can be based on a quantitative lifetime risk of dying from a radiation-induced cancer and a subjective judgment that such a risk is insignificant in the view of society. (Hereditary diseases in the first two generations are treated as equivalent to cancer deaths in the ICRP system of dose limitation and are included in the following numerical examples.) Since the total risk coefficient in Table 2 is $1.65 \times 10^{-4}$ per rem for whole body deep dose equivalents, a risk of 1 in 1 million persons in a lifetime (about 70 years), would be about 0.1 mrem per year.

$$10^{-6}\ \frac{\text{Cancer deaths}}{\text{lifetime}} = D\ \frac{\text{rem}}{\text{year}} \times 1.6 \times 10^{-4}\ \frac{\text{Cancer deaths}}{\text{rem}} \times 70\ \frac{\text{years}}{\text{lifetime}}$$

Solving for "D,"

$$D = \frac{10^{-6}}{70 \times 1.6 \times 10^{-4}} = \text{approximately } 10^{-4}\ \frac{\text{rem}}{\text{year}} \text{ or } 0.0001 \text{ rem per year}$$

Thus, if an individual were to receive 0.0001 rem per year every year for a lifetime, the calculated risk of cancer death (or hereditary disease) induced by radiation would be about 1 in 1 million.

The de minimis level would be a lower limit for regulatory concern which would be applicable to any licensed activity. The establishment of a de minimis dose level does not imply that at higher levels it is necessary to spend resources for radiation protection purposes. Indeed, when an ALARA level for a specific activity is determined, even when it approaches the basic annual limit, additional resources for radiation protection would not be required to reduce the level further. But an ALARA level is *not* a de minimis level. Of course, should an licensee operate in a manner that the de minimis level is satsified, these operations are by definition ALARA, because to commit further resources would be unjustifiable from a health protection viewpoint alone.

The relationship between the dose limit, ALARA and a de minimis level is illustrated in Figure 1. Note that ALARA is determined by the case-specific evaluation. However, ALARA evaluations could be made for generic licensed activities and an ALARA value determined for those applications. This information could be used as a basis for an exception for some of the requirements of the rule.

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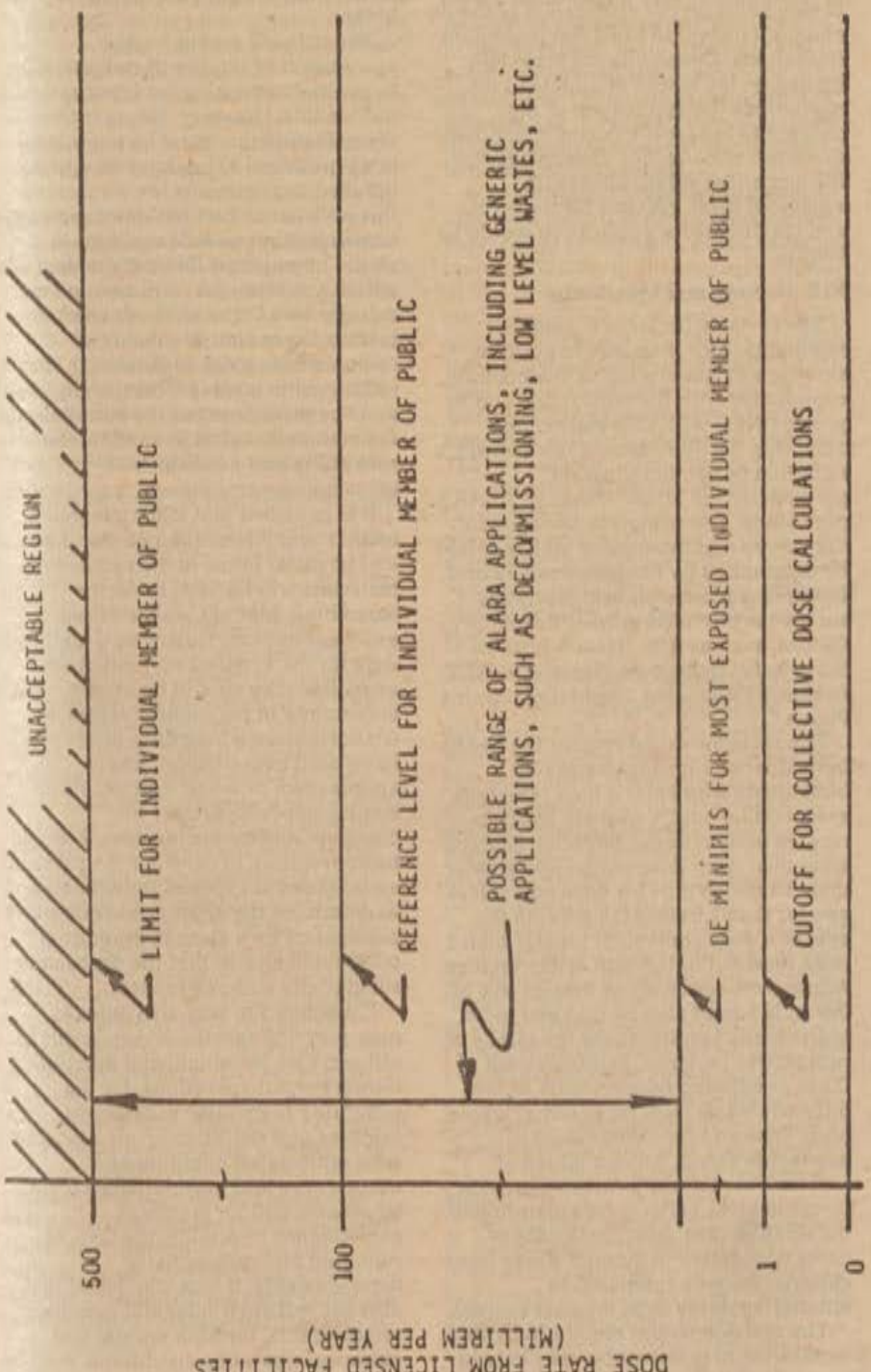


FIGURE 1 - RELATIONSHIP OF LIMIT, REFERENCE LEVEL, ALARA, DE MINIMIS, AND COLLECTIVE DOSE CUTOFF LEVEL

BILLING CODE 7590-01-C



Enclosure 1

The development of this proposed revision of Part 20 included consideration of de mimimis doses lower (see above) and higher that 0.001 rem in a year for the most exposed individual to define sources of exposure below the level of regulatory concern. Some reviewers of preliminary drafts expressed concern that the de minimis provision could permit abuse. For example, licensees might use de minimis findings in lieu of operating procedures that would reduce or avoid dose to the public; radioactive materials might be more widely used in consumer products without controls, thus presenting potential problems of acceptability; inadequate evaluations might be made of doses to the public before release to the environment of very low level radioactive waste streams; or systems for reducing the radionuclide content of effluent streams might not be operated unless subject to specific license requirements. On the other hand, many reviewers believed 0.001 rem per year was too low. Consequently, this broader de minimis feature of applying the concept to the most exposed individual has not been included in the proposed revision.

A more limited application of the de minimis concept has been proposed. Following consideration of lower and higher numbers, a value of 0.001 rem (0.01 mSv) per year per person was selected for limiting the extent of evaluating collective doses to populations. Application of the de minimis level to collective dose estimates would, among other things, limit both the size of the population and the time over which collective dose would need to be considered in evaluating activities associated with the release of radioactive materials to the environment.

The proposed application of the de minimis concept could have a substantial influence on the evaluations of conditions where very large numbers of people are subjected to very low dose rates. In essence, the proposed rule would suggest disregarding extremely low dose rates (0.001 rem per year) without regard to the number of people exposed at that level or less. Thus, this contibution to estimates of collective doses would be disregarded. Where collective doses to a population are evaluated, the acceptability of the associated potential risks can also be compared to the sum of potential risks experienced by the same population over the same time interval. Consequently, even though some de minimis applications could result in very small but finite doses to very large numbers of persons, the comparative collective risk to which these people are routinely subjected (for example, from natural background radiation) is also very substantial and proportional to the number of persons considered.

Commission is particularly interested in comments on the application of the de minimis concept in radiation protection regulations. Comments are especially invited on the merits of adding to the regulations the application of the concept to the most exposed individual, the cutoff of collective dose evaluation, the numerical values chosen. A suggested level, reasons for the level, and conditions for application would be helpful.

### XIX. Surveys and Monitoring

The revision includes a general requirement for licensees to perform surveys and monitoring to demonstrate compliance with the regulations and to provide NRC with information for assessing the adequacy of the licensee's radiation protection program, particularly the effectiveness of ALARA provisions. The comprehensiveness of the survey and monitoring efforts would be determined by the presumed hazard. Detailed guidance on health physics surveys is provided in NRC Regulatory Guides, such as 8.21 "Health Physics Surveys for Byproduct Material at NRC-Licensed Processing and Manufacturing Plants."

The revision would require the use of individual monitoring devices by individuals who enter a high radiation area, and by adults who are likely to receive from external radiation sources an annual deep dose equivalent greater than 0.5 rem (5 mSv), a dose equivalent greater than 1.5 rems (15 mSv) to the eye, or a dose equivalent greater than 5 rems (0.05 Sv) to the skin or extremities. Adults who are likely to exceed 30% of the ALIs would also be required to be individually monitored for the intake of radioactive material. Establishment of these monitoring requirements at the different levels (10% for external whole body dose and for other external exposures versus 30% for intake of radioactive material), rather than at a common level, reflects consideration of the relative ease and practicality of using dosimeters to monitor doses from external sources compared to monitoring doses from internal sources.

The revision would require individual monitoring of minors who are likely to receive 5% of the adult annual limits for both external dose equivalent (0.25 rem or 2.5 mSv for whole body exposure) and intake of radioactive material. The present requirement for monitoring external dose to minors is 5% of the quarterly extenal whole body dose equivalent limit (0.0625 rem). The present Part 20 does not contain a monitoring level for intake of radioactive material for minors, but limits exposure of minors to the concentrations permitted in unrestricted areas.

The revision would require assessment of intakes of radionuclides to aid in determining the internal dose to individuals. However, because there are many factors that must be considered, it is not practical to incorporate specific detailed requirements for bioassay in this revision of Part 20. Measurements of concentrations of radionuclides in air would be required for an individual who enters a designated "airborne radioactivity area." The methods used in monitoring to control inhalation of radionuclides must consider: (1) The radionuclide involved; (2) the physical and chemical forms of the materials; (3) the metabolic behavior; and (4) the sensitivity and availablity of measurement techniques.

It is expected that ICRP metabolic models and information on the chemical and physical forms of the radioactive materials will be used to derive committed dose equivalents from assessed intakes. However, if metabolic data for the exposed individual are available, they should be used. Owing to uncertainty in parametric values, in circumstances where dose limits may have been exceeded or closely approached, or when restrictions on employment due to dose are contemplated by the licensee, it would be appropriate to consider the personal metabolism of exposed individuals and to determine the appropriate dosimetry parameters by a special monitoring program to ensure that the doses are not substatially underestimated.

Consideration was also given to incorporating specific requirements for effluent and environmental monitoring during normal operations, for the capability to monitor radioactive releases and radiation levels associated with anticipated operational occurrences and postulated accident situations, and for standard performance or proficiency tests of radiation and radioactivity measurements. It was concluded that effluent and environmental monitoring requirements, for both normal and abnormal operating conditions, must be based on considerations that are specific to the nature of the particular licensed activity and to the environs of the licensee's facility. Such specific requirements are included in individual license conditions or technical

specifications and are not warranted in Part 20, which applies to all licensees.

### XX. Posting Requirements

Several changes have been proposed to the present Part 20 posting requirements. A new requirement would call for posting very high radiation areas with a sign bearing the radiation symbol and the words "Danger" (not "Caution") "Very High Radiation Area." This posting would be in addition to the controls discussed below.

The present Part 20 provides that a licensee need not post a caution sign in a room or area containing a sealed source if the radiation level at 1 foot from the surface of the source container does not exceed 0.005 rem per hour. This provision has been deleted because the Commission staff believes that any area in which radioactive material is used or stored in quantities that exceed those listed in Appendix C should be posted as a warning to personnel such as housekeeping staff, firemen, or others who might be required to enter the area.

### XXI. Procedures for Handling Packages

Procedures for picking up, receiving, and opening packages would be changed in several respects. Currently a licensee is required to make arrangements to receive certain packages offered for delivery or to receive notification from the final carrier if the package is to be picked up. The present Part 20 contains a table of "Exempt" and "Type A" Quantities which identifies those packages for which such arrangements must be made. This table would be replaced in the proposed revision by reference to the Type $A_2$ quantities specified in, or determined by procedures described in, Appendix A of 10 CFR Part 71. Further, licensees would be required to assess both the level of removable radioactive contamination on the surface and the radiation level at 1 meter from the external surface of all packages of radioactive material. The exceptions from such monitoring requirements in the present § 20.205(b) would be deleted. The present requirement to monitor the radiation level at the surface of the package would be deleted since this requirement increases the occupational radiation exposure of the person performing the measurement and increases the licensee's costs without a corresponding increase in detection of faulty packages.

### XXII. Access to High and Very High Radiation Areas

The controls required on access to high and very high radiation areas have been changed from those in the present Part 20 in several respects. The provision in the present Part 20 that a licensee may substitute direct surveillance for other types of controls over access to high radiation areas established for a period of 30 days or less would be changed to permit use of direct surveillance without regard to the number of days involved. It should be noted, however, that this surveillance requires the continuous physical presence of an individual capable of taking all of the precautions that might be necessary to prevent unwarranted exposure of individuals.

The additional controls on access to very high radiation areas (areas where there might be ratiation levels of 500 or more rads/hour (5 or more grays/hour) at one meter from a source or from a surface which the radiation penetrates) would be required of all licensees. Only those licensees who use sealed radioactive sources to irradiate materials are required by the present Part 20 to use such additional controls. The revised requirements have been simplified to the degree considered consistent with achieving positive assurance that individuals will not be inadvertently exposed at very high dose rates which present an immediate threat of lethality in any type of licensed facility.

### XXIII. Disposal into Sewerage

The NRC is proposing several significant changes in the present Part 20 provisions for release of radioactive material into sanitary sewerage. The revision recognizes that there can be multiple contributors of radioactive material to sanitary sewerage and the dilution afforded by the system should not be relied upon to achieve "acceptable" concentrations in effluents.

The gross quantity (curies) of licensed and other radioactive material that the licensee may release into the sewerage in a year would remain unchanged. However, in the proposed revision, the concentrations that may be released into the sewerage would be those which, if ingested, could result in a calculated committed effective dose equivalent of 0.5 rem (5 mSv) in a year to reference man.

The average concentration of licensed or other radioactive material that the licensee may release into the sewerage in one month would also be limited. The average concentration in the total volume of sewage released by the licensee in a month would not be permitted to exceed the concentration calculated by dividing the occupational oral ingestion ALI by $7.3 \times 10^8$. This value is derived by adjusting the annual water intake by ICRP's reference man, $7.3 \times 10^5$ ml, by a factor of 10 to reduce the occupational ALI to an intake corresponding to 0.5 rem for an adult in the general population. The concentrations are presented in Table 3 of Appendix B for each radionuclide. The present Part 20 provisions for the daily averaging of releases to the sanitary sewerage, and for the daily release of quantities up to 10 times the existing Appendix C quantities, regardless of the concentration in the licensee's sewage, would be dropped.

While it is clear that people do not directly ingest sewage, intakes of drinking water systems are often located downstream from sewage treatment plants. Some radioactive materials in sewage might not be removed by sewage treatment or by intake water treatment processes and, therefore, could constitute a source of exposure for the general population.

### XXIV. Sea Disposal

The present Part 20 (§ 20.302(b)) states that "The Commission will not approve any application for a license for disposal of licensed material at sea unless the applicant shows that sea disposal offers less harm to man or the environment than other practical alternative methods of disposal." The proposed revision deletes this statement. The deletion reflects the mandate of the 1972 Marine Protection, Research, and Sanctuary Act (Pub. L. 92–352) which transferred responsibility for regulating the ocean disposal of radioactive wastes from the NRC to EPA.

### XXV. Medical Exceptions

The present Part 20 contains three exceptions to the basic radiation protection standards that are specific to medical situations. The proposed revised Part 20 contains two of these medical exceptions essentially as they appear in the present Part 20: An exception for release of patients' radioactive excreta into sanitary sewerage; and an exception for control of entrance or access to rooms or other areas of hospitals that are high radiation areas solely because of the presence of patients containing radioactive material. The exception from posting rooms or other areas of hospitals because of the presence of patients containing byproduct material would be amended to require posting of the rooms or areas used for patients being treated with therapeutic quantities of unsealed radioactive material or with brachytherapy sources. Such posting has been recommended in Regulatory Guide 10.8, "Guide for the Preparation of

Applications for Medical Programs," since January 1979.

Consideration was given to requiring the collection of urine from hospitalized patients undergoing therapy with unsealed radionuclides, such as iodine-131, and the treatment of this urine as radioactive waste. However, such requirements were not included in the revision because of the potential for occupational exposure of hospital personnel and the protection afforded by the requirement in § 20.102 that releases of radioactive material to the sanitary sewerage are to be maintained ALARA.

## XXVI. Records

The recordkeeping requirements necessary to implement the proposed regulation are grouped in Subpart L of the revision.

Licensees would continue to be required to maintain records of most surveys for two years. However, records of surveys used to assess (internal) committed effective dose equivalent; external dose equivalent in cases where dosimeters are lost, destroyed, or the data from the dosimeters are otherwise unavailable; and releases of radionuclides in effluents to the environment, would be required to be maintained until the Commission terminates each pertinent license requiring the record.

The revision would require licensees to determine the occupational radiation exposure history of each individual likely to require provision of individual monitoring devices or services pursuant to § 20.502. The licensee would use a revised NRC Form 4, or equivalent, to record all periods of prior occupational exposures (as provided by and certified by the worker), the occupational dose equivalent received during the current calendar year, and any dose from planned special exposures plus any overexposures (including those from accidents and emergency conditions) received during the lifetime of the individual. Licensees would not be required to reevaluate the separate external dose equivalents and internal committed dose equivalents or intakes of radionuclides assessed under the regulations in effect prior to the effective date of this revision. (A copy of the draft revised NRC Form 4, "Occupational Radiation Exposure History," is presented at the end of this notice.)

The records of current individual monitoring results at the licensed facility would include the results of assessment of the external dose equivalent, the internal dose equivalent, and the sum of those as the effective dose equivalent. NRC Form 5 would be revised for this purpose. (A copy of the draft revised NRC Form 5, "Current Occupational Radiation Exposure," is presented at the end of this notice.) Separate entries would be made for doses received during any planned special exposures and any dose received in excess of the annual limits. Licensees operating under the provisions for control of exposure to long-lived radionuclides (proposed § 20.205) would be required to record both the annual effective dose equivalent and the 50-year committed effective dose equivalent associated with the intakes of radioactive material.

For routine occupational exposure to generally uniform external radiation, the dose equivalent to the whole-body, lens of eye, skin, and extremities are usually assessed from a single personal dosimeter and recorded. When the dose equivalent to a body part, such as a hand, is likely to significantly exceed the whose body dose equivalent, and particularly if it is likely that the annual dose equivalent will exceed 10% of the annual limit for the body part, good practice would suggest that additional dosimeters should be worn to assess the dose equivalent to that body part and the monitoring result recorded for that body part.

The recording of exposures to internal radiation is less straight-forward than for external radiation. Four pieces of information would be recorded for each radionuclide and for each physical and chemical form of intake concerned: The radionuclide and lung clearance class; the estimated intake (in μCi or Bq); the ratio of the estimated intake to its specific ALI; and the estimated committed effective dose equivalent from the intake.

## XXVII. Reports

The proposed reporting requirements are grouped in Subpart M of the revision. Several of these proposed requirements, i.e., "Reports of overexposures and excessive radiation dose levels and concentrations of radioactive material," would not be changed in intent or substance from the present Part 20. However, the proposed requirements would reflect changes in the proposed system of dose limitation. Two of the initiating criteria (loss of operating time of a facility and monetary values on damage to property) have been deleted from "Notification of incidents." The deletions were made when it was determined that: (1) There was no adequate practical definition of a "facility"; (2) the $200,000 monetary value has not been adjusted for economic changes; and (3) neither of the criteria warrant "immediate" notification.

The Commission decided to incorporate into this overall revision of 10 CFR Part 20 its 1983 proposed revision of 10 CFR 20.204 which requires reports of theft or loss of licensed material. This notice supersedes the Commission's proposed amendment to 10 CFR Part 20 published on May 9, 1983 (48 FR 20721). Because the requirements for reports of theft or loss in this proposed rule are substantively the same as in the 1983 Notice of Proposed Rulemaking, public comments submitted on that notice will be considered under this action.

### *Planned Special Exposures*

Each time that a planned special exposure is conducted the licensee would be required to submit a report to the NRC that indicates the date on which it took place. In addition, the licensee would be required: To maintain detailed records of all aspects of the planned special exposure (see § 20.1103); and to inform, in writing, each individual so exposed of the dose resulting from the planned special exposure (see § 20.206(h)).

### *0.1-rem (1 mSv) Reference Level*

A report would be required within 30 days after the licensee becomes aware that a member of the public received, or was likely to receive, an effective dose equivalent of 0.1 rem or 1 mSv (or higher value if prior approval was granted under the provisions of § 20.303(c)) in a calendar year from sources under the licensee's control. This report would provide the Commission information on substantial sources of exposure to the public and would permit the Commission to focus attention on those programs contributing the larger doses. The reports would also help the Commission to focus on contribution of dose from multiple sources and on additional efforts or requirements that might be warranted to ensure in its judgment that doses to the public are being maintained ALARA and below the annual limit from all known sources, e.g., licensed and unlicensed sources.

### *Annual and Termination Reports of Exposure*

The proposed revision would continue the existing requirements for submission of annual statistical summary reports of monitoring data (§ 20.1206) and of reports of exposure to radiation and radioactive material upon termination of employment or work assignment in the licensee's restricted area (§ 20.1207). These reports would be required of the

same seven categories of licensees as in the present Part 20. The reports would differ from those in the present Part 20 in that the doses reported would include external and internal contributions to the effective dose equivalent and that the time for submission of the annual statistical summary report would be extended from three months in the present rule to seven months in the proposed revision.

In developing the proposed revision, two alternatives for reporting doses received by workers were considered. One alternative would have required all holders of specific licenses to submit an annual report of the effective dose equivalent received by each individual for whom monitoring was required (or for whom monitoring was provided, if that was more practical for the licensee to report). The other alternative would continue the requirement that licensees keep records of monitoring data, but not require them to submit reports to the NRC.

The proposed requirement was chosen because it appears to have relatively minimal economic impact while still providing a means for the Commission to ensure itself that the protection of workers is maintained in those categories of licensees most likely to have the higher exposures.

The Commission requests comments on this issue of reporting requirements, specifically the submission of annual reports of individual monitoring data to the NRC and the provision of such reports to individuals. Also, regardless of the reporting alternative chosen, the Commission encourages the industry, or segments of the industry, to establish a system of collection and collation of annual doses to individuals and seeks comments on this possibility.

## XXVIII. Implementation

The implementation of the revised Part 20 would require coordination through a number of interfaces with international, Federal and State organizations, licensees, and various offices of the NRC.

### *International*

Since the revision of Part 20 would, in essence, adopt the dose limits recommended in ICRP 26 and the effective dose equivalent concept, the exposure and dose data from the United States would be comparable to those obtained from other countries who are also proposing regulatory actions which would implement the ICRP recommendations. United Nations organizations, such as the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), and the International Atomic Energy Agency (IAEA), and the Nuclear Energy Agency (NEA) of the Organization for Economic Co-operation and Development also would be using radiation protection evaluations (e.g., effective dose equivalents) similar to those of the revised Part 20. If the revision is adopted, the impact with respect to the international technical efforts would be minimal. If the present Part 20 is not revised, the impact on the United States international activities could be substantial, e.g., exposure and dose data from other countries could not be compared with U.S. data and technical discussions would be hampered.

The guidance on collective dose evaluations in the revised Part 20 is likely to be of substantial international and domestic interest. The reactions undoubtedly will be mixed. The ICRP recommended requiring optimization, which includes evaluating the collective doses to all persons in all locations over all time from all radiation sources. The revised Part 20 would *not* require optimization evaluations. The limiting of collective dose evaluations is contrary to the official ICRP philosophy, and opposition by IAEA and some other organizations and countries who are committed to the ICRP recommendations can be anticipated. Other countries are also considering de minimis provisions and would endorse the proposed revision.

### *Federal*

Under the Atomic Energy Act of 1954, as amended, and Reorganization Plan No. 3 of 1970, the EPA has the authority to establish "generally applicable environmental standards" for radiation protection, as well as the responsibility of advising the President in radiation matters, a function of the former Federal Radiation Council (FRC). In 1981 (46 FR 7836), EPA published for comment propoed Federal Radiation Protection Guidance for Occupational Exposure to replace the limits for radiation workers in the 1960 Federal Radiation Protection Guides. The proposed guidance was revised to reflect the comments received and was submitted to affected Federal agencies for concurrence. All these agencies have concurred with the revised proposed Federal guidance. It must now be submitted to the President for approval and signature for it to become effective guidance to Federal agencies.

The draft Federal guidance does not address radiation exposure of the general public and, therefore, the 1960 Federal Guides applicable to the general public will remain in effect. EPA has promulgated standards under the Clear Air Act, as amended, that control air emissions of radioactivity from many facilities licensed by the NRC. These standards apply in addition to NRC's regulations (including Part 20) that regulate offsite exposures to the public.

If, as appears likely, EPA's Federal Radiation Protection Guidance for Occupational Exposure implements the ICRP system of dose limitation, including the weighting factors and the concept of effective dose equivalent, it may be anticipated the EPA will revise their other regulations and guidance to express them in terms of effective dose equivalent. For example, the annual limits on dose to members of the public from operation of uranium fuel cycle facilities in 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," might be changed from the present 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ, to a single value expressed in terms of effective dose equivalent.

The NRC decided not to wait for the final development of the EPA guidance, but rather developed the revision of 10 CFR Part 20 in parallel and in close coordination with EPA and other Federal agencies so that the revision will be compatible with the EPA guidance and with any changes planned by other agencies.

### *National*

Traditionally, the NRC and its predecessor, the AEC, have looked to the ICRP and NCRP for advice on radiological matters. For many years, recommendations of the two committees have generally been quite similar and the Commission has selectively chosen among the recommendations in revising its regulations. In 1977, the ICRP recommended the risk-based system of dose limitations upon which this proposed revision is based. The NCRP is currently in the process of developing its own recommendations.

It has been suggested that the revision to Part 20 be delayed until the NCRP recommendations are developed and published. During development of the proposed revision to Part 20, the NRC staff had met and corresponded with the NCRP to obtain their comments and suggestions. Since the rulemaking process required to revise Part 20 is likely to require several months beyond publication in the **Federal Register**, there will be opportunities for the NCRP, as well as others, to provide alternative recommendations for consideration by

the Commission before the revision becomes effective.

*States*

Presently there are 27 States that have entered into agreements with the NRC under section 274 of the Atomic Energy Act of 1954, as amended, whereby the States have assumed jurisdiction over many uses of byproduct, source, and small amounts of special nuclear material that are regulated by the NRC. These States also exercise regulatory control over x-ray machines, naturally-occurring and accelerator-produced radionuclides, and accelerators. The regulations of these Agreement States must be compatible with the regulations of the NRC. Since the revision of Part 20 will lead to a substantial review and revision of the Agreement State regulations, continued interfacing with State agencies is necessary and has already begun.

*Intra-agency*

Many NRC licensing actions, such as technical specifications and conditions of licenses, contain references to the present Part 20. Other NRC regulations which interface with Part 20 and regulatory guides directly related to the present Part 20 will have to be reviewed and revised if the proposed revision is promulgated. Considerable reorientation of staff and inspectors will be required so that they will understand and uniformly implement the revised Part 20.

In addition to revising some existing regulatory guides, additional regulatory guides and, perhaps, NUREG reports might be needed.

The Commission invites comments and suggestions concerning the revision of existing regulatory guides or the preparation of additional guidance documents which would be needed or useful in implementing the proposed revision.

*Licensees*

Licensees will need adequate time to implement the necessary changes in their radiation protection programs. Since doses from external sources will be added to doses from intakes of radioactive material, some licensees might have to add or change bioassay programs to demonstrate compliance. Other licensees might choose to modify, or add, engineered facility features to reduce air concentrations or external exposures. Initiating these changes would require preliminary studies, the acquisition of funds, and construction and operation of the systems. Training programs will also need to be revised to incorporate features of the revised rule.

In order to comply with the proposed revision to Part 20, it will be necessary for licensees to understand the specific features, particularly those which are used in summing internal and external doses. Some NRC workshops and regulatory guides might be offered for the benefit of licensees, Regional Offices, States, and others who are affected by the revision.

In view of these considerations, it appears that an extended period of time is warranted between the publication of the revised Part 20 and the full implementation by licensees. Therefore, it is proposed that the implementation should become effective within five full calendar years following publication of the final rule. To facilitate earlier implementation by those licensees who might choose to do so, the Commission staff is available to work with the licensees as may be necessary and within its resources and responsibilities.

However, if licensees are permitted to choose their own time of implementation within the five year period, as proposed, there could be problems such as difficulties with the exchange of informatin or exposure data, caused by the use of *both* the present and the revised Part 20 over a period of several years. Consequently, the Commission is also considering the alternative of requiring all licensees to implement the revised rule as of January 1st—five full calendar years after the final rule is published. In this case, *all* licensees, having been given five years to prepare, would implement the revised rule on the same date.

According to some information published by the utilities, the revised rule could be implemented comfortably within a much shorter time period. The Commission especially invites comments on the effective date of implementation, including specific information on time and economic considerations.

## XXIX. Appendix B

Appendix B to the proposed revision differs from the current Appendix B in a number of ways. In the revision, data are presented for 757 radionuclides, about 500 more than the 260 currently listed. The radionuclides are listed by increasing atomic number, rather than alphabetically. Many of these added radionuclides are not usually considered byproduct, source, or special nuclear material. However, many of them can be produced either in a reactor (and thus classified byproduct matrial) or in an accelerator and, therefore, may or may not be subject to NRC regulatory control—depending on the method of production. All of these radionuclides would be subject to the regulations of Agreement States, and the States would need the information provided in Appendix B for incorporation into the State regulations. Therefore, the Commission has chosen to include all of the radionuclides for which data are presented in ICRP Publication 30.

For each radionuclide there is a listing of chemical forms to be used in selecting the appropriate inhalation ALI or DAC. These ALIs and DACs for inhalation are given for an aerosol with an activity median aerodynamic diameter of 1 micrometer (micron) and for three classes of radioactive material with differing biological retention in the lung.

The inhalation ALIs and DACs listed in Table 1 of Appendix B were derived for occupational exposure of the reference man described in ICRP Publication 23. Table 2 presents derived air and water concentrations which, during an exposure of one year, would result in intakes by members of the general public which would cause a committed dose equivalent of 0.1 rem or 1 mSv (reference level), and Table 3 presents water concentrations applicable to sewage disposal.

The data in proposed Appendix B are expressed in the more familiar units of microcuries (μCi) and μCi/ml, rather than in the units of becquerels (Bq) and $bq/m^3$ used in ICRP Publications 30 and 32. The decision to use the "traditional" system of units in Appendix B is based upon the fact that this is the system in general use by the nuclear industry, including licensees, Federal regulators and the private sector. Therefore, the potential for errors in using these limiting values for radionuclides is significantly reduced by limiting the necessity for conversion calculations. However, the regulation contains the necessary conversion factors for those individuals who want to use the Appendix B values as Bq or Bq/ml. The conversion from Bq to μCi was made using data obtained from Oak Ridge National Laboratory having two significant figures, which were then rounded to one significant figure in μCi. Some of these listings will differ from the ICRP Publications 30 and 32 values, which have been rounded initially to a single significant figure. Additional information on the derivation and use of the ALIs and DACs is presented in the Introduction to Appendix B, as well as in the example presented earlier in this notice.

Concern has been expressed that some of the ALIs and DACs are less restrictive that the concentration limits (MPCs) currently listed in Appendix B, 10 CFR Part 20. Where comparison is

possible, about 65% of the DAC-listings are less restrictive, about 26% are more restrictive, and about 8% remain unchanged. The changes arise from a number of considerations that include:

(1) Dose contribution to all organs and tissues from radioactive material deposited in all organs and tissues, rather than dose to a critical organ from radioactive material deposited in that organ;

(2) Use of the a quality factor of 1 for low-energy beta particles, and a quality factor of 20 for alpha particles, rather than 1.7 and 10, respectively;

(3) Updated biological models; and

(4) Application of the risk-based weighting factors within the ICRP 26 system of dose limitation.

The current level of radiation protection is affected much more by consideration of what is ALARA than by specific dose limits. The ALARA requirement will continue to ensure that the level of radiation protection will remain high even though the limits for certain radionuclides might be increased. Furthermore, the summation of external dose and internal committed effective dose equivalent provides an additional constraint on the amount of radionuclide that may be taken into the body.

### XXX. Appendix C

Appendix C lists quantities (μCi) for 757 radionuclides. As discussed earlier, the rule contains the necessary conversion factors from μCi to becquerels for those individuals who desire to use the SI system of values for Appendix C quantities. The quantities are those for which labeling would be required pursuant to the proposed § 20.904. Also, the proposed § 20.1201 would require reports of loss or theft of 10 times the quantities specified in Appendix C. The provision in existing § 20.303(a)(2) that a licensee may discharge up to 10 times the Appendix C quantities into the sanitary sewerage in one day, without regard to the concentration of the radionuclide in the water released, would not be continued in the proposed § 20.1003. For the same reasons discussed with respect to Appendix B, radionuclides that may not be byproduct, source, or special nuclear material have been included in this appendix.

The quantities listed in Appendix C were derived by taking one-tenth of the most restrictive occupational annual limit of intake listed in Appemdix B, rounding to the nearest factor of ten, and arbitrarily constraining the values listed between 0.001 and 1,000 μCi. These quantities are comparable, but not identical to the existing Appendix C listings and the byproduct material listings in § 30.71, Schedule B, 10 CFR Part 30. Conformity between Appendix C, 10 CFR Part 20, and § 30.71, 10 CFR Part 30, is not considered essential. Further, such conformance would involve addition of a large number of radionuclides to § 30.71, and would constitute a substantive change in the radionuclides available to persons exempt pursuant to § 30.18, 10 CFR Part 30. No change in § 30.71 is proposed at this time.

### XXXI. Appendix E

The analytical expressions in the form of mathematical formulae which may be used by licensees to demonstrate compliance with the various dose limits or reference levels of the revised Part 20 have been assembled in Appendix E. Consideration was given to including the formulae in the text of the rule paralleling and immediately following the verbal requirements. However, some reviewers considered the presence of the formulae in the text to be responsible for a perceived complexity and the formulae were placed in an appendix to permit easier reading.

### XXXII. Appendix F

The present § 20.311 contains very detailed requirements for the certification and transfer of low-level waste for disposal at land diposal facilities and for the preparation of shipment manifests. In keeping with the generic nature of the proposed revision, the proposed § 20.1006 contains only the broad requirements of the present § 20.311 and the detailed requirements are all contained in Appendix F. The proposed regulations in § 20.1006 and Appendix F are essentially the same as the present § 20.311.

### XXXIII. Environmental Impact: Negative Declaration

The Commission has determined, under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in 10 CFR Part 51, that promulgation of this proposed rule will not have a significant effect on the quality of the human environment and that, therefore, an environmental impact statement is not required. (The environmental assessment and finding of no significant impact on which this determination is based are available for public inspection at the NRC Public Document Room, 1717 H Street NW., Washington, DC.)

### XXXIV. Paperwork Reduction Act Statement

Pursuant to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.), this proposed rule has been submitted to the Office of Management and Budget for clearance of the information collection requirements.

### XXXV. Regulatory Analysis

The Commission has prepared a draft regulatory analysis on this proposed regulation. The analysis examines the costs and benefits of the proposed revision and the alternatives considered by the Commission. (The draft analysis is available for inspection in the NRC Public Document Room, 1717 H Street NW., Washington, DC. Single copies of the analysis may be obtained from the person indicated under the **"FOR FURTHER INFORMATION CONTACT"** heading

*Benefits*

The proposed revision to Part 20 includes numerous changes required to bring the NRC radiation protection standards into accord with current, defendable scientific knowledge, and to reflect contemporary scientific and philosophical approaches to protection against radiation. The major benefits are summarized in Table 5.

TABLE 5.—PRINCIPAL CONCERNS AND BENEFITS OF THE PROPSOED REVISION OF 10 CFR PART 20

| Concern with present part 20 | Proposed part 20 revision | Benefits of revision |
|---|---|---|
| 1. *Many Values In Appendix B Do Not Reflect Current Knowledge*<br>● Present MPCs can cause underestimates of doses by a factor of 6 for most alpha emitters and 60 for thorium<br>● "Soluble" and "insoluble" designations in Part 20 and many other bases were abandoned by health physic its many years ago | ● Revises and expands Appendix B to reflect contemporary knowledge of dosimetry and biology | ● Derived values will reflect ICRP risk based systems and make use of contemporary knowledge.<br>● Air concentrations are based on a lung model which permits adjustment for the particle sizes of aerosols.<br>● Values are presented for various compounds.<br>● Coverage of radionuclides has been increased from 260 to 757.<br>● Of the radionuclides where comparisons can be made, about 65% of the new values are less restrictive, about 8% are unchanged, and about 27% are more restrictive. |

TABLE 5.—PRINCIPAL CONCERNS AND BENEFITS OF THE PROPSOED REVISION OF 10 CFR PART 20—Continued

| Concern with present part 20 | Proposed part 20 revision | Benefits of revision |
|---|---|---|
| 2. *5(N-18) Dose-Averaging Formula Permits Workers to Receive 12 Rems per Year from External Sources*<br>● Several hundred workers each year receive doese of 5 rems or more<br>● *Potential* risk could be substantial (3-10%) from 50 years external exposures at 5 rems per year and additional dose from internal exposures | ● Deletes 5(N-18) and adopts 5 rems (0.05 Sv) per year and 3 rems (0.003 Sv) per quarter dose limits<br>● Provides "planned special exposures" for necessary and unavoidable activities | ● Annual and Lifetime doses to individuals receiving highest exposures will be reduced.<br>● Risks to radiation workers receiving highest exposures will be more comparable to those in safe industries.<br>● Provides substantial flexibility for licensee to manage justifiable exposures beyond selected annual dose limits.<br>● Provides for readily monitored records of use. |
| 3. *Dose Limits for Internal and External Doses are Idependent*<br>● Risks from doses at the limits to various organs are unequal | ● Establishes 5 rems (0.05 Sv) annual limit for sum of external and internal doses<br>● Adopts ICRP "effective dose equivalent" which adjusts doses to various organs to whole body dose equivalent based on risk | ● Effective dose equivalents limits from combined external and internal exposures are related to individual risk.<br>● Limits for various organ doses reflect comparable risks.<br>● Dose weighting factors based on quantified risk of radiation-induced health effects are consistent with Commission policies on use of quantitative risk.<br>● Workers and public can understand risk base which is more rational than present dose limit selection.<br>● Doses to workers subjected to both external and internal exposures will be reduced. |
| 4. *No Requirements for Formal Radiation Protection Program or for ALARA*<br>● Uneven requirements among types of licensees brought about mostly through licensing actions other than Part 20 | ● Requires written radiation protection program with ALARA provisions<br>● Requires management commitment and participation<br>● Requires selection of investigation levels for doses to workers below dose limits | ● Ensures adequate radiation protection program and ALARA efforts by *all licensees*.<br>● Would reduce doses to workers.<br>● Provides basis for more effective ALARA efforts with reliance on licensee's judgment.<br>● Provides requirements in Part 20 for enforcement actions. |
| 5. *Limits Treated As Sharp Line of Demarcation Between Acceptable and Unacceptable*<br>● De Facto limits are established by licensing actions | ● Emphasizes ALARA and provides reference levels to permit graded scale of action as limits are approached | ● Action are taken to reduce exposures before dose limits are exceeded and to review exposures when they are substantial.<br>● Would reduce doses to workers and public without reporting to other regulatory means. |
| 6. *Dose Data on Specific Workers are not Available to Staff until Workers Terminate Employment*<br>● No reports are made of internal doses<br>● Workers are not required to be informed of annual or accumulated doses without request | ● Requires use of effective dose equivalents | ● Compatible with dose system. |
| 7. *Presents No Clear Dose Limits for Members of the Public*<br>● NRC can require de facto limits without compromising Part 20 | ● Establishes 500 mrem/yr (5 mSv/yr) effective dose equivalent (external and internal sources)<br>● Establishes reference levels for action below limits | ● Dose limits for public would include possible multiple sources and multiple exposure modes.<br>● Would provide clearly identified limits and graded actions would result in individual doses less than 100 mrem per year.<br>● Facilitates use of estimates of health risk as a fundamental determinant in decisionmaking and in any reform of nuclear regulations and licensing. |
| 8. *Present Part 20 Provides No Constraint on Collective Dose Evaluations*<br>● Can result in unwarranted expenditures of resource for incremental risks which are trifles | ● Provides constraints on collective doses evaluations to omit dose less than 1 mrem (0.01 mSv) per year to individuals | ● Would save considerable resources.<br>● Would provide perspective in judgments.<br>● Would eliminate consideration of health risks which are trifles. |

*Costs*

The initial (first year) cost for implementing the proposed revision to Part 20 is estimated to be about $33 million, $29 million of which would be required for the occupational exposure provisions (see Table 6). The annual cost (first year and continuing) is estimated to be $8 million, approximately $7 million of which would be required for the occupational exposure provisions. These are the estimated costs to all licensees, including those regulated by the Agreement States. Initial costs include items such as software for computers, augmenting internal dosimetry programs, writing radiation protection programs including ALARA provisions, augmenting monitoring programs, revising manuals, and retraining personnel. Taking into account the recurring nature of the annual costs and the time value of money (discounted at a 10% per annum rate) adds about $60 million to the initial costs for a present-day worth totaling about $100 million.

A detailed cost estimate was made for each recording and reporting requirement in the Part 20 revision. Most of these costs would be annual costs for requirements that already exist in the present Part 20. A similar detailed cost estimate for all requirements in the present Part 20 was made for comparative purposes. Based on this comparison, it does not appear that the proposed revision would increase the costs of the present recording and reporting requirements.

Comments on the draft analysis may be submitted to the Commission as indicated under the ADDRESSES heading.

TABLE 6.—ESTIMATES OF COSTS TO NRC AND STATE LICENSEES' FROM IMPLEMENTATION OF 10 CFR PART 20 REVISION

| | Initial cost [1] | Annual cost [2] |
|---|---|---|
| (1) Effect of 5-rem effective dose equivalent | $300,000 | $750,000 |
| (2) Impact of planned special exposure | Negligible | Negligible |
| (3) Impact of extremity and eye limit provision | Negligible | Negligible |
| (4) Impact of provision for limit to embryo/fetus | Negligible | $50,000 |
| (5) Impact of internal exposure provision | $6,700,000 | $4,100,000 |
| (6) Impact of Alara requirements | $2,200,000 | $1,500,000 |
| (7) Impact of revised monitoring requirements | Negligible | $37,000 |
| (8) Impact of recordkeeping requirements | $3,700,000 | $140,000 |
| (9) Impact of reporting requirements | Negligible | $180,000 |
| (10) Impact of revisions of manuals and procedures | $10,800,000 | Negligible |
| (11) Impact of retraining personnel | $3,600,000 | Negligible |
| Subtotal | $3,600,000 | $6,800,000 |
| (12) Impact of public exposure issues (Nom.) | $4,000,000 | $1,000,000 |
| Total | $3,000,000 | $7,800,000 |

[1] 1982 licensees.
[2] 1982 dollars.

## XXXVI. Regulatory Flexibility Certification

The Commission has prepared an initial regulatory flexibility analysis in connection with this proposed rule. The analysis discloses that the proposed rulemaking proceeding would apply to all NRC licensees. The NRC has approximately 7,500 licensees, approximately one quarter of which are small entities. (Note: Agreement States have about another 11,000 licensees.) Types of small entities that would be affected include physicians, small hospitals, small laboratories, small

industrial operations, radiographers, and well loggers. The Commission anticipates that promulgating and implementing the proposed revised rule will result in a regulation that provides better assurance of protection, establishes a clear health protection basis for limits, applies to all licensees, including small entities, in a consistent manner, and reflects current information on health risk, dosimetry, and radiation protection practices and experiences. The potential gain in radiation health protection significantly outweighs the incremental increased impact on small entities. However, the NRC is seeking comments and suggested modifications because of the widely differing conditions under which small licensees operate.

The Commission is particularly seeking comment from small entities (i.e., small businesses, small organizations, and small jurisdictions as defined by the Regulatory Flexibility Act) about the ways the proposed rule will affect them and the ways it may be modified to impose less stringent requirements on them which will still adequately protect the public health and safety. Those small entities who offer comments on how the regulations could be modified to take into account their differing needs should specifically discuss:

(a) The size of the business and how the proposed regulations would result in a significant economic burden upon them as compared to larger organizations in the same business community;

(b) How the proposed regulations could be modified to take into account differing needs or capabilities;

(c) The benefits that would accrue, or the detriments that would be avoided, if the proposed regulations were modified as suggested by the small entity;

(d) How the proposed regulations, as modified, would more closely equalize the impact of NRC regulations or create more equal access to the benefits of Federal programs as opposed to providing special advantages to any individuals or groups; and

(e) How the proposed regulations, as modified, would still adequately protect the public health and safety.

## XXXVII. List of Subjects in 10 CFR Part 20

Byproduct material, Licensed material, Nuclear materials, Nuclear power plants and reactors, Occupational safety and health, Packaging and containers, Penalty, Radiation protection, Reporting and recordkeeping requirements, Special nuclear material, Source material, Waste treatment and disposal.

## XXXVIII. Additional Comments of NRC Chairman and Commissioners

### *Additional Comments of Chairman Palladino and Commissioner Zech*

Chairman Palladino and Commissioner Zech add the following:

No useful purpose is served by withholding publication of the proposed revision to Part 20 for some indefinite period of time while the need for a backfit analysis is determined. During the comment period, the Commission can determine whether or not a backfit analysis is appropriate; if so, the analysis can be completed concurrently with the comment period. If, at a later date, it is appropriate to obtain comment on the backfit analysis, this issue can be decided at that time.

Chairman Palladino and Commissioner Zech favor performing any analyses required by the backfit rule prior to issuance of the final rulemaking on Part 20. The development of the proposed rule for Part 20 has been on-going for many years and, in fact, is the first revision to the affected standards in over 20 years. More recently, the final backfit rule has been published, and at this time the NRC is developing implementing procedures to ensure compliance with the backfit rule.

### *Additional Comments of Commissioner Asselstine*

Commissioner Asselstine adds the following:

I am generally in favor of this rulemaking which brings about a long overdue updating of our basic radiation standards to reflect the best scientific information available today. This proposed rulemaking is a worthwhile and technically defensible undertaking which moves the United States radiation protection standards in a direction that most other countries have been going. However, the NRC has a backfit rule (10 CFR 50.109) which dictates conditions which must be met before the NRC can promulgate new regulations affecting Part 50 licensees. I preferred that publication of this proposed rule be deferred until the Commission addressed whether this rulemaking complies with the backfit rule. I proposed to the other Commissioners that the backfit analysis required by § 50.109 be made available at the time this proposed rulemaking is published for public comment since such an analysis could have affected the nature and substance of this rulemaking. I also proposed to the other Commissioners that if the Commission were to decide this rulemaking, which affects Part 50 licensees, was not a backfit as defined in § 50.109, then the Commission's rationale for the inapplicability of § 50.109 should be part of the Supplementary Information with a request for any comments on that rationale.

Such an approach has several advantages. First, it would allow the public and the regulated industry to understand how the Commission is complying with regulations that are applicable to the Commission itself. Second, by obtaining public comment on the backfit analysis or the rationale for the inapplicability of § 50.109 during the public comment period on a rulemaking, the NRC would have the benefit of the public and industry views on this aspect of the rulemaking. This would ensure that the backfit analysis is used to shape the substance of a proposed rulemaking. The Commissioners favoring the backfit rule do not agree with the above and voted to publish these proposed revisions to Part 20 before deciding how, if at all, these revisions comply with the backfit rule. We are left to some uncertain date in the future to learn what the backfit rules means in practice. I do not characterize the Commission's action in this regard as providing a predictable or stable regulatory environment.

With regard to this rulemaking, I would appreciate public comments on several issues in additon to those identified in the rulemaking package. They are:

1. What more can be done to protect an embryo or fetus from occupational radiation exposure of female workers without unduly restricting the careers or employment of female workers? Any insights from approaches used by other industries to address this problem are welcomed.

2. Section XVII (Standards for Individuals in the General Public) of the Supplementary Information indicates that the Environmental Protection Agency Environmental Protection Standards for Nuclear Power Operations (40 CFR Part 190) were based on as low as reasonably achievable (ALARA) considerations at the time of development. A clarification by EPA or other interested persons as to whether 40 CFR Part 190 is an upper limit or lower limit for ALARA considerations would be appreciated.

3. The proposed revisions would establish a 1 millirem/year de minimis standard for individual doses for purposes of evaluating collective doses to the population. That is, regardless of the magnitude of the societal doses

associated with individual exposures of less that 1 millirem/year, such societal doses would not be considered in deciding whether additional protective measures are warranted. Why should there not be a de minimis standard such as collective doses less than 100 person-rem comprised of individual doses less than 1 millirem/year?

4. Is this rulemaking a backfit and subject to the analysis and determinations required by 10 CFR 50.109? If yes, should that analysis and determination be available for public comment before making this a final rule? If no, what is the rationale and should that rationale be available for public comment before making this a final rule?

For the reasons set out in the preamble and pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 as amended, and 5 U.S.C. 553, notice is hereby given that adoption of the following revision of 10 CFR Part 20 and the following amendments to 10 CFR Parts 19, 30, 31, 32, 34, 40, 50, 61, and 70 is contemplated.

1. 10 CFR Part 20 is revised to read as follows:

## PART 20—STANDARDS FOR PROTECTION AGAINST RADIATION

### Subpart A—General Provisions

Sec.


20.1 Purpose.
20.2 Scope.
20.3 Definitions.
20.4 Units of radiation dose.
20.5 Units of radioactivity.
20.6 Interpretations.
20.7 Communications.
20.8 Reporting, recording, and application requirements: OMB approval.
20.9 Conditions of exposure.


### Subpart B—System of Radiation Dose Limitation


20.101 General.
20.102 As low as is reasonably achievable levels of exposure.


### Subpart C—Occupational Dose Limits


20.201 Occupational dose limits for adults.
20.202 Compliance with requirements for summation of external and internal doses.
20.203 Further provisions—external exposure.
20.204 Further provisions—internal exposure.
20.205 Further provisions—internal exposure involving radionuclides with very long effective half-lives.
20.206 Planned special exposures.
20.207 Occupational dose limits for minors.
20.208 Dose to an embryo/fetus.


### Subpart D—Radiation Dose Limits and Reference Level for Individual Members of the Public


20.301 Dose limits for individual members of the public.
20.302 [Reserved.]
20.303 Reference level for the exposure of individual members of the public.
20.304 Collective dose evaluations.


### Subpart E—[Reserved]

### Subpart F—Surveys and Monitoring


20.501 General.
20.502 Conditions requiring individual monitoring of external and internal occupational dose.


### Subpart G—Control of Exposure From External Sources in Restricted Areas


20.601 Control of access to high radiation areas.
20.602 Control of access to very high radiation areas.


### Subpart H—Respiratory Protection Controls to Restrict Internal Exposure in Restricted Areas


20.701 Use of process or other engineering controls.
20.702 Use of other controls.
20.703 Use of individual respiratory protection equipment.
20.704 Further restrictions on the use of respiratory protection equipment.


### Subpart I—Storage and Control of Licensed Material


20.801 Security of stored material.
20.802 Control of material not in storage.


### Subpart J—Precautionary Procedures


20.901 Caution signs.
20.902 Posting requirements.
20.903 Exceptions to posting requirements.
20.904 Labeling containers.
20.905 Procedures for picking up, receiving, and opening packages.


### Subpart K—Waste Disposal


20.1001 General requirement.
20.1002 Method for obtaining approval of proposed disposal procedures.
20.1003 Disposal by release into sanitary sewerage.
20.1004 Treatment or disposal by incineration.
20.1005 Disposal of specific wastes.
20.1006 Transfer for disposal and manifests.


### Subpart L—Records


20.1101 General provisions.
20.1102 Records of radiation protection program, including ALARA provisions.
20.1103 Records of surveys.
20.1104 Determination of prior occupational dose.
20.1105 Records of planned special exposures.
20.1106 Records of individual monitoring results.
20.1107 Records of release of radioactive material in effluents.
20.1108 Records of waste disposal.
20.1109 Form of records.


### Subpart M—Reports


20.1201 Reports of theft or loss of licensed material.
20.1202 Notification of incidents.
20.1203 Reports of overexposures and excessive radiation levels and concentrations of radioactive material.
20.1204 Reports of planned special exposures.
20.1205 Reports of exceeding reference levels.
20.1206 Reports of personnel monitoring.
20.1207 Reports of personnel monitoring on termination of employment or work.


### Subpart N—Exemptions and Additional Requirements


20.1301 Applications for exemptions.
20.1302 Additional requirements.


### Subpart O—Enforcement


20.1401 Violations.


### Appendices


Appendix A—Protection factors for respirators
Appendix B—Annual limits of intake (ALIs) and derived air concentrations (DACs) of radionuclides for occupational exposure; Reference level concentrations; Concentrations for release to sewerage
Appendix C—Quantities requiring labeling
Appendix D—United States Nuclear Regulatory Commission Regional Offices
Appendix E—Mathematical expressions for demonstrating compliance with selected dose limits and reference levels
Appendix F—Requirements for low level waste transfer for disposal at land disposal facilities and manifests


**Authority:** Secs. 53, 63, 65, 81, 103, 104, 161, 182, 186, 68 Stat. 930, 933, 935, 936, 937, 948, 953, 955, as amended (42 U.S.C. 2073, 2093, 2095, 2111, 2133, 2134, 2201, 2232, 2236); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5546).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273); §§ 20.102(a), 20.201–20.205, 20.206(e), 20.207, 20.501, 20.502, 20.601 (a) and (c), 20.602(a), 20.701–20.704, 20.801, 20.802, 20.901(a), 20.902, 20.904 (a) and (b), 20.905, 20.1001, 20.1002(b), 20.1003, 20.1004, 20.1005 (b)–(d), 20.1006, 20.1101–20.1108 and 20.1201–20.1207 are issued under sec. 161b., 68 Stat. 948 (42 U.S.C. 2201(b)); and §§ 20.102(a) (2) and (4), 20.204(c), 20.205(b)(5), 20.206 (g) and (h), 20.904(c)(4), 20.905 (c) and (d), 20.1005(c), 20.1006(b)–(d), 20.1101–20.1103, 20.1104(b)–(d), 20.1105–20.1108, and 20.1201–20.1207 are issued under sec. 161o., 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

### Subpart A—General Provisions

#### § 20.1 Purpose.

(a) The regulations in this part establish standards for protection against ionizing radiation resulting from activities conducted under licenses issued by the Nuclear Regulatory Commission. These regulations are issued under the Atomic Energy Act of

1954, as amended, and the Energy Reorganization Act of 1974, as amended.

(b) It is the purpose of the regulations in this part to control the possession, use, and transfer of licensed material by any licensee in such a manner that the total dose to an individual (including exposures to licensed and unlicensed radioactive material and to other radiation sources) does not exceed the standards for protection against radiation prescribed in the regulations in this part.

**§ 20.2 Scope.**

The regulations in this part apply to persons licensed by the Commission to receive, possess, use, or transfer byproduct, source, or special nuclear material or to operate a production or utilization facility under Parts 30 through 35, 40, 50, 60, 61, 70, 72, or 150 of this chapter. The limits in this part do not apply to doses due to emergency exposures, to natural background, to intentional exposure of patients to radiation for the purpose of medical diagnosis or therapy, or to voluntary participation in medical research programs.

**§ 20.3 Definitions.**

As used in this part:

"Absorbed dose" (See Dose terms).

"Act" means the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.), as amended.

"Adult" means an individual 18 or more years of age.

"Airborne radioactive material" means radioactive material dispersed in the air in the form of dusts, fumes, particulates, mists, vapors, or gases.

"Airborne radioactivity area" (See Area terms).

"Annual limit of intake" (See Dose control terms).

"ALARA" (See Dose control terms).

"Area" terms:

(1) "Radiation area" means an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.005 rem (0.05 mSv) in 1 hour at 30 cm from the radiation source or from any surface which the radiation penetrates.

(2) "High radiation area" means an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour at 30 cm from the radiation source or from any surface which the radiation penetrates.

(3) "Very high radiation area" means an area, accessible to individuals, in which radiation levels could result in an individual receiving an absorbed dose in excess of 500 rads (5 grays) in 1 hour at 1 meter from a radiation source or from any surface which the radiation penetrates.

Note.—At very high doses received at high dose rates, units of absorbed dose are appropriate, rather than units of dose equivalent.

(4) "Airborne radioactivity area" means a room, enclosure, or area in which airborne radioactive materials, composed wholly or partly of licensed material, exist in concentrations: (i) In excess of the derived air concentrations (DACs) specified in Appendix B of this part, or (ii) to such a degree that an individual present in the area without respiratory protection equipment could exceed, during the hours an individual is present in a calendar week, an intake of 0.6% of the annual limit of intake (ALI), i.e., 30% of 40 DAC-hours.

(5) "Restricted area" means an area, access to which is limited by the licensee for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials. Restricted area does not include areas used as residential quarters, but separate rooms in a residential building may be set apart as a restricted area.

(6) "Controlled area" means an area, outside of a restricted area but inside the site boundary, access to which is limited by the licensee for any reason. The degree of control may vary, for example, from posting to the use of surveillance or barriers.

(7) "Unrestricted area" means an area, access to which is neither limited nor controlled by the licensee.

(8) "Site boundary" means that line beyond which the land or property is neither owned, leased, nor otherwise controlled by the licensee.

"Bioassay" (See Monitoring terms).

"Biological half-time" means the time required for half of a material deposited in the body to be removed by biological processes.

"Byproduct material" (See Licensed material).

"Calendar quarter" (See Quarter).

"Calendar week" (See Week).

"Calendar year" (See Year).

"Class" (or "Lung class" or "Inhalation class") mean a classification scheme for inhaled material according to its rate of clearance from the pulmonary region of the lung. Materials are classified as D, W, or Y which applies to a range of biological half-times for D of less than 10 days, for W from 10 to 100 days, and for Y greater than 100 days.

"Collective effective dose equivalent" (See Dose terms).

"Commission" means the Nuclear Regulatory Commission or its duly authorized representatives.

"Committed dose equivalent" (See Dose terms).

"Committed effective dose equivalent" (See Dose terms).

"Controlled area" (See Area terms).

"Declared pregnant woman" means a woman who has voluntarily informed her employer, in writing, of her pregnancy and the estimated date of conception.

"Derived air concentration" (See Dose control terms).

"Dose" terms:

(1) "Dose" or "radiation dose" is a generic term which means absorbed dose, dose equivalent, committed dose equivalent, or committed effective dose equivalent, as defined in other paragraphs of this section.

(2) "Absorbed dose" means the energy imparted by ionizing radiation per unit mass of irradiated material at the location of interest. The units of absorbed dose are the rad and the gray [1 gray (Gy) = 100 rad].

(3) "Dose equivalent" means the product of absorbed dose, quality factor, and all other necessary modifying factors at the location of interest in tissue. The units of dose equivalent are the rem and the sievert [1 sievert (Sv) = 100 rem].

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(4) "External dose" means that portion of the dose equivalent received from radiation sources outside of the body.

(i) "Deep dose equivalent" ($H_d$) applies to the external whole-body exposure and is taken as the dose equivalent at a tissue depth of 1 cm.

(ii) "Eye dose equivalent" ($H_e$) applies to the external exposure of the lens of the eye and is taken as the dose equivalent at a tissue depth of 0.3 cm.

(iii) "Shallow dose equivalent" ($H_s$) applies to the external exposure of the skin or an extremity and is taken as the dose equivalent at a tissue depth of 0.007 cm.

(5) "Internal dose" means that portion of the dose equivalent received from radioactive material taken into the body.

(i) "Committed dose equivalent" ($H_{c,T}$) means the dose equivalent to organs or tissues of reference (T) that will be received from an intake of radioactive material by an individual during the 50-year period following the intake ($H_{50,T}$).

(ii) "Effective dose equivalent" ($H_E$) is the sum of the products of the dose equivalent ($H_T$) to the organ or tissue (T) and the weighting factors ($w_T$) applicable to each of the body organs or tissues which are irradiated ($\Sigma w_T H_T$).

(iii) "Committed effective dose equivalent" ($H_{E,c}$) is the sum of the products of the weighting factors applicable to each of the body organs or tissues which are irradiated and the committed dose equivalent.

(6) "Collective effective dose equivalent" is the sum of the individual weighted dose equivalents received by a specified population from exposure to the given source of radiation.

(7) "Occupational dose" means the dose received by an individual in a restricted area or in the course of employment in which the individual's assigned duties involve exposure to radiation and to radioactive material from licensed and unlicensed sources of radiation, whether in the possession of the licensee or other person. Occupational dose does not include dose received from natural background, as a patient from medical practices, from voluntary participation in medical research programs, or as a member of the general public.

(8) "Public dose" means the dose received by a member of the public from exposure to radiation and to radioactive material released by a licensee, or to another source of radiation either within a licensee's controlled area or in unrestricted areas. It does not include occupational dose, or dose received from natural background, as a patient from medical practices, or from voluntary participation in medical research programs.

(9) "Working level" means the potential alpha energy concentrations of radon daughters (for radon-222—polonium-218, lead-214, bismuth-214, and polonium-214; and for radon-220—polonium-216, lead-212, bismuth-212, and polonium-212) in 1 liter of air, without regard to the degree of equilibrium, that will result in the eventual emission of $1.3 \times 10^5$ MeV of alpha particle energy.

(10) "Working level month" (WLM) means an exposure of 1 working level for 170 hours (2,000 working hours per year/12 months per year = approximately 170 hours per month).

"Dose control" terms:

(1) "ALARA" (acronym for "As low as is reasonably achievable") means making every reasonable effort to maintain exposures to radiation as far below the dose limits in this part as is practical: (i) Consistent with the purpose for which the licensed activity is undertaken, (ii) taking into account the state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and (iii) in relation to utilization of nuclear energy in the public interest.

(2) "Annual limit of intake" (ALI) means the derived limit for the amount of radioactive material taken into the body of an adult worker by inhalation or ingestion in a year. ALI is the smaller value of intake of a given radionuclide in a year by reference man which would result in a committed effective dose equivalent of 5 rems (0.05 Sv) or a committed dose equivalent of 50 rems (0.5 Sv) to an organ or tissue. (ALI values for intake by ingestion and by inhalation of selected radionuclides are given in Table 1, Columns 1 and 2 of Appendix B of this part.)

(3) "Derived air concentration" (DAC) means the concentration of a given radionuclide in air which, if breathed by reference man for a working year of 2,000 hours under conditions of light activity (inhalation rate 1.2 cubic meters of air per hour), results in an inhalation of one ALI. (DAC values are given in Table 1, Column 3 of Appendix B of this part. Note consideration of submersion dose; see § 20.203.)

(4) "Dose limits" means the permissible upper bounds of radiation doses. They apply to the dose equivalent received during the period of time covered (generally a calendar year), the committed effective dose equivalent resulting from the intake of radioactive material during the same period, or the effective dose equivalent received in a year.

"Dose" or "Radiation dose" (See Dose terms).

"Dose equivalent" (See Dose terms).

"Effective dose equivalent" (See Dose term).

"Embryo/fetus" means the developing organism from conception until the time of birth.

"Exposure" terms:

(1) "Exposure" means being exposed to ionizing radiation or to radioactive material.

(2) "Natural background exposure" means exposure to cosmic and terrestrial sources of naturally occurring radioactive material, including technologically enhanced radioactive material, such as plasterboard and fertilizer, but not including byproduct material or radioactive material specifically intended to be a radiation source.

(3) "Normal exposure conditions" means the conditions where exposures can be limited by control of the radiation source and by control of the individual exposed to the radiation source.

(4) "Planned special exposure" means an exposure that occurs infrequently during normal operations when it is necessary to permit a few workers to receive doses in excess of the annual dose limits. Dose limiiting provisions for planned special exposures are separate from, and in addition to, the dose limiting conditions for normal exposure conditions.

(5) "Emergency exposure conditions" means conditions where the radiation source is not under control so that subsequent exposure can be limited only by remedial actions.

"Extremities" means hand, elbow, arm below the elbow, foot, knee, and leg below the knee.

"Government agency" means any executive department, commission, independent establishment, corporation wholly or partly owned by the United States of America which is an instrumentality of the United States, or any board, bureau, division, service, office, officer, authority, administration, or other establishment in the executive branch of the Government.

"High radiation area" (See Area terms).

"Individual monitoring" (See Monitoring).

"Internal dose" (See Dose terms).

"License" means a license issued under the regulations in Parts 30 through 35, 40, 50, 60, 61, 70, or 72 of this chapter.

"Licensee" means the holder of a license.

"Licensed material" means source material, special nuclear material, or byproduct material received, possessed, used, or transferred under a general or specific license issued by the Commission.

(1) "Byproduct material" means: (i) Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or utilizing special nuclear material; and (ii) the tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by these solution extraction operations do not constitute "byproduct material" within this definition.

(2) "Source material" means: (i) Uranium or thorium, or any combination of uranium and thorium in any physical or chemical form; or (ii) ores which contain, by weight, one-twentieth of one percent (0.05%), or more, of uranium, thorium, or any combination of uranium and thorium. Source material does not include special nuclear material.

(3) "Special nuclear material" means: (i) Plutonium, uranium 233, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the Commission, pursuant to the provisions of section 51 of the act, determines to be special nuclear material, but does not include source material; or (ii) any material artificially enriched by any of the foregoing but does not include source material.

"Limits" (See Dose control terms).

"Lost or missing licensed material" means any licensed material whose location is unknown. It includes material which has been shipped but has not reached its destination and whose location cannot be readily traced in the transportation system.

"Members of the public" means persons who are not occupationally associated with the facility or licensed operations.

"Minor" means an individual under 21 years of age.

"Monitoring" terms:

(1) "Monitoring" (radiation monitoring, radiation protection monitoring) means the measurement of radiation levels, amounts or concentrations of radionuclides, or surface area concentrations of radionuclides, and the use of the results of these measurements to evaluate potential exposures and doses.

(2) "Bioassay" (radiobioassay) means the determination of kinds, quantities or concentrations, and, in some cases, the locations of radioactive material in the human body, whether by direct measurement (in vivo counting) or by analysis and evaluation of materials excreted or removed from the human body.

(3) "Individual monitoring" means: (i) The assessment of dose equivalent by the use of devices designed to be worn by an individual; (ii) the assessment of effective dose equivalent by bioassay (see Bioassay) or by determination of the time-weighted air concentrations to which an individual has been exposed, i.e., DAC-hours; or (iii) the assessment of dose equivalent by the use of survey data.

(4) "Survey" means an evaluation of the radiation conditions incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation. Such an evaluation may include calculations or a physical survey, or both.

"Natural background exposure" (See Exposure terms).

"Non-stochastic" (See Stochastic effects).

"Normal exposure conditions" (See Exposure terms).

"Occupational dose" (See Dose terms).

"Person" means: (1) Any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, Government agency other than the Commission or the Department of Energy (except that the Department shall be considered a person within the meaning of the regulations in 10 CFR Chapter I to the extent that its facilities and activities are subject to the licensing and related regulatory authority of the Commission under section 202 of the Energy Reorganization Act of 1974 (88 Stat. 1244)), and State or any political subdivision of or any political entity within State, any foreign government or nation or any political subdivision of any such government or nation, or other entity; and (2) any legal successor, representative, agent, or agency of the foregoing.

"Planned special exposure" (See Exposure terms).

"Public dose" (See Dose terms).

"Quarter" means 3 consecutive months starting January 1, April 1, July 1, or October 1.

"Radiation" (ionizing radiation) means alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. Radiation, as used in this part, does not include non-ionizing radiation, such as sound, radio, or microwaves, or visable, infrared, or ultraviolet light.

"Radiation area" (See Area terms).

"Reference level" means a level used in the course of implementing radiation protection programs to signal the necessity for a course of action. The action initiated might range from simply recording the information, through investigating causes and consequences, to intervening measures. A reference level is not a limit.

"Reference man" means a hypothetical aggregation of human physical and physiological characteristics arrived at by international consensus. These characteristics may be used by researchers and public health workers to standardize results of experiments and to relate biological insult to a common base. (See ICRP Publication No. 23.)

"Respiratory protection device" means an apparatus, such as a respirator, used to reduce the individual's intake of airborne radioactive materials.

"Restricted area" (See Area terms).

"Site boundary" (See Area terms).

"Source material" (See Licensed material).

"Special nuclear material" (See Licensed material).

"Stochastic effects" means health effects which occur randomly and for which the probability of the effect occurring, rather than its severity, is assumed to be a linear function of dose without threshold. Hereditary effects and cancer incidence are examples of stochastic effects. A "non-stochastic effect" means a health effect the severity of which varies with the dose, and for which a threshold is believed to exist. Cataracts are an example of a non-stochastic effect.

"Survey" (See Monitoring terms).

"Unrestricted area" (See Area terms).

"Uranium fuel cycle" means the operations of milling of uranium ore, chemical conversion of uranium, isotopic enrichment of uranium, fabrication of uranium fuel, generation of electricity by a light-water-cooled nuclear power plant using uranium fuel, and reprocessing of spent uranium fuel, to the extent that these activities directly support the production of electrical power for public use. Uranium fuel cycle does not include mining operations, operations at waste disposal sites, transportation of radioactive material in support of these operations, and the reuse of recovered non-uranium special nuclear and byproduct materials from the cycle.

"Very high radiation area" (See Area terms).

"Week" means 7 consecutive days starting on Sunday.

"Whole body" means, for purposes of external exposure, head, trunk, arms above the elbow, or legs above the knees.

"Working level" (See Dose terms).

"Working level month" (See Dose terms).

"Year" means 12 consecutive months starting January 1, i.e., a calendar year.

### § 20.4 Units of radiation dose.

(a) Dose-limiting standards are stated in terms of effective dose equivalent, expressed in units of rems or sieverts. Provisions for demonstrating compliance with the standards are stated in terms of absorbed dose, expressed in units of rads or grays; and in terms of dose equivalent, effective dose equivalent, committed dose equivalent, and committed effective dose equivalent, all expressed in units of rems or sieverts.

(1) "Gray" (Gy) is a unit of absorbed dose. One gray is equal to an absorbed dose of 1 joule/kilogram or 100 rads.

(2) "Rad" is a unit of absorbed dose. An absorbed dose of 1 rad is equal to an absorbed dose of 100 ergs/grams or 0.01 joule/kilogram.

(3) "Roentgen" (R) is that quantity of x- or gamma-radiation which causes ionization in air equal to $2.58 \times 10^{-4}$ coulomb per kilogram. An exposure of 1 roentgen results in an absorbed dose of 0.87 rad in air.

(4) "Sievert" (Sv) is a unit of dose equivalent. One sievert is equal to a dose equivalent of 1 joule/kilogram or 100 rems.

(5) "Rem" is a unit of dose equivalent for any type of ionizing radiation absorbed by body tissue in terms of its estimated biological effect relative to an exposure of one roentgen of x- or $\gamma$-rays. The dose equivalent in rems is numerically equal to the absorbed dose in rads multiplied by the quality factor, distribution factor, and any other necessary modifying factors.

(6) The prefixes in Table 1 are used when the unit of radiation dose is expressed in the International System of Units (SI).

TABLE 1 - SI PREFIXES

| Factor | Prefix | Symbol | Factor | Prefix | Symbol |
|---|---|---|---|---|---|
| $10^{18}$ | exa | E | $10^{-1}$ | deci | d |
| $10^{15}$ | peta | P | $10^{-2}$ | centi | c |
| $10^{12}$ | tera | T | $10^{-3}$ | milli | m |
| $10^{9}$ | giga | G | $10^{-6}$ | micro | μ |
| $10^{6}$ | mega | M | $10^{-9}$ | nano | n |
| $10^{3}$ | kilo | k | $10^{-12}$ | pico | p |
| $10^{2}$ | hecto | h | $10^{-15}$ | femto | f |
| $10^{1}$ | deka | da | $10^{-18}$ | atto | a |

(b) For the purposes of the regulations in this part, any of the following is considered to result in a dose of 1 rem:

(1) An exposure of 1 roentgen of x- or gramma-radiation, except for personnel monitoring purposes which shall comply with the requirements in § 20.501(c);

(2) An absorbed dose, in tissue, of 1 rad due to beta radiation;

(3) An absorbed dose, in tissue, of 0.05 rad due to alpha particles, fission fragments, and other particles heavier than neutrons; or

(4) An absorbed dose, in tissue, of 0.1 rad due to neutrons or high energy protons.

(c) If it is more convenient to measure the neutron fluence rate than to determine the neutron dose equivalent rate in rems per hour, as provided in paragraph (b)(4) of this section, 1 rem of neutron radiation of unknown energies may, for purposes of the regulations in this part, be assumed to result from a total fluence of 25 million neutrons per square centimeter incident upon the body. If sufficient information exists to estimate the approximate energy distribution of the neutrons, the licensee may use the incident fluence equivalent to 1 rem or the appropriate Q value from Table 2 to convert a measured tissue-dose in rads to dose equivalent in rems.

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TABLE 2 - MEAN QUALITY FACTORS, Q[a] AND FLUENCE PER UNIT DOSE EQUIVALENT FOR MONOENERGETIC NEUTRONS[b]

| | Neutron Energy (MeV) | Q | Fluence per Unit Dose Equivalent (neutrons $cm^{-2}$ $rem^{-1}$) |
|---|---|---|---|
| (thermal) | $2.5 \times 10^{-8}$ | 2 | $980 \times 10^6$ |
| | $1 \times 10^{-7}$ | 2 | $980 \times 10^6$ |
| | $1 \times 10^{-6}$ | 2 | $810 \times 10^6$ |
| | $1 \times 10^{-5}$ | 2 | $810 \times 10^6$ |
| | $1 \times 10^{-4}$ | 2 | $840 \times 10^6$ |
| | $1 \times 10^{-3}$ | 2 | $980 \times 10^6$ |
| | $1 \times 10^{-2}$ | 2.5 | $1010 \times 10^6$ |
| | $1 \times 10^{-1}$ | 7.5 | $170 \times 10^6$ |
| | $5 \times 10^{-1}$ | 11 | $39 \times 10^6$ |
| | 1 | 11 | $27 \times 10^6$ |
| | 2.5 | 9 | $29 \times 10^6$ |
| | 5 | 8 | $23 \times 10^6$ |
| | 7 | 7 | $24 \times 10^6$ |
| | 10 | 6.5 | $24 \times 10^6$ |
| | 14 | 7.5 | $17 \times 10^6$ |
| | 20 | 8 | $16 \times 10^6$ |
| | 40 | 7 | $14 \times 10^6$ |
| | 60 | 5.5 | $16 \times 10^6$ |
| | $1 \times 10^2$ | 4 | $20 \times 10^6$ |
| | $2 \times 10^2$ | 3.5 | $19 \times 10^6$ |
| | $3 \times 10^2$ | 3.5 | $16 \times 10^6$ |
| | $4 \times 10^2$ | 3.5 | $14 \times 10^6$ |

[a] Value of quality factor (Q) at the point where the dose equivalent is maximum in a 30-cm diameter cylinder tissue-equivalent phantom.

[b] Monoenergetic neutrons incident normally on a 30-cm diameter cylinder tissue-equivalent phantom.

**§ 20.5 Units of radioactivity.**

(a) For the purposes of this part, radioactivity is expressed in units of curies (Ci), or becquerels (Bq), or their multiples, or disintegrations per unit of time.

(1) One curie = $3.7 \times 10^{10}$ disintegrations per second = $3.7 \times 10^{10}$ becquerels = $2.22 \times 10^{12}$ disintegrations per minute.

(2) One becquerel = 1 disintegration (transformation) per second ($s^{-1}$).

(3) The prefixes listed in Table 1 of § 20.4 are used when the unit of radioactivity is expressed in SI units.

**§ 20.6 Interpretations.**

Unless specifically authorized by the Commission in writing, no interpretation of the meaning of the regulations in this part by an officer or employee of the Commission other than a written interpretation by the General Counsel is binding on the Commission.

**§ 20.7 Communications.**

Unless otherwise specified, communications or reports concerning the regulations in this part should be addressed to the Executive Director for Operations, U.S. Nuclear Regulatory Commission, Washington, DC 20555. A communication, report, or application may be delivered in person to the Commission's offices at 1717 H Street NW, Washington, DC or 7920 Norfolk Avenue, Bethesda, MD.

**§ 20.8 Reporting, recording, and application requirements: OMB approval.**

(a) The Nuclear Regulatory Commission has submitted the information collection requirements contained in this part to the Office of Management and Budget for approval as required by the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). The OMB control number is ————.

(b) The approved information collection requirements contained in this part appear in §§ 20.102, 20.202, 20.204, 20.205, 20.206, 20.303, 20.501, 20.502, 20.601, 20.602, 20.703, 20.904, 20.905, 20.1002, 20.1005, 20.1006, 20.1102, 20.1103, 20.1104, 20.1105, 20.1106, 20.1107, 20.1108, 20.1201, 20.1202, 20.1203, 20.1204, 20.1205, 20.1206, and 20.1207.

**§ 20.9 Conditions of exposure.**

The regulations in this part apply to normal exposure conditions, including planned special exposures and inadvertent exposures which occur through operational mishaps. The regulations in this part do not apply to emergency exposure conditions. However, the Commission recognizes that emergency exposure conditions can exist as a result of the possession, use, or transfer of licensed material. Nothing in this part shall be interpreted as limiting the exposure of individuals to radiation when exposures occur under emergency circumstances and are for the purpose of minimizing danger to life or property. However, the dose received during an emergency or accident shall be included in the individual's records. Further, the Commission may require a licensee to develop a contingency plan dealing with foreseeable situations that includes provisions for planned countermeasures.

## Subpart B—System of Radiation Dose Limitation

**§ 20.101 General.**

In the interest of public health and safety and in setting the radiation protection standards in this part, the Commission assumes that—

(a) There is, within the range of exposure conditions usually encountered in radiation work, a linear relationship without threshold between dose and probability of stochastic (random) health effects;

(b) The severity of each type of stochastic health effect is independent of dose; and

(c) Non-stochastic (nonrandom) occurrences of radiation-induced health effects are prevented by limiting exposures so that doses are below the thresholds for their induction.

**§ 20.102 As low as is reasonably achievable levels of exposure.**

(a) Each licensee shall ensure that the dose to individuals receiving occupational doses and to members of the public is as low as is reasonably achievable (ALARA) and does not exceed the appropriate limits. Procedures and engineering controls based on sound radiation protection principles and practices should be used, to the extent practical, to reduce potential exposures.

(1) Each licensee shall develop and implement a radiation protection program including provisions for keeping dose equivalents ALARA.

(2) The licensee's radiation protection program shall include examination and verification of program features and of records by management, or their designee, and administrative controls specifying investigation levels below the limits.

(3) Each licensee shall review circumstances which cause doses in excess of the investigation levels to affirm that doses are ALARA and to take corrective action, if warranted.

(4) The licensee shall maintain records of ALARA actions in accordance with § 20.1102.

(b) A licensee operating a uranium fuel cycle facility so as to meet the provisions of 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," and, if the facility is a light-water-cooled nuclear power reactor, so as to comply with the provisions of Appendix I of Part 50 of this chapter, meets the requirements of this section for maintaining doses to members of the public at levels which are ALARA.

## Subpart C—Occupational Dose Limits

**§ 20.201 Occupational dose limits for adults.**

(a) The licensee shall constrain the occupational dose to individual adults, except for the planned special exposures in § 20.206 and the provisions for very long effective half-lived radionuclides in § 20.205, to the following dose limits.

(1) The annual limit is the more limiting of—

(i) The sum of the (external) deep dose equivalent to the whole body and the (internal) committed effective dose equivalent being equal to 5 rems (0.05 Sv) (see Appendix E of this part for mathematical expressions); or

(ii) The sum of the deep dose equivalent and the committed dose equivalent being equal to 50 rems (0.5 Sv) to an organ or tissue other than the lens of the eye (see Appendix E of this part for mathematical expression).

(2) The deep dose equivalent component of the annual effective dose equivalent in paragraph (a)(1) of this section shall not exceed 3 rems (0.03 Sv) in any calendar quarter.

(3) The dose equivalents to the lens of the eye, to the skin, and to the extremities are subject to the following limits.

(i) The annual dose equivalent limit to the lens of the eye is 15 rems (0.15 Sv).

(ii) The annual dose equivalent limit to the skin and to each of the extremities is 50 rems (0.5 Sv). This limit applies to the dose equivalent average over 10 square centimeters in the region of highest exposure.

(b) If an individual receives an exposure that results in a dose exceeding the 3-rem quarterly limit, but less than the 5-rem annual limit, the licensee shall constrain further exposures so that the annual dose limit is not exceeded, unless the dose was permitted under the planned special exposure provisions in § 20.206.

(c) If an individual receives an exposure that results in a dose exceeding the annual limits specified in this section, unless permitted as a planned special exposure by § 20.206, the following conditions shall be satisfied.

(1) The licensee shall not assign the individual to tasks likely to result in the individual receiving an additional occupational dose exceeding one rem (0.01 Sv) effective dose equivalent during any quarter remaining in the calendar year, including the quarter in which the overexposure occurred.

(2) Doses received in excess of the annual limits, including doses received during accidents, emergencies, planned special exposures, or additional overexposures as provided in paragraph (c)(1) of this section, shall be subtracted from the limits for planned special exposures that the individual may receive during the current year (see § 20.206(e)(1)) and during the individual's lifetime (see § 20.206(e)(2)).

(d) Derived air concentration (DAC) and annual limit of intake (ALI) values are presented in Table 1 of Appendix B of this part and mau be used in demonstrating compliance with the occupational dose limits.

**§ 20.202 Compliance with requirements for summation of extrernal and internal doses.**

If an individual is occupationally exposed at levels exceeding both 10% of the (external) deep dose equivalent and 30% of the (internal) annual limit of intake (ALI) of radioactive material, the licensee shall demonstrate compliance with the annual dose limit by summing the deep dose equivalent and the committed effective dose equivalent. If the deep dose equivalent is less than 10% of the annual limit, or if the committed effective dose equivalent is less than 30% of the annual limit, the doses need not be summed.

Nôte.—The dose equivalents for the lens of the eye, the skin, and the extremities are not included in the summation, but are subject to separate limits.

(a) Because the actual dose equivalent cannot be measured directly, the licensee may use individual monitoring data or other radiation measurements if these data or measurements yield, or are adjusted to yield, a value that is not less than the deep dose equivalent in the region of highest exposure to the whole body of an individual.

(b) Because the committed dose equivalent cannot be measured directly, the licensee may substitute one of the following techniques to demonstrate compliance with the limits.

(1) *Intake by inhalation.* If the only intake of radionuclides is by inhalation, the annual limit is not exceeded—

(i) If the sum of the fraction of the (external) deep dose equivalent limit and the sum of the fractions of the ALI by inhalation of each radionuclide during the year do not exceed unity (see Appendix E of this part for mathematical expression); or

(ii) If the sum of the fraction of the deep dose equivalent limit and the sum of the fractions of the derived air concentration (DAC) of each radionuclide inhaled during the year do not exceed unity (see Appendix E of this part for mathematical expression); or

(iii) If the sum of the fraction of the deep dose equivalent limit and the sum of the committed effective dose equivalents to all significantly irradiated [1] organs or tissues (T) calculated from bioassy data and using appropriate biological models, expressed as a fraction of the annual dose limit, does not exceed unity (see Appendix E of this part for mathematical expression).

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[1] An organ or tissue is "significantly irradiated" if, for that organ or tissue, the weighted value per unit intake is greater than 10% of the maximum weighted value of $H_{e,\tau}$ per unit intake in any organ or tissue.

(2) *Intake by oral ingestion.* If the occupationally exposed individual also receives an intake of radionuclides by oral ingestion greater than 10% of the applicable ALI, the licensee shall account for this intake and include it in demonstrating compliance with the limits (see Appendix E of this part for mathematical expression).

(3) *Intake through wounds or absorption through skin.* The licensee shall evaluate and, to the extent practical, account for intakes through wounds or skin absorption.

**Note.**—The intake through intact skin has been included in the calculation of DAC for hydrogen-3.

**§ 20.203 Further provisions—external exposure.**

(a) Derived air concentrations for radioactive noble gases (see class "submersion" in Appendix B of this part) are based upon the dose equivalent rates from exposure to the (external) radiation from submersion in a semi-infinite cloud of uniform concentration, i.e., 2-pi geometry. DAC values may be calculated for submersion in concentrations of noble gases or very short-lived radionuclides in finite volumes. The submersion dose equivalent can also be measured with individual or other radiation monitoring devices. Therefore, the licensee may use either the individual or other radiation monitoring data or measurements of radionuclide concentrations in air to estimate the dose equivalent from exposure to airborne noble gases.

(b) Derived air concentrations for radionuclides other than noble gases (see Appendix B of this part) are based upon the committed effective dose equivalent due to the intake of the radionuclide into the body. The DACs for these radionuclides do not include contributions to the deep dose equivalent from external exposures, such as from submersion in a cloud containing radioactive material. Some very short-lived radionuclides which decay by beta-gamma emission, particularly those marked footnote 2 in Appendix B of this part, can also constitute an important source of external exposure. Consequently, the licensee must also include the dose equivalent from submersion in estimating the effective dose equivalent from airborne concentrations of radioactive material. Licensees may use individual or other radiation monitoring devices to measure, rather than calculate, the dose equivalent from submersion.

(c) The licensee may adjust the estimates of deep dose equivalent based on DAC values when the individual is exposed to clouds with finite volumes or to clouds with nonuniform concentrations.

(d) The licensee may not use DAC values to estimate deep dose equivalent for exposures in which the individual is located where the air concentrations are substantially less than the maximum in the cloud. The use of the semi-infinite cloud conversion factor could cause an underestimate of dose equivalent in such cases. Individual or other radiation monitoring devices may be used to obtain the appropriate dose equivalent estimates in any case.

**§ 20.204 Further provisions—internal exposure.**

(a) For purposes of determining compliance with occupational dose equivalent limits, the licensee shall take suitable and timely measurements of—

(1) Concentrations of radioactive materials in air in the work areas;

(2) Quantities of radionuclides in the body;

(3) Quantities of radionuclides excreted from the body; or

(4) Combinations of thes measurements.

(b) Unless respiratory protection equipment is used, as provided in § 20.703, or the assessment of intake is based on bioassays, the licensee shall assume that an individual inhales radioactive material at the airborne concentration in which the individual is present.

(c) When specific information on the physical and biochemical properties of the radionuclides taken into the body and the behavior of the material in an individual is known, that information may be used in the calculation of committed effective dose equivalent and, if used, the licensee shall document that information in the individual's record.

(d) When a licensee chooses to use DAC or ALI fractions to demonstrate compliance with dose limits, Appendix B values may be adjusted to reflect actual parametric values if the licensee can justify the adjustment with a suitable data base.

(e) When fractional intakes of Class D, W, or Y compounds (see Appendix B of this part) of a given radionuclide are known, the licensee shall access the contribution of each fraction to the total committed effective dose equivalent separately.

(f) Because of the technical difficulties associated with assessment of incremental intakes by inhalation of Class Y radioactive materials, alone or in mixtures with Class D or Class W materials, and assessment of the committed effective dose equivalent to individual workers from intakes of these materials, recording and reporting of these assessments may be delayed for periods up to 7 months, unless otherwise required by §§ 20.1202 or 20.1203, in order to permit the licensee to make additional measurements basic to the assessments.

(g) Precise knowledge of the composition of mixtures of specific radionuclides in air is not necessary for radiation protection purposes. When a mixture of radionuclides exists in air, the licensee may consider any single radionuclide as "not present" in the mixture if—

(1) The concentration of that radionuclide in air is less than 10% of its DAC;

(2) The sum of these percentages for all of the radionuclides considered as "not present" in the mixture does not exceed 30%; and

(3) The licensee uses the radioactivity of the entire mixture (total radioactivity) in demonstrating compliance with the dose limits in § 20.201 and in complying with the monitoring requirements in § 20.502(b).

(h) Based on a number of simplifying assumptions, inhalation of one ALI, or exposure for 2,000 DAC-hours, may be assumed to result in a risk equal to the risk from a whole body dose equivalent of 5 rems (0.05 Sv).

(1) In some cases, the ALI (and the associated DAC) listed in Table 1 of Appendix B of this part is determined by the quantity of a radionuclide that would deliver 50 rems (0.5 Sv) to a particular organ or tissue (the non-stochastic ALI). In such a case, the organ or tissue to which the non-stochastic ALI applies is specified, and the quantity of radionuclide that would result in a committed effective dose equivalent of 5 rems (0.05 Sv), the stochastic ALI, is listed in parentheses.

(2) When the intake is a mixture of radionuclides, the licensee may use the stochastic ALIs to determine committed effective dose equivalent. However, if the licensee chooses to use the stochastic ALIs, the licensee must also demonstrate that the dose the equivalent to any organ or tissue does not exceed 50 rems (0.5 Sv). This is demonstrated if the inequality in the reference to § 20.202 in Appendix E of this part does not exceed unity when summing the fraction of the external deep dose equivalent limit, and the fractions of the non-stochastic ALIs (or DACs) of all of the radionuclides (for which the particular organ or tissue is specified in Appendix B of this part) taken into the body by the individual.

(i) In addition to the annual dose limits, the licensee shall limit the soluble uranium intake by an individual to 10 milligrams in a calendar week in consideration of chemical toxicity (see footnote 3 of Appendix B of this part).

**§ 20.205 Further provisions—internal exposure involving radionuclides with very long effective half-lives.**

(a) Biological, chemical, and physical characteristics of the radionuclides listed in Table 3 are of such a nature that the air concentrations found in restricted areas and the amounts of radionuclide found in bioassay samples at or below permissible ALIs might be difficult to measure in a practical manner with sufficient accuracy to permit projection of the committee effective dose equivalent to be used to demonstrate compliance with the limits in § 20.201 by the methods provided in § 20.202(b)

TABLE 3 [1]

| Element | Isotope | | | | | | |
|---|---|---|---|---|---|---|---|
| Thorium | -228Y | -229Y | -230Y | -232Y | | | |
| Protactinium | -231Y | | | | | | |
| Uranium | -232Y | -233Y | -234Y | -235Y | -236Y | -238Y | |
| Plutonium | -236Y | -238Y | -239Y | -240Y | -241Y | -242Y | -244Y |
| Californium | -249Y | -250Y | -251Y | -252Y | | | |

[1] refers to the classification of radioactive materials dependent on their biological retention in the lung (see Appendix B of this part).

(b) A licensee may permit an individual in a restricted area to receive a dose in excess of the limit in § 20.201, when all or part of the dose equivalent received by an individual is from the intake of one or more of the radionuclides listed in Table 3, if each of the following conditions are satisfied:

(1) Facilities constructed after (*effective date of the revision*) are designed so that air concentrations averaged over the year in restricted areas are within the DAC values.

(2) The licensee operates the facility in a manner that will ensure that any individual is unlikely to have an intake from occupational exposure in 1 year in excess of the ALI value.

(3) The sum of the (external) deep dose equivalent, $H_D$, and the effective dose equivalent, $\Sigma_T H_T h_T$, received in one year (due to both the radionuclides taken into the body during the current year and the radionuclides remaining in the body from previous years) does not exceed 5 rems (0.05 Sv).

(4) The licensee limits the effective dose equivalent received by the individual in one year from the intake of radionuclides in Table 3 (due to both the radionuclides taken into the body during the current year and the radionuclides remaining in the body from previous years) to 3 rems (0.03 Sv).

(5) The licensee provides the best estimate to both the effective dose equivalent received in a year and the committed effective dose equivalent for all of the radioactive material remaining in the body of the individual at the end of the current year. These estimates shall be recorded, revised at least annually if the exposure is later found to be other than previously estimated, reported to the individual annually, and sent to subsequent employers as part of the individual's occupational exposure history.

(6) The licensee formally instructs the individual employee concerning the significance of both the effective dose equivalent received in a year and the committed effective dose equivalent and the uncertainty of the estimates or projections.

**§ 20.206 Planned special exposures.**

A licensee may authorize an adult worker to receive doses from exposure to external sources in excess of the limits specified in § 20.201 provided that each of the following conditions is satisfied.

(a) The licensee authorizes a planned special exposure only in an exceptional situation, when alternatives which might avoid the higher exposure are unavailable or impractical.

(b) The licensee (and employer, if the employer is not the licensee) specifically authorizes the planned special exposure, in writing, before the exposure occurs.

(c) Before a planned special exposure, the licensee ensures that the individuals involved are—

(1) Informed of the purpose of the planned operation;

(2) Informed of the estimated doses and special radiation or other conditions that might be involved in performing the task; and

(3) Instructed in the measures to be taken to keep the dose and other risks ALARA.

(d) Before a planned special exposure, the licensee ascertains the dose equivalent from all previous planned special exposures and all doses in excess of the annual limits for each individual involved in accordance with § 20.1104(a)(2).

(e) Subject to § 20.201(c)(2), the licensee does not authorize a planned special exposure which would cause an individual—

(1) To exceed, numerically, one times the annual dose limits specified in § 20.201(a) from all planned special exposures and all doses in excess of the annual limits in a calendar year; or

(2) To exceed a total lifetime dose from all planned special exposures and all doses in excess of the annual limits by that individual of five times the annual limits specified in § 20.201(a).

(f) The licensee provides respiratory protection to ensure that the intake by inhalation will be within the appropriate annual limit of intake (ALI).

(g) The licensee maintains records of the conduct of a planned special exposure in accordance with § 20.1105, and submits a written report in accordance with § 20.1204.

(h) The licensee records the dose resulting from a planned special exposure in the individual's record and informs the individual, in writing, of the dose received within 15 days following determination of the dose. However, this dose will not be considered in controlling future occupational dose to the individual under § 20.201(a).

**§ 20.207 Occupational dose limits for minors.**

The annual dose limits for occupational exposure for minors are 10% of the annual dose limits specified for adult workers in § 20.201(a). The dose limits for minors are not exceeded if the inequality in the reference for §20.202 in Appendix E of this part is equal to or less than $\frac{1}{10}$.

**§ 20.208 Dose to an embryo/fetus.**

(a) Except as noted in paragraph (c) of this section, a licensee shall ensure that the effective dose equivalent to an embryo/fetus due to occupational exposure of a declared pregnant women does not exceed 0.5 rem (5 mSv) during the entire pregnancy. Efforts should be made to avoid substantial variation above a uniform monthly exposure rate which would satisfy this limit. (For recordkeeping requirements, see § 20.1106.)

(b) The effective dose equivalent to an embryo/fetus is the sum of—

(1) The deep dose equivalent to the declared pregnant woman; and

(2) In the absence of age-specific transport parameters for the radionuclides involved, two times the committed effective dose equivalent that would be otherwise assessed due to the

intake of radionuclides by the pregnant woman.[3] Further, the licensee may, for intakes of Class Y materials, calculate the dose to the embryo/fetus on the basis of photon dose to the embryo/fetus (target) from other (source) organs plus the dose equivalent to the embryo/fetus from that portion of the pregnant woman's intake of Class Y material that is transportable, applying either the factor of 2 or age-specific factors applicable to the transportable fraction involved.

(c) Notwithstanding the limit in paragraph (a) of this section, if the dose to the embryo/fetus is found to have exceeded 0.5 rem (5 mSv) by the time the woman declares to the licensee the pregnancy and the estimated date of conception, the licensee is in compliance with paragraph (a) of this section if the licensee does not assign the woman tasks which result in the embryo/fetus receiving an additional dose exceeding 0.05 rem (0.5 mSv) during the remainder of the pregnancy.

## Subpart D—Radiation Dose Limits and Reference Level for Individual Members of the Public

### § 20.301 Dose limits for individuals members of the public.

(a) Exposure of any individual member of the public shall be constrained so that the total dose from all known sources and operations, licensed and unlicensed, except for natural background, medical diagnosis and therapy, and radioactive material disposed into sanitary sewerage according to § 20.1003, does not exceed 0.5 rem (5 mSv) per year. The total dose shall be the sum of the (external) deep dose equivalent to the whole body and the (internal) committed effective dose equivalent.

(b) If the licensee permits members of the public to have access to controlled areas, the limits for members of the public still apply to those individuals.

(c) The Commission may impose additional restrictions on radiation levels in unrestricted areas and on the total quantity of radionuclides that a licensee may release in effluents in order to restrict the collective effective dose equivalent.

[3] This factor of 2 recognizes potential differences in biological factors that could result in the embryo/fetus receiving an effective dose equivalent greater than that of the pregnant woman as a result of intake of radioactive material by the pregnant woman. The licensee may use factors other than 2 for specific radionuclides when such factors become available from scientific authorities and are approved by regulatory authorities for use by licensees.

### § 20.302 [Reserved]

### § 20.303 Reference level for the exposure of individual members of the public.

The annual dose limits apply to actual doses that are received by individuals in the public. However, it is impractical, if not impossible, to determine precisely an actual dose because of possible multiple sources, complex problems involving dosimetry, incomplete information concerning water and food intake, habits, spatial and temporal considerations, and other confounding factors. Furthermore, individual members of the public might be subjected to exposures to radiation from several sources, not all of which are controlled by the licensee. Some of the exposures might also occur from activities which are not regulated by the Commission, by State governments, or by other Federal agencies. Therefore, compliance with the dose limits must generally be established in a practical manner by using site-specific parameters and reasonable assumptions to demonstrate that the doses are not likely to exceed a fraction of the limits. For this purpose, reference levels are established. Operations that result in doses at or below these reference levels will ensure that no individual member of the public will be subject to doses that exceed the annual dose limits in § 20.301.

(a) A licensee will be in compliance with the 0.5-rem (5 mSv) annual limit in § 20.301 if the licensee demonstrates that sources under the licensee's control will not result in an individual member of the public receiving a dose in excess of a 0.1-rem (1 mSv) annual reference level.

(b) A licensee may demonstrate operation within the 0.1-rem (1 mSv) annual reference level in paragraph (a) of this section by—

(1) Demonstrating that the sum of the (external) deep dose equivalent and the (internal) committed effective dose equivalent to the individual likely to be the highest exposed from sources under the licensee's control does not exceed the 0.1-rem (1 mSv) annual reference level (see Appendix E of this part for mathematical expression); or

(2) Demonstrating that annual average concentrations of radioactive material released in gaseous and liquid effluents at the boundary of the unrestricted area are constrained to the values specified in Table 2 of Appendix B of this part and dose rates in unrestricted areas are constrained to 0.002 rem (0.02 mSv) in an hour and not more than 0.05 rem (0.5 mSv) in a year.

(c) A licensee or license applicant may apply for prior authorization of operations which may result in exposure of individual members of the public in excess of the reference level in paragraph (a) of this section, but within the annual limits in § 20.301 of this part. The licensee or license applicant shall include in the application for authorization to operate in excess of the reference level—

(1) Demonstration of a clear need to operate in excess of the reference level;

(2) The licensee's program to assess and control dose within the 0.5-rem (5 mSv) annual limit; and

(3) The procedures to be followed to maintain public exposures ALARA.

(d) A licensee shall review the circumstances which cause, or are likely to cause, values which exceed the criteria selected for demonstrating compliance according to paragraph (a) of this section or exceed the level approved under the provisions in paragraph (c) of this section and shall report the findings (see § 20.1205).

(e) In addition to the requirements of this part, a licensee engaged in uranium fuel cycle operations subject to the provisions of 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," shall comply with the requirements of that part.

### § 20.304 Collective dose evaluations.

Doses to individual members of the public receiving 0.001 rem (0.01 mSv) or less in a year may be omitted in collective dose evaluations to prevent an unwarranted commitment of resources for controlling or regulating exposures at levels where calculated risks are negligibly small.

## Subpart E—[Reserved]

## Subpart F—Surveys and Monitoring

### § 20.501 General.

(a) Each licensee shall make, or cause to be made, surveys that—

(1) May be necessary for the licensee to comply with the regulations in this part; and

(2) Are reasonable under the circumstances to evaluate the extent of radiation levels that could be present and the potential for intake of radioactive materials by individuals.

(b) The licensee shall ensure that instruments and equipment used for quantitative radiation measurements (e.g., dose rate and effluent monitoring) are calibrated for the type of radiation measured.

(c) After [date to be determined in separate rulemaking action], all personnel dosimeters, except extremity

dosimeters and pocket ionization chambers, that require processing to yield a dose value and that are provided to comply with § 20.201 or with the applicable terms and conditions of any license issued by the Nuclear Regulatory Commission:

(1) Shall be processed by a processor currently accredited by the National Voluntary Laboratory Accreditation Program for Personnel Dosimetry Processors of the National Bureau of Standards in accordance with accreditation criteria established in 15 CFR Part 7; and

(2) Shall be approved in this accreditation process for the type of radiation or radiations for which the individual wearing the dosimeter is monitored.

**§ 20.502 Conditions requiring individual monitoring of external and internal occupational dose.**

(a) Each licensee shall monitor exposures to radiation and shall supply and require the use of individual monitoring devices by—

(1) Adults exposed under circumstances that could result in the individual receiving, in one year from sources external to the body, a doses in excess of 10% of the annual limits in § 20.201(a).

(2) Minors exposed under circumstances that could result in the individual receiving in a year from sources external to the body a dose in excess of 5% of the annual limits for adults in § 20.201(a).

(3) Individuals entering a high or very high radiation area.

(b) Each licensee shall assess the intake of radioactive material by and the committee effective dose equivalent to—

(1) Adults exposed under circumstances that could result in an intake in a year in excess of 30% of the applicable ALI(s) in Table 1, Columns 1 and 2 of Appendix B of this part;

(2) Minors exposed under circumstances that could result in an intake in a year in excess of 5% of the applicable ALI(s) in Table 1, Columns 1 and 2 of Appendix B of this part; and

(3) Individuals using respiratory protection devices to limit the intake of radioactive material under the provisions of §§ 20.702 and 20.703.

## Subpart G—Control of Exposure From External Sources in Restricted Areas

**§ 20.601 Control of access to high radiation areas.**

(a) The licensee shall ensure that each entrance or access point to a high radiation area has one of the following features:

(1) A control device which, upon entry into the area, causes the level of radiation to be reduced below that level at which an individual might receive a dose of 0.1 rem (1 mSv) in 1 hour at 30 cm from the radiation source or from any surface which the radiation penetrates.

(2) A control device which energizes a conspicuous visible or audible alarm signal so that the individual entering the high radiation area and the supervisor of the activity are made aware of the entry.

(3) Entryways that are locked, except during periods when access to the area is required, with positive control over each individual entry.

(4) The licensee may substitute continuous surveillance over a high radiation area to prevent unauthorized entry in place of the controls required by paragraphs (a)(1), (a)(2), and (a)(3) of this section.

(b) A licensee may apply to the Commission for approval of alternative methods for controlling access to high radiation areas.

(c) The licensee shall establish the controls required by paragraphs (a) and (b) of this section in a way that dose not prevent individuals from leaving a high radiation area.

(d) Control is not required for each entrance or access point to a room or other area which is high radiation area solely because of the presence of radioactive materials prepared for transport and packaged and labeled in accordance with the regulations of the Department of Transportation provided that—

(1) The packages do not remain in the area longer than 3 days; and

(2) The dose rate at 1 meter from the external surfaces does not exceed 0.01 rem (0.1 mSv) per hour.

(e) Control of entrance or access to rooms or other areas in hospitals is not required solely because of the presence of patients containing radioactive material, provided that there are personnel in attendance who will take the necessary precautions to prevent the exposure of individuals to radiation or radioactive material in excess of the limits established in this part and to operate within the ALARA provisions of the licensee's radiation protection program.

**§ 20.602 Control of access to very high radiation areas.**

In addition to the requirements in § 20.601, the licensee shall institute additional measures to ensure that an individual is not able to gain unauthorized or inadvertent access to areas in which radiation levels could be encountered at 500 rads (5 grays) or more in 1 hour at 1 meter from a radiation source or any surface through which the radiation penetrates.

(a) The licensee shall include these measures:

(1) *Primary controls.* Control devices on each entrance or access point which function automatically: To prevent entry when a very high radiation area exists; to permit entry only after reduction of the radiation level below 0.1 rem (1 mSv) per hour at 30 cm from the radiation source or from any surface which the radiation penetrates; and to prevent operation of the source or otherwise prevent the existence of a very high radiation area while an individual is in the area;

(2) *Secondary controls.* Additional control devices which will initiate audible and visible alarm signals to indicate the failure of the primary entry control device and the presence of the radiation hazard; and

(3) *Administrative controls.* Administrative procedures to alert personnel in the area before operation of the source(s) and in sufficient time to permit evacuation of the area, or to operate a control device which will prevent operation of the source, or to otherwise prevent or reduce the probability of exposure at very high radiation levels.

(b) A licensee may apply to the Commission for approval of alternative methods of controlling access to very high radiation areas.

## Subpart H—Respiratory Protection Controls To Restrict Internal Exposure in Restricted Areas

**§ 20.701 Use of process or other engineering controls.**

The licensee shall use, to the extent practical, process engineering controls (e.g., process-containment or ventilation), to limit the concentrations of the radioactive materials in air.

**§ 20.702 Use of other controls.**

When it is not practical to apply process engineering controls to limit the concentrations of radioactive material in air to values below those defined as an airborne radioactivity area, licensees shall use increased surveillance, limitation of exposure times, respiratory protection equipment, or other controls to limit intake.

**§ 20.703 Use of individual respiratory protection equipment.**

(a) In estimating exposure of individuals to airborne radioactive materials, the licensee may make allowance for respiratory protection equipment used to limit the inhalation of

the material pursuant to § 20.702, provided the following conditions are satisfied:

(1) The licensee shall select respiratory protection equipment that provides a protection factor (see Appendix A of this part) greater than the factor by which average concentrations of radioactive materials are expected to exceed the values specified in Table 1, Column 3 of Appendix B of this part. The concentration of radioactive material in the air that is inhaled when respirators are worn may be initially estimated by dividing the ambient concentration by the protection factor. If the exposure is later found to be greater than estimated, the corrected value shall be used.

(2) The licensee shall maintain and implement a respiratory protection program that includes—

(i) Air sampling sufficient to identify the potential hazard, permit proper equipment selection, and estimate exposures;

(ii) Surveys and bioassays, as appropriate, to evaluate actual intakes;

(iii) Testing of respirators for operability immediately prior to each use;

(iv) Written procedures regarding selection, fitting, issuance, maintenance, and testing of respirators; supervision and training of personnel; and recordkeeping; and

(v) Determination by a physician prior to initial fitting of respirators, and every 9 to 15 months thereafter, that the individual user is physically able to use the respiratory protection equipment.

(3) The licensee shall issue a written policy statement on respirator usage covering—

(i) The use of process engineering controls, instead of respirators;

(ii) The routine, nonroutine, and emergency use of respirators; and

(iii) The periods of respirator use and relief from respirator use. The licensee shall advise each respirator user that the user may leave the area at any time for relief from respirator use in the event of equipment malfunction, physical or psychological distress, procedural or communication failure, significant deterioration of operating conditions, or any other condition that might require such relief.

(4) The licensee shall use only respiratory protection equipment certified by the National Institute for Occupational Safety and Health/Mine Safety and Health Administration (NIOSH/MSHA).

(5) If the licensee wishes to use equipment that has not been tested or certified by NIOSH/MSHA, has not had certification extended by NIOSH/MSHA, or is not on an existing schedule for testing or certification, the licensee shall include with the application for authorized use of such equipment a demonstration by testing, or a demonstration on the basis of reliable test information, that the material and performance characteristics of the equipment are capable of providing an acceptable degree of protection under anticipated conditions of use.

(b) The licensee shall obtain authorization from the Commission before assigning respiratory protection factors in excess of those specified in Appendix A of this part. The Commission may authorize a licensee to use higher protection factors on receipt of an application that—

(1) Describes the situation for which a need exists for higher protection factors; and

(2) Demonstrates that the respiratory protective equipment provides these higher protection factors under the proposed conditions of use.

**§ 20.704 Further restrictions on the use of respiratory protection equipment.**

The Commission may impose further restrictions, in addition to those in §§ 20.702, 20.703, and Appendix A of this part to—

(a) Ensure that the respiratory protection program of the licensee is adequate to limit exposures of individuals to airborne radioactive materials, and

(b) Limit the extent to which a licensee may use respiratory protection equipment instead of process or other engineering controls.

## Subpart I—Storage and Control of Licensed Material

**§ 20.801 Security of stored material.**

The licensee shall secure licensed materials stored in controlled or unrestricted areas from unauthorized access or removal.

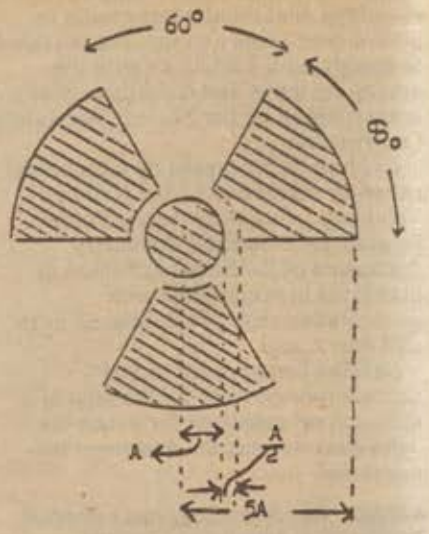
**§ 20.802 Control of material not in storage.**

The licensee shall control and maintain constant surveillance of licensed material which is in a controlled or unrestricted area and which is not in storage.

## Subpart J—Precautionary Procedures

**§ 20.901 Caution signs.**

(a) *Standard radiation symbol.* Unless otherwise authorized by the Commission, the symbol prescribed by this part shall use the colors magenta or purple on yellow background. The symbol prescribed by this part is the three-bladed design.




Radiation Symbol

(1) Cross-hatched area is to be magenta or purple.

(2) Background is to be yellow.

(b) *Exception to color requirements for standard radiation symbol.* Notwithstanding the requirements of paragraph (a) of this section, licensees are authorized to lable sources, source holders, or device components containing sources of licensed materials that are subjected to high temperatures, with conspicuously etched or stamped radiation caution symbols and without a color requirement.

(c) *Additional information on signs and labels.* In addition to the contents of signs and labels prescribed in this part, the licensee may provide, on or near the required signs and labels, additional information, as appropriate, to make individuals aware of potential radiation exposures and to minimize the exposures.

**§ 20.902 Posting requirements.**

(a) *Posting of radiation areas.* The licensee shall post each radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA" or "DANGER, RADIATION AREA."

(b) *Posting of high radiation areas.* The licensee shall post each high radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, HIGH RADIATION AREA" or "DANGER, HIGH RADIATION AREA."

(c) *Posting of very high radiation areas.* The licensee shall post each very high radiation area with a conspicuous sign or signs bearing the radiation symbol and words "DANGER, VERY HIGH RADIATION AREA."

(d) *Posting of airborne radioactivity areas.* The licensee shall post each airborne radioactivity area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, AIRBORNE RADIOACTIVITY AREA" or "DANGER, AIRBORNE RADIOACTIVITY AREA."

(e) *Posting of areas or rooms in which licensed material is stored.* The licensee shall post each area or room in which there is stored an amount of licensed material exceeding 10 times the quantity of such material specified in Appendix C of this part with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL(S)" or "DANGER, RADIOACTIVE MATERIAL(S)."

**§ 20.903 Exceptions to posting requirements.**

(a) A licensee is not required post caution signs in areas or rooms containing radioactive materials for periods of less than 8 hours, if each of the following conditions is met:

(1) The materials are constantly attended during these periods by an individual who takes the precautions necessary to prevent the exposure of individuals to radiation or radioactive materials, in excess of the limits established in this part; and

(2) The area or room is subject to the licensee's control.

(b) Rooms or other areas in hospitals, other than those involving patients being treated with therapeutic quantities of unsealed radioactive materials or with brachytherapy sources, are not required to be posted with caution signs pursuant to § 20.902 because of the presence of patients containing radioactive material, provided that there are personnel in attendance who will take the necessary precautions to prevent the exposure of individuals to radiation or radioactive material in excess of the limits established in this part and to operate within the ALARA provisions of the licensee's radiation protection program.

**§ 20.904 Labeling containers.**

(a) *Labeling.* Except as provided by paragraph (c) of this section, the licensee shall ensure that each container of licensed material bears a durable, clearly visible label identifying the radionuclide(s), the estimate of the quantity of radioactivity, and the date for which the activity is estimated. The label shall bear the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL." It should also provide sufficient information to permit individuals handling or using the containers, or working in the vicinity of the containers, to take precautions to avoid or minimize exposures. The licensee should include appropriate information such as radiation levels, kinds of material, and mass enrichment.

(b) *Removing labels from empty containers.* Each licensee shall, prior to disposal of empty uncontaminated containers to unrestricted areas, remove or deface the radioactive material label or otherwise clearly indicate that the container no longer contains radioactive materials.

(c) *Exceptions to labeling requirements.* A licensee is not required to label the following—

(1) Containers holding licensed material in quantities less than the applicable quantities listed in Appendix C of this part;

(2) Containers holding licensed material in concentrations less than those specified in Table 3 of Appendix B of this part;

(3) Containers attended by an individual who takes the precautions necessary to prevent the exposure of individuals in excess of the limits established by this part;

(4) Containers which are accessible only to individuals authorized to handle or use them, or to work in the vicinity of the containers, if the contents are identified to these individuals by a readily available written record (examples of containers of this type are containers in locations such as water-filled canals, storage vaults, or hot cells). The record must be retained as long as the containers are in use for the purpose indicated on the record.

(5) Installed manufacturing or process equipment, such as reactor components, piping, and tanks.

**§ 20.905 Procedures for picking up, receiving, and opening packages.**

(a) Each licensee who expects to receive a package containing quantities of radioactive material in excess of the "Type $A_2$" quantities specified in or determined by procedures decribed in Appendix A of Part 71 of this chapter shall make arrangements—

(1) To receive the package when the carrier offers it for delivery; or

(2) To receive notification of the arrival of the package at the carrier's terminal and to pick up the package expeditiously.

(b) Each licensee, upon receipt of a package containing radioactive material, shall monitor the external surfaces of the package for radioactive contamination and radiation levels, and shall make other surveys as may be required by § 20.501. The licensee shall perform the monitoring as soon as practical after receipt of the package, but not later than 3 hours after the package is received at the licensee's facility if it is received during the licensee's normal working hours, or not later than 3 hours from the beginning of the next working day if it is received after working hours.

(c) The licensee shall immediately notify the final delivery carrier and, by telephone and telegram, mailgram, or facsimile, the Administrator of the appropriate NRC Regional Office listed in Appendix D of this part if packages, other than those transported by exclusive use vehicle, are found to have—

(1) Removable radioactive contamination in excess of 0.01 microcurie (0.37 kBq) per 100 square centimeters on the external surfaces of the package; or

(2) Radiation levels at 1 meter from the external surface of the package in excess of 0.01 rem (0.1 mSv) per hour.

(d) Each licensee shall—

(1) Establish and maintain written procedures for safely opening packages in which radioactive material is received;

(2) Ensure that the procedures are followed and that due consideration is given to special instructions for the type of package being opened; and

(3) Retain copies of the written procedures as long as they are appropriate for use.

## Subpart K—Waste Disposal

**§ 20.1001 General requirement.**

A licensee shall dispose of licensed material only—

(a) By transfer to an authorized recipient as provided in § 20.1006 or in the regulations in Parts 30, 40, 60, 61, 70, or 72 of this chapter;

(b) By decay in storage;

(c) By release in effluents within the constraints in §§ 20.301 and 20.303; or

(d) As authorized under §§ 20.1002, 20.1003, 20.1004, or 20.1005.

**§ 20.1002 Method for obtaining approval of proposed disposal procedures.**

(a) A licensee or applicant for a license may apply to the Commission for approval of proposed procedures, not otherwise authorized in the regulations in this chapter, to dispose of radioactive waste generated in the licensee's activities. Each application shall include—

(1) A description of the radioactive waste, including the physical and chemical properties important to risk

evaluation, and the proposed manner and conditions of waste disposal;

(2) An analysis and evaluation of pertinent information on the nature of the environment;

(3) The nature and location of other potentially affected licensed and unlicensed facilities; and

(4) Procedures to ensure that doses are maintained ALARA and within the dose limits in this part.

(b) A person must file an application for a license to receive radioactive waste from other persons for disposal at a land disposal facility under Part 61 of this chapter or at a geologic repository under Part 60 of this chapter.

**§ 20.1003 Disposal by release into sanitary sewerage.**

(a) A licensee may discharge licensed material into sanitary sewerage if each of the following conditions is satisfied.

(1) The material is readily soluble in water.

(2) The quantity of licensed or other radioactive material that the licensee releases into the sewer in one month divided by the average monthly volume of water released into the sewer by the licensee does not exceed the concentration listed in Table 3 of Appendix B of this part.

(3) If more than one radionuclide is released, the following conditions must also be satisfied:

(i) The licensee shall determine the fraction obtained by dividing the actual monthly average concentrations of each radionuclide released by the licensee into the sewer by the monthly average concentration of the radionuclide listed in Table 3 of Appendix B of this part; and

(ii) The sum of the fractions for each radionuclide required by paragraph (a)(3)(i) of this section does not exceed unity.

(4) The gross quantity of licensed and other radioactive material that the licensee releases into the sanitary sewerage system in a year does not exceed 5 curies (185 GBq) of hydrogen-3, 1 curie (37 GBq) of carbon-14, and 1 curie (37 GBq) of all othe radioactive materials.

(b) Excreta from individuals undergoing medical diagnosis or therapy with radioactive material shall be exempt from any limitations contained in paragraph (a) of this section.

**§ 20.1004 Treatment or disposal by incineration.**

A licensee may treat or dispose of licensed material by incineration only in the amounts and forms specified in § 20.1005, or as specifically approved by the Commission pursuant to § 20.1002, and within the constraints in §§ 20.301 and 20.303.

**§ 20.1005 Disposal of specific wastes.**

(a) A licensee may dispose of the following licensed material as if it were not radioactive:

(1) 0.05 microcurie (1.85 kBq), or less, of hydrogen-3 or carbon-14 per gram of medium used for liquid scintillation counting.

(2) 0.05 microcurie (1.85 kBq), or less, of hydrogen-3 or carbon-14 per gram of animal tissue, averaged over the weight of the entire animal.

(b) A licensee may not dispose of tissue under paragraph (a)(2) of this section in a manner than would permit its use either as food for humans or as animal feed.

(c) The licensee shall maintain records in accordance with § 20.1108.

(d) The licensee shall comply with other applicable Federal, State and local regulations governing other toxic or hazardous properties of materials.

**§ 20.1006 Transfer for disposal and manifests.**

(a) The requirements of this section and Appendix F of this part are designed to control transfers of low-level radioactive waste intended for disposal at a land disposal facility (as defined in Part 60 of this chapter), establish a manifest tracking system, and supplement existing requirements concerning transfers and recordkeeping for such wastes.

(b) Each shipment of radioactive waste intended for disposal at a licensed land disposal facility must be accompanied by a shipment manifest as specified in section I of Appendix F of this part.

(c) Each shipment manifest shall include a certification by the waste generator as specified in section II of Appendix F of this part.

(d) Each person involved in the transfer for disposal and disposal of waste, including the waste generator, waste collector, waste processor, and disposal facility operator, shall comply with the requirements specified in section III of Appendix F of this part.

## Subpart L—Records

**§ 20.1101 General provisions.**

Each licensee shall clearly indicate the radiation units of all quantities on records required by this part.

**§ 20.1102 Records of radiation protection program, including ALARA provisions.**

(a) Each licensee shall maintain records showing—

(1) The radiation protection program, including provisions for maintaining doses ALARA; and

(2) The examination and verification of program features and records, and actions taken by licensee management, or its designee, adequate to demonstrate compliance with the requirements in § 20.102 for maintaining doses ALARA and to demonstrate implementation of the licensee's ALARA program.

(b) The licensee shall retain these records for two years or until completion of the first inspection of the radiation protection aspects of the licensee's program, whichever is longer.

**§ 20.1103 Records of surveys.**

(a) Each licensee shall maintain records showing the results of surveys and calibrations required by §§ 20.501 and 20.905(b). The licensee shall retain these records for two years after the record is made or until completion of the first inspection of the radiation protection aspects of the licensee's program, whichever is longer.

(b) The licensee shall retain each of the following records required by § 20.703(a)(2)(ii) until the Commission terminates each pertinent license requiring the record:

(1) Records of the results of surveys to determine individual intakes of radioactive material and used in the assessment of internal dose.

(2) Records of the results of surveys to determine the dose from external sources and used, in the absence of individual monitoring data, in the assessment of individual dose equivalents.

(3) Records of the results of surveys used to evaluate the release of radioactive effluents to the environment.

**§ 20.1104 Determination of prior occupational dose.**

(a) The licensee shall determine—

(1) The occupational radiation dose received during the current calendar year by each individual who enters the licensee's restricted or controlled area and is likely to receive in a year an occupational dose requiring provision of individual monitoring devices or services pursuant to § 20.502; and

(2) Prior to permitting an individual to participate in a planned special exposure, all planned special exposures and overexposures (including doses received during accidents and emergencies) received during the lifetime of the individual.

(b) The licensee shall determine the exposure history, as required by paragraph (a) of this section, and record on NRC Form 4, or other clear and

legible record, all of the information required in that form.[3] The form or record must show each period in which the individual received occupational exposure to radiation or radioactive material and must be signed by the individual who received the exposure.

(c) The records on NRC Form 4 shall be retained until the Commission terminates each pertinent license requiring this record. Arrangements may be made for transfer of the records to the NRC upon termination of the license. The licensee shall retain records used in preparing NRC Form 4 for two years after the record is made or until completion of the first inspection of the radiation protection aspects of the licensee's program, whichever is longer.

(d) The licensee shall attempt to obtain reports of the individual's previously accumulated effective dose equivalent by telephone, telegram, electronic media, or letter. The licensee shall request a follow-up written verification of dose data received via telephone, telegram, or electronic media. The licensee may accept an up-to-date NRC Form 4 signed by the individual and countersigned by an appropriate official of the most recent employer for work involving radiation exposure, or the individual's current employer, if the individual is not employed by the licensee. For each period for which the licensee obtains reports, the licensee shall use the dose shown in the report in preparing NRC Form 4. If a determination had been made that the individual was unlikely to receive doses for which monitoring was required under § 20.502, it shall be assumed that the individual has received a dose equal to the minimum doses which would require monitoring. For each quarter for which the licensee is unable to obtain complete reports of the individual's occupational dose, the licensee shall assume that—

(1) The individual has received 1.25 rems (12.5 mSv) per calendar quarter of the current year; and

(2) The individual is not available for planned special exposures.

**§ 20.1105 Records of planned special exposures.**

(a) The licensee shall maintain records which describe, for each use of the provisions of § 20.206 for planned special exposures—

(1) Evaluations made pursuant to § 20.206(a) before the planned special exposure;

(2) The name of the management official who authorized the planned special exposure pursuant to § 20.206(b) and a copy of the signed authorization;

(3) What actions were necessary;

(4) Why the actions were necessary;

(5) How doses were maintained ALARA; and

(6) What individual and collective doses were expected to result, and the doses actually received in the planned special exposure.

(b) The licenee shall retain the records until the Commission terminates each pertinent license requiring these records.

**§ 20.1106 Records of individual monitoring results.**

(a) Each licensee shall maintain records of doses received by all individuals for whom monitoring was required under normal operating conditions, and all doses due to overexposures, planned special exposures, accidents and emergency conditions.

(b) Each licensee required by § 20.502 to provide individual monitoring devices to assess external dose equivalent shall maintain records of the results.[4]

(c) Each licensee required by § 20.502 or a specific license condition to assess individual internal effective dose equivalent shall maintain records of the results that contain—

(1) The estimated amounts of the radionuclides providing significant exposures as a result of an intake; and

(2) The total effective dose equivalent assigned to the intake of radionuclides.

(d) Each licensee shall add the assessments of individual external dose equivalent and internal effective dose equivalent resulting from the intake of radioactive material for individuals for whom monitoring is required by § 20.502 or a specific license condition. The licensee shall enter this sum and maintain the records specified in paragraphs (a) and (b) of this section on NRC Form 5, in accordance with the instructions for NRC Form 5, or on clear and legible records containing all of the information required by NRC Form 5.

(1) Where specific information on the physical and biochemical properties of the radionuclides involved and their behavior in an individual is known and differs from the instructions for NRC Form 5, the licensee may use that information. If specific information on an individual is used, the licensee shall document or reference in the individual's record the information and the calculation techniques and models used.

(2) The licensee shall enter on NRC Form 5, or equivalent record—

(i) External deep dose equivalent doses for periods of time not exceeding one calendar quarter; and

(ii) Dose equivalents resulting from the intake of radioactive material, and the summation of dose equivalents from external sources and from intake, for periods of time not exceeding one year.

(3) The licensee shall maintain the records of dose to an embryo/fetus with the records of dose to the mother.

(e) Each licensee subject to § 20.501(c) of this part, in addition to preserving personnel monitoring records in accordance with this section, shall also preserve with these records copies of pertinent personnel dosimetry processor accreditation certificates from the National Voluntary Laboratory Accreditation Program as necessary to demonstrate compliance with § 20.501(c) after [date to be determined in separate rulemaking action].

(f) The licensee shall retain each required form or record until the Commission terminates each pertinent license requiring the record.

**§ 20.1107 Records of release of radioactive material in effluents.**

(a) Each licensee shall maintain records of the identity and quantity of radioactive material in effluents released to unrestricted areas, within the constraints in §§ 20.301 and 20.303, except that the identity of the individual radionuclide in effluents needs not be documented if the total concentration of such unknown radionuclides is less than 10% of the limit for unknown mixtures.

(b) The licensee shall retain the records required by paragraph (a) of this section until the Commission terminates each pertinent license requiring the record.

**§ 20.1108 Records of waste disposal.**

(a) Each licensee shall maintain records of the disposal of licensed materials made under §§ 20.1002, 20.1003, 20.1004, 20.1005, and disposal by burial in soil, as authorized before January 28, 1981.[5]

[3] Licensees are not required to reevaluate the separate external dose equivalents and internal committed dose equivalents or intakes of radionuclides assessed under the regulations in effect before ———. Further, occupational exposure histories obtained and recorded on NRC Form 4 before ——— would not have included effective dose equivalent, but may be used in the absence of specific information on the intake of radionuclides by the individual.

[4] Assessments of dose equivalent (rem or sievert) and records made using units in effect before ——— need not be changed.

[5] A previous § 20.304 permitted burial of small quantities of licensed materials in soil before January 28, 1981, without specific Commission authorization.

(b) The licensee shall retain the records required by paragraph (a) of this section until the Commission terminates each pertinent license requiring the record.

**§ 20.1109 Form of records.**

The licensee may retain the original record or reproduced copy or microform of any record required by this part if—

(a) The reproduced copy shows a signature by the licensee or is authorized to be a copy of the official, original record; and

(b) The microform is capable of producing a clear and legible copy after storage for the period specified by Commission regulations.

## Subpart M—Reports

**§ 20.1201 Reports of theft or loss of licensed material.**

(a) *Telephone of reports.* (1) Each licensee shall report by telephone as follows:

(i) Immediately after its occurrence becomes known to the licensee, any lost, stolen, or missing licensed material in such quantities and under such circumstances that it appears to the licensee that a substantial exposure could result to persons in unrestricted areas; or

(ii) Within 30 days after the occurrence of any lost, stolen or missing licensed material becomes known to the licensee, all licensed material in a quantity greater than ten times the quantity specified in Appendix C of this part which is still missing at this time.

(2) Reports must be made as follows:

(i) Licensees having an installed Emergency Notification System shall make the reports to the NRC Operations Center in accordance with § 50.72 of this chapter; and

(ii) All other licensees shall make reports to the Administrator of the appropriate NRC Regional Office listed in Appendix D of this part.

(b) *Written reports.* (1) Each licensee who is required to make a report under paragraph (a) of this section shall, within 30 days after learning of the occurence of any lost, stolen or missing licensed material, report in writing the following information:

(i) A description of the licensed material involved, including kind, quantity, and chemical and physical form;

(ii) A description of the circumstances under which the loss or theft occurred;

(iii) A statement of disposition, or probable disposition, of the licensed material involved;

(iv) Exposure of individuals to radiation, circumstances under which the exposure occurred, and the possible effective dose equivalent to persons in unrestricted areas;

(v) Actions which have been taken, or will be taken, to recover the material; and

(vi) Procedures or measures which have been, or will be, adopted to ensure against a recurrence of the lose or theft of licensed material.

(2) Reports must be made as follows:

(i) For holders of an operating license for a nuclear power plant, the events included in paragraph (b) of this section must be reported in accordance with the procedures described in § 50.73(b), (c), (d), (e), and (g) of this chapter and must include the information required in paragraph (b)(1) of this section.

(ii) All other licensees shall make reports to the Administrator of the appropriate NRC Regional Office listed in Appendix D of this part.

(c) A duplicate report is not required if the licensee is also required to submit a report pursuant to §§ 30.55(c), 40.64(c), 50.72, 50.73, 70.52, 73.27(b), 73.67(e)(3)(vi), 73.67(g)(3)(iii), 73.71, or 150.19(c) of this chapter.

(d) Subsequent to filing the written report, the licensee shall also report any additional, substantive information on the loss or theft within 30 days after the licensee learns of such information.

(e) The licensee shall prepare any reports filed with the Commission pursuant to this section so that names of individuals who may have received exposure to radiation are stated in a separate and detachable part of the report.

**§ 20.1202 Notification of incidents.**

(a) *Immediate notification.* Each licensee shall immediately report any event involving byproduct, source, or special nuclear material possessed by the licensee which may have caused, or threatens to cause, any of the following conditions—

(1) An individual to receive a deep dose equivalent of 25 rems (0.25 Sv) or more, a dose equivalent to the lens of the eye of 75 rems (0.75 Sv) or more, or a absorbed dose to the skin or extremities of 250 rads (2.5 Gy) or more; or

(2) The release or radioactive material, inside or outside of a restricted area, so that, had an individual been present for 24 hours—

(i) The individual could have received an intake five times the occupational annual limit of intake; or

(ii) For licensees operating under the provisions of § 20.205, the individual could have received an effective dose equivalent of 5 rems in a year.

(iii) The provisions of paragraphs (a)(2)(i) and (a)(2)(ii) of this section do not apply to locations where personnel are not normally stationed during routine operations, such as hot-cells or process enclosures.

(b) *Twenty-four hour notification.* Each licensee shall, within 24 hours of discovery of the event, report any event involving loss of control of licensed material possessed by the licensee which may have caused, or threatens to cause, any of the following conditions—

(1) An individual to receive, in a period of 24 hours, a deep dose equivalent exceeding 5 rems (0.05 Sv), a dose equivalent to the lens of the eye exceeding 15 rems (0.15 Sv), or a dose equivalent to the skin or extremities exceeding 50 rems (0.5 Sv). This dose not include doses which result from planned special exposures, which are within the limits for planned special exposures and which are reported under § 20.1204; or

(2) The release of radioactive material, inside or outside of a restricted area, so that, had an individual been present for 24 hours—

(i) The individual could have received an intake in excess of one occupational annual limit of intake; or

(ii) For licensees operating under the provisions of § 20.205, the individual could have received an effective dose equivalent of 3 rems (0.03 Sv) in a year.

(iii) The provisions of paragraphs (b)(2)(i) and (b)(2)(ii) of this section do not apply to locations where personnel are not normally stationed during routine operations, such as hot-cells or process enclosures.

(c) The licensee shall prepare any report filed with the Commission pursuant to this section so that names of individuals who have received exposure to radiation or radioactive material are stated in a separate and detachable part of the report.

(d) Reports made by licensees in response to the requirements of this section must be made as follows:

(1) Licensees that have an installed Emergency Notification System shall make the reports required by paragraphs (a) and (b) of this section to the NRC Operations Center in accordence with § 50.72 of this chapter

(2) All other licensees shall make the reports required by paragraphs (a)(b) of this section by telephone and by telegram, mailgram, or facsimile to the Administrator of the appropriate NRC Regional Office listed in Appendix D of this part.

**§ 20.1203 Reports of overexposures and excessive radiation levels and concentrations of radioactive material.**

(a) In addition to notification required by § 20.1202, each licensee shall submit a follow-up report, in writing, within 30 days after becoming aware of the following occurrences:

(1) An individual has received an occupational effective dose equivalent in excess of the annual dose limits in §§ 20.201, 20.205, and 20.207, or in excess of any applicable limit in the license.

(2) Levels of radiation or concentrations of radioactive materials in a restricted area are in excess of any applicable limit in the license;

(3) Any incident for which notification is required by § 20.1202;

(4) An individual member of the public has received a dose equivalent is excess of the public dose limit in § 20.301;

(5) Levels of radiation or concentrations of radioactive material (whether or not involving excessive exposure of any individual) in an unrestricted area are in excess of ten times any applicable limit in the license;

(b)(1) Each report required by paragraph (a) of this section must describe the extent of exposure of individuals to radiation and radioactive material, including—

(i) Estimates of each individual's dose equivalent;

(ii) The levels of radiation and concentrations of radioactive material involved;

(iii) The cause of the exposure, levels, or concentrations; and

(iv) Corrective steps taken or planned to ensure against a recurrence.

(2) The licensee shall include in each report positive identification of each occupationally exposed individual, including the name, social security number, and date of birth. The licensee shall prepare the report so that this information is stated in a separate and detachable part of the report.

(c) In addition to the reports required by paragraph (a) of this section, each licensee operating a uranium fuel cycle facility shall make a report in writing of levels of radiation or releases of radioactive materials in excess of the limits specified in 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," or in excess of license conditions related to compliance with 40 CFR Part 190. Each report required by this paragraph shall describe:

(1) The extent of exposure of individuals to radiation or to radioactive material;

(2) Levels of radiation or concentrations of radioactive material involved;

(3) The cause of the exposure, levels, or concentrations; and

(4) Corrective steps taken or planned to ensure against a recurrence, including the schedule for achieving conformance with 40 CFR Part 190 and with associated license conditions.

(d) For holders of an operating license for a nuclear power plant, the occurrences included in paragraphs (a) or (c) of this section must be reported in accordance with the procedures described in §§ 50.73(b), (c), (d), (e), and (g) of this chapter and must also include the information required by paragraphs (a) and (c) of this section. Occurrences reported in accordance with § 50.73 of this chapter need not be reported by a duplicate report under paragraphs (a) or (c) of this section.

(e) All other licensees who make reports under paragraphs (a) or (c) of this section shall, within 30 days after learning of the overexposure or excessive level or concentration, make a report in writing to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, DC 20555, with a copy to the appropriate NRC Regional Office listed in Appendix D of this part.

**§ 20.1204 Reports of planned special exposures.**

The licensee shall submit a written report to the Administrator of the appropriate NRC Regional Office listed in Appendix D of this part, within 15 days following any planned special exposure conducted in accordance with § 20.206, informing the Commission that a planned special exposure was conducted, and indicating the date the planned special exposure occurred.

**§ 20.1205 Reports of exceeding reference levels.**

(a) Each licensee shall report, in writing, within 30 days after becoming aware that an individual member of the public has received, or is likely to receive, in a calendar year, an effective dose equivalent in excess of 0.1 rem (1 mSv), the reference level established in § 20.303(a) or in excess of any level approved under the provisions of § 20.303(c).

(b) In the report required by paragraph (a) the licensee shall identify—

(1) The location of the individual member(s) of the public involved;

(2) The effective dose equivalent of the individual member(s) of the public, including levels of radiation and concentrations of radionuclides involved, demonstrating that the 0.5 rem (5 mSv) limit in § 20.301 has not been exceeded;

(3) The cause of the exposure levels or concentrations; and

(4) The corrective steps taken or planned to ensure that exposures are maintained ALARA.

(c) For holders of an operating license for a nuclear power plant, the report required by paragraph (a) of this section must be reported in accordance with the procedures described in § 50.73(b), (c), (d), (e), and (g) of this chapter and must include the information required by paragraph (b) of this section.

(d) All other licensees who make reports under paragraph (a) of this section shall make the report in writing to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, DC 20555, with a copy to the Administrator of the appropriate NRC Regional Office listed in Appendix D of this part.

(e) A duplicate report is not required if the licensee is also required to submit a report pursuant to §§ 30.55(c), 40.64(c), 50.72, 50.73, 70.52, 73.27(b), 73.67(e)(3)(vi), 73.67(g)(3)(iii), 73.71 or 150.19(c) of this chapter.

**§ 20.1206 Reports of personnel monitoring.**

Each person described in § 20.1207 shall, by August 1 of each calendar year, submit to the Director, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, the reports specified in paragraphs (a) and (b) of this section, covering the preceding calender year.[6]

(a) A report of either: (1) The total number of individuals for whom personnel monitoring devices or services were required under § 20.502 or § 34.33(a) of this chapter during the calendar year; or (2) the total number of individuals for whom personnel monitoring devices or services were provided during the calendar year: Provided, however, that such total includes at least the number of individuals required to be reported under paragraph (a)(1) of this section. The report shall indicate whether it is submitted in accordance with paragraph (a)(1) or (a)(2) of this section. If personnel monitoring devices or services were not required to be provided to any individual by the licensee under § 20.502 or § 34.33(a) of this chapter during the calendar year,

[6] A licensee whose license expires or terminates prior to or on the last day of the calendar year shall submit reports at the expiration or termination of the license, covering that part of the year during which the license was in effect.

the licensee shall submit a negative report indicating that such personnel monitoring devices or services were not required.

(b) A statistical summary report of the personnel monitoring information recorded by the licensee for individuals for whom personnel monitoring devices or services were either required or provided, as described in paragraph (a) of this section, indicating the number of individuals whose total effective dose equivalent recorded during the previous calendar year was in each of the following estimated ranges:

| Estimated ranges of effective dose equivalent in rems* | Number of individuals in each range |
|---|---|
| No measurable exposure | |
| Measurable exposure less than 0.1 | |
| 0.1 to 0.25 | |
| 0.25 to 0.5 | |
| 0.5 to 0.75 | |
| 0.75 to 1 | |
| 1 to 2 | |
| 2 to 3 | |
| 3 to 4 | |
| 4 to 5 | |
| 5 to 6 | |
| 6 to 7 | |
| 7 to 8 | |
| 8 to 9 | |
| 9 to 10 | |
| 10 to 11 | |
| 11 to 12 | |
| 12+ | |

* Individual values exactly equal to the values separating ranges of effective dose equivalent shall be reported in the higher range. The low exposure range data are required in order to obtain better information about the estimated effective dose equivalent actually recorded. This section does not require improved measurements.

**§ 20.1207 Reports of personnel monitoring on termination of employment or work.**

(a) This section applies to each person licensed by the Commission to:

(1) Operate a nuclear reactor designed to produce electrical or heat energy pursuant to § 50.21(b) or § 50.22 of this chapter or a testing facility as defined in § 50.2(r) of this chapter;

(2) Possess or use byproduct material for purposes of radiography pursuant to Parts 30 and 34 of this chapter;

(3) Possess or use at any one time, for purposes of fuel processing, fabricating, or reprocessing, special nuclear material in a quantity exceeding 5,000 grams of contained uranium-235, uranium-233, or plutonium or any combination thereof pursuant to Part 70 of this chapter;

(4) Possess high-level radioactive waste at a geologic repository operations area pursuant to Part 60 of this chapter; or

(5) Possess spent fuel in an independent spent fuel storage installation (ISFSI) pursuant to Part 72 of this chapter; or

(6) Possess or use at any time, for processing or manufacturing for distribution pursuant to Parts 30, 32, or 33 of this Chapter, byproduct material in quantities exceeding any one of the following quantities:

| Radionuclides* | Quantity in curies |
|---|---|
| Cesium-137 | 1 |
| Cobalt-60 | 1 |
| Gold-198 | 100 |
| Iodine-131 | 1 |
| Iridium-192 | 10 |
| Krypton-85 | 1,000 |
| Promethium-147 | 10 |
| Technetium-99m | 1,000 |

* The Commission may require as a license condition, or by rule, regulation or order pursuant to § 20.502, reports from licensees who are licensed to use radio nuclides not on this list, in quantities sufficient to cause comparable radiation levels.

(7) Receive radioactive waste from other persons for disposal under Part 61 of this chapter.

(b) When an individual terminates employment with a licensee described in paragraph (a) of this section, or an individual assigned to work in such a licensee's facility, but not employed by the licensee, complete the work assignment in the licensee's facility, the licensee shall furnish to the Director, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, a report of the individual's exposures to radiation and radioactive material, incurred during the period of employment or work assignment in the licensee's facility, containing information recorded by the licensee pursuant to § 20.1106. Such report shall be furnished within 30 days after the exposure of the individual has been determined by the licensee or 90 days after the date of termination of employment or work assignment, whichever is earlier.

## Subpart N—Exemptions and Additional Requirements

**§ 20.1301 Applications for exemptions.**

The Commission may, upon application by a licensee or upon its own initiative, grant an exemption from the requirements of the regulations in this part if it determines the exemption is authorized by law and would not result in undue hazard to life or property.

**§ 20.1302 Additional requirements.**

The Commission may, by rule, regulation, or order, impose requirements on a licensee, in addition to those established in the regulations in this part, as appropriate or necessary to protect health or to minimize danger to life or property.

## Subpart O—Enforcement

**§ 20.1401 Violations.**

(a) The Commission may obtain an injunction or other court order to prevent a violation of the provisions of—

(1) The Atomic Energy Act of 1954, as amended;

(2) Title II of the Energy Reorganization Act of 1974; or

(3) A regulation or order issued under the requirements of those Acts.

(b) The Commission may obtain a court order for the payment of a civil penalty imposed under section 234 of the Atomic Energy Act for violation—

(1) Of sections 53, 57, 62, 63, 81, 82, 101, 103, 104, 107, or 109 of the sections specified in paragraph (b)(1) of this section;

(2) Of section 206 of the Energy Reorganization Act of 1954;

(3) Of any rule, regulation, or order issued under the requirements of the sections specified in paragraph (b)(1) of this section;

(4) Of any term, condition, or limitation of any license issued under the sections specified in paragraph (b)(1) of this section; or

(5) For which a license may be revoked under section 186 of the Act.

(c) Any person who willfully violates a provision of the Act or regulation or order issued under the requirements of the Act may be guilty of a crime and, upon conviction, be punished by fine or imprisonment or both, as provided by law.

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APPENDIX A

PROTECTION FACTORS FOR RESPIRATORS[d]

| Description[b] | Modes[c] | Protection Factors[d] Particulates only | Particulates, gases, & vapors[e] | Tested & Certified Equipment |
|---|---|---|---|---|
| I. AIR-PURIFYING RESPIRATORS[f] | | | | |
| Facepiece, half-mask[g] | NP | 10 | | |
| Facepiece, full | NP | 50 | | 30 CFR Part 11, |
| Facepiece, half-mask, full, or hood | PP | 1000 | | Subpart K. |
| II. ATMOSPHERE-SUPPLYING RESPIRATORS | | | | |
| 1. Air-line respirator | | | | |
| Facepiece, half-mask | CF | | 1000 | |
| Facepiece, half-mask | D | | 5 | |
| Facepiece, full | CF | | 2000 | |
| Facepiece, full | D | | 5 | 30 CFR Part 11, |
| Facepiece, full | PD | | 2000 | Subpart J. |
| Hood | CF | | h | |
| Suit | CF | | i | j |
| 2. Self-contained breathing apparatus (SCBA) | | | | |
| Facepiece, full | D | | 50 | |
| Facepiece, full | PD | | 10,000[k] | 30 CFR Part 11, |
| Facepiece, full | RD | | 50 | Subpart H. |
| Facepiece, full | RP | | 5,000[l] | |
| III. COMBINATION RESPIRATORS | | | | |
| Any combination of air-purifying and atmosphere-supplying respirators | | Protection factor for type and mode of operation as listed above | | 30 CFR Part 11, §11.63(b). |





FOOTNOTES

a. For use in the selection of respiratory protective devices to be used only where the contaminants have been identified and the concentrations (or possible concentrations) are known.

b. Only for shaven faces and where nothing interferes with the seal of tight-fitting facepieces against the skin. (Hoods and suits are excepted.)

c. The mode symbols are defined as follows:

CF = continuous flow
D = demand
NP = negative pressure (i.e., negative phase during inhalation)
PD = pressure demand (i.e., always positive pressure)
PP = positive pressure
RD = demand, recirculating (closed circuit)
RP = pressure demand, recirculating (closed circuit)

d. 1. The protection factor is a measure of the degree of protection afforded by a respirator, defined as the ratio of the concentration of airborne radioactive material outside the respiratory protective equipment to that inside the equipment (usually inside the facepiece) under conditions of use. It is applied to the ambient airborne concentration to estimate the concentrations inhaled by the wearer according to the following formula:

$$\text{Concentration inhaled} = \frac{\text{Ambient airborne concentration}}{\text{Protection factor}}$$

2. The protection factors apply:

(a) Only for individuals trained in using respirators and wearing properly fitted respirators that are used and maintained under supervision in a well-planned respiratory protective program.

(b) For air-purifying respirators only when high efficiency particulate filters (above 99.97% removal efficiency by thermally generated 0.3 μm dioctyl phthalate (DOP) test or equivalent) are used in atmospheres not deficient in oxygen and not containing radioactive gas or vapor respiratory hazards.

(c) No adjustment is to be made for the use of sorbents against radioactive material in the form of gases or vapors.

(d) For atmosphere-supplying respirators only when supplied with adequate respirable air. Respirable air shall be provided of the quality and quantity required in accordance with NIOSH/MSHA certification (described in 30 CFR Part 11). Oxygen and air shall not be used in the same apparatus.

e. Excluding radioactive contaminants that present an absorption or submersion hazard. For tritium oxide, approximately one-third of the intake occurs by absorption through the skin so that an overall protection factor of less than 2 is appropriate when atmosphere-supplying respirators are used to protect against tritium oxide. If the protection factor for a device is 5 the effective protection factor for tritium is about 1.4; for devices with protection factors of 10 the effective factor for tritium oxide is about 1.7; and for devices with protection factors of 100 or more the effective factor for tritium oxide is about 1.9. Air-purifying respirators are not suitable for protection against tritium oxide. See also footnote i concerning supplied-air suits.

f. Canisters and cartridges shall not be used beyond service-life limitations.

g. Under-chin type only. This type of respirator is not satisfactory for use where it might be possible (e.g., if an accident or emergency were to occur) for the ambient airborne concentrations to reach instantaneous values greater than 10 times the pertinent values in Table 1, Column 3 of Appendix B of this part. This type of respirator is not suitable for protection against plutonium or other high-toxicity materials. The mask is to be tested for fit prior to use, each time it is donned.

h. Equipment shall be operated in a manner that ensures that proper air flow-rates are maintained. A protection factor of no more than 1000 may be utilized for tested-and-certified supplied-air hoods when a minimum air flow of 6 cubic feet (0.17 cubic meters) per minute is maintained and calibrated airline pressure gauges or flow measuring devices are used. A protection factor of up to 2000 may be used for tested and certified hoods only when the air flow is maintained at the manufacturer's recommended maximum rate for the equipment, this rate is greater than 6 cubic feet (0.17 cubic meters) per minute, and calibrated airline pressure gauges or flow measuring devices are used.

The design of the supplied-air hood or helmet (with a minimum flow of 6 cfm (0.17 $m^3$ per minute) of air) may determine its overall efficiency and the protection it provides. For example, some hoods aspirate contaminated air into the breathing zone when the wearer works with hands-over-head. This aspiration may be overcome if a short cape-like extension to the hood is worn under a coat or overalls. Other limitations specified by the approval agency shall be considered before using a hood in certain types of atmospheres (see footnote i).

i. Appropriate protection factors shall be determined, taking into account the design of the suit and its permeability to the contaminant under conditions of use. There shall be a standby rescue person equipped with a respirator or other apparatus appropriate for the potential hazards and communications equipment whenever supplied-air suits are used.





j. No approval schedules are currently available for this equipment. Equipment is to be evaluated by testing or on the basis of reliable test information.

k. This type of respirator may provide greater protection and be used as an emergency device in unknown concentrations for protection against inhalation hazards. External radiation hazards and other limitations to permitted exposure, such as skin absorption, must be taken into account in such circumstances.

l. Quantitative fit testing shall be performed on each individual and no more than 0.02% leakage is allowed with this type of apparatus. Perceptible outward leakage of gas from this or any positive pressure self-contained breathing apparatus is unacceptable because service life will be reduced substantially. Special training in the use of this type of apparatus shall be provided to the wearer.

Note 1: Protection factors for respirators as may be approved by the U.S. Bureau of Mines/National Institute for Occupational Safety and Health (NIOSH), according to applicable approvals for respirators for type and mode of use to protect against airborne radionuclides, may be used to the extent that they do not exceed the protection factors listed in this table. The protection factors listed in this table may not be appropriate to circumstances where chemical or other respiratory hazards exist in addition to radioactive hazards. The selection and use of respirators for such circumstances should take into account applicable approvals of the U.S. Bureau of Mines/NIOSH.

Note 2: Radioactive contaminants for which the concentration values in Table 1, Column 3 of Appendix B of this part are based on internal dose due to inhalation may, in addition, present external exposure hazards at higher concentrations. Under these circumstances, limitations on occupancy may have to be governed by external dose limits.

[7590-01]



## APPENDIX B

## ANNUAL LIMITS OF INTAKE (ALIs) AND DERIVED AIR CONCENTRATIONS (DACs) OF RADIONUCLIDES FOR OCCUPATIONAL EXPOSURE; REFERENCE LEVEL CONCENTRATIONS; CONCENTRATIONS FOR RELEASE TO SEWERAGE

### Introduction

For each radionuclide a table listing is given indicating the chemical form which is to be used for selecting the appropriate ALI or DAC value. The ALIs and DACs for inhalation are given for an aerosol with an activity median aerodynamic diameter of 1 μm and for three classes (D,W,Y) of radioactive material, which refer to their biological retention in the pulmonary region of the lung. This classification applies to a range of biological half-lives for D of less than 10 days, for W from 10 - 100 days, and for Y greater than 100 days.

### Table I

Note that the columns in Table 1 of this appendix captioned "Oral Ingestion ALI," "Inhalation ALI," and "DAC," are applicable to occupational . . exposure to radioactive material.

The ALIs in this appendix are the annual intakes of given radionuclides by "Reference Man" which would result in either (1) a committed effective dose equivalent of 5 rems (stochastic ALI), or (2) a committed dose equivalent of 50 rems to an organ or tissue (non-stochastic ALI). The stochastic ALIs were derived to result in a risk, due to irradiation of organs and tissues, comparable to the risk associated with 5 rems whole body deep dose equivalent. The derivation includes multiplying the committed dose equivalent to an organ or tissue by a weighting factor, $w_T$. This weighting factor is the proportion of the risk of stochastic effects resulting from irradiation of the organ or tissue, T, to the total risk of stochastic effects when the whole body is irradiated uniformly. The values of $w_T$ are listed below. The non-stochastic ALIs were derived to avoid non-stochastic effects, such as prompt damage to tissue or reduction in organ function.

| Organ or Tissue | $w_T$ |
|---|---|
| Gonads | 0.25 |
| Breast | 0.15 |
| Red bone marrow | 0.12 |
| Lung | 0.12 |
| Thyroid | 0.03 |
| Bone surfaces | 0.03 |
| Remainder | 0.30* |

*(0.30 results from 0.06 for each of 5 "remainder organs")



When an ALI is determined by the stochastic limit, this value, alone, is given. When an ALI is determined by the non-stochastic limit, the organ or tissue to which the limit applies is shown, and the stochastic limit is shown in parentheses. (Abbreviated organ or tissue designations used are: LLI wall = lower large intestine wall; St. wall = stomach wall; Blad. wall = bladder wall; and Bone surf. = bone surface.)

Use of the ALI listed first, the more limiting of the stochastic and non-stochastic ALIs, will ensure that non-stochastic effects are avoided and that stochastic effects are limited to an acceptably low level. If, in a particular situation involving a radionuclide for which the non-stochastic ALI is limiting, use of that non-stochastic ALI is considered unduly conservative, the licensee may use the stochastic ALI to determine effective dose equivalent. However, the licensee shall also ensure that the 50-rem committed dose equivalent limit for any organ or tissue is not exceeded. This is demonstrated if the inequality in the reference to § 20.202 in Appendix E of this part does not exceed unity when using the fractions of the non-stochastic ALIs of all of the radionuclides involved that would be limited by the committed dose equivalent to that organ or tissue.

Note that the dose equivalents for hands and forearms, feet and lower legs, skin, and lens of the eye are not considered in computing the effective dose equivalent, but are subject to limits that must be met separately.

A value of $w_T = 0.06$ is applicable to each of the five organs or tissues in the "remainder" category receiving the highest dose equivalents, and the dose equivalents of all other remaining tissues may be neglected. The following parts of the GI tract - stomach, small intestine, upper large intestine, and lower large intestine - are to be treated as four separate organs.

The DAC values are derived limits intended to control chronic exposures. The relationship between DAC and ALI is given by:

$$\text{DAC} = \text{ALI in } \mu\text{Ci}/(2000 \text{ hours per year} \times 60 \text{ min per hour} \times 2 \times 10^4 \text{ ml per minute})$$

$$= \text{ALI}/2.4 \times 10^9 \ \mu\text{Ci per ml}$$

where $2 \times 10^4$ ml is the volume of air breathed at work by "Reference Man" per minute under working conditions of "light activity."

ALI and DAC values relate to submersion[1] in or to intake, by the specified route of entry into the body, of the single radionuclide named and include an appropriate allowance for any daughter radionuclides produced in the body during the decay of the parent nuclide. However, intakes that include both parent and daughter radionuclides should be treated by the general method appropriate to mixtures.

The values of ALI and DAC do not apply directly when the individual both ingests and inhales a radionuclide, when the individual is exposed to a mixture of radionuclides, or when the individual is exposed to both internal

and external irradiation (see definition of ALI). In such a case, the method and summation formula specified in the reference to § 20.202 in Appendix E of this part shall apply. When an individual is exposed to several translocation classifications, D, W, or Y, of the same radionuclide, the exposure may be treated as exposure to a mixture of radionuclides.

If an individual is exposed to external sources of radiation in addition to unsealed sources of radioactive material, the licensee must limit the total exposure in a year so that the dose equivalent is in compliance with §§ 20.201 and 20.202.

Table 2

The columns in Table 2 of this appendix captioned "Reference Level Concentrations," "Air" and "Water," are applicable to the assessment and control of dose to the public, particularly in the implementation of the reference level provisions in § 20.303.

The reference level air concentration values listed in Table 2, Column 1, were derived by one of two methods. For those radionuclides for which intake (committed effective dose equivalent) is limiting, the occupational stochastic inhalation ALI was divided by $2.4 \times 10^9$ (μCi/ml) x 300. The factor of $2.4 \times 10^9$ (μCi/ml), relating the inhalation ALI to the DAC, is explained above. The factor of 300 includes the following components: 50 - to relate the 5-rem annual occupational dose limit to the 0.1-rem reference level; 3 - to adjust for the difference in exposure time and inhalation rate between workers and members of the public; and 2 - to adjust the occupational values, which were derived for adults, so that they are applicable to other age groups.

For those radionuclides for which submersidn (external dose) is limiting, the occupational DAC in Table 1, Column 3, was divided by 219. The factor of 219 is composed of a factor of 50, described above, and a factor of 4.38 relating occupational exposure for 2,000 hours per year to full-time exposure for 8,760 hours per year. Note that an additional factor of 2 for age considerations is not warranted in the submersion case.

The reference level water concentrations were derived by taking the most restrictive occupational stochastic oral ingestion ALI and dividing by $7.3 \times 10^7$(ml). The factor of $7.3 \times 10^7$(ml) includes the following components: $7.3 \times 10^5$(ml) - the annual water intake of "Reference Man"; 50 - described above; and 2 - described above. Note that because the reference level concentrations are not constrained by consideration of non-stochastic effects (capping doses), as are some of the occupational ALIs and DACs, and because of the difference in the biological models for intake by inhalation and by oral ingestion, there are three groupings of radionuclides in Note 2 of this appendix which are applicable to unknown mixtures of radionuclides.





Table 3

The monthly average concentrations for release to sewerage are applicable to the provisions in § 20.1003. The concentration values were derived by taking the most restrictive occupational stochastic oral ingestion ALI and dividing by $7.3 \times 10^5$(ml). The factor of $7.3 \times 10^5$(ml) is composed of $7.3 \times 10^3$(ml) - the annual water intake by "Reference Man," and a factor of 10 to relate the 5-rem annual occupational dose limit to the 0.5-rem annual dose limit for individual members of the public.

LIST OF ELEMENTS

| Name | Atomic Number |
|---|---|
| Actinium | 89 |
| Aluminum | 13 |
| Americium | 95 |
| Antimony | 51 |
| Argon | 18 |
| Arsenic | 33 |
| Astatine | 85 |
| Barium | 56 |
| Berkelium | 97 |
| Beryllium | 4 |
| Bismuth | 83 |
| Bromine | 35 |
| Cadmium | 48 |
| Calcium | 20 |
| Californium | 98 |
| Carbon | 6 |
| Cerium | 58 |
| Cesium | 55 |
| Chlorine | 17 |
| Chromium | 24 |
| Cobalt | 27 |
| Copper | 29 |
| Curium | 96 |
| Dysprosium | 66 |
| Einsteinium | 99 |
| Erbium | 68 |
| Europium | 63 |
| Fermium | 100 |
| Fluorine | 9 |
| Francium | 87 |
| Gadolinium | 64 |
| Gallium | 31 |
| Germanium | 32 |
| Gold | 79 |
| Hafnium | 72 |
| Holmium | 67 |
| Hydrogen | 1 |
| Indium | 49 |
| Iodine | 53 |
| Iridium | 77 |
| Iron | 26 |
| Krypton | 36 |
| Lanthanum | 57 |
| Lead | 82 |
| Lutetium | 71 |
| Magnesium | 12 |
| Manganese | 25 |
| Mendelevium | 101 |
| Mercury | 80 |
| Molybdenum | 42 |
| Neodymium | 60 |
| Neptunium | 93 |
| Nickel | 28 |
| Niobium | 41 |
| Osmium | 76 |
| Palladium | 46 |
| Phosphorus | 15 |
| Platinum | 78 |
| Plutonium | 94 |
| Polonium | 84 |
| Potassium | 19 |
| Praseodymium | 59 |
| Promethium | 61 |
| Protactinium | 91 |
| Radium | 88 |
| Radon | 86 |
| Rhenium | 75 |
| Rhodium | 45 |
| Rubidium | 37 |
| Ruthenium | 44 |
| Samarium | 62 |
| Scandium | 21 |
| Selenium | 34 |
| Silicon | 14 |
| Silver | 47 |
| Sodium | 11 |
| Strontium | 38 |
| Sulfur | 16 |
| Tantalum | 73 |
| Technetium | 43 |
| Tellurium | 52 |
| Terbium | 65 |
| Thallium | 81 |
| Titanium | 22 |
| Thorium | 90 |
| Thulium | 69 |
| Tin | 50 |
| Tungsten | 74 |
| Uranium | 92 |
| Vanadium | 23 |
| Xenon | 54 |
| Ytterbium | 70 |
| Yttrium | 39 |
| Zinc | 30 |
| Zirconium | 40 |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 1 | Hydrogen-3 | Water, DAC includes skin absorption | $8\times10^{4}$ | $8\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| 4 | Beryllium-7 | W, all compounds except those given for Y | $4\times10^{4}$ | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | $6\times10^{-4}$ | $6\times10^{-3}$ |
| | | Y, oxides, halides and nitrates | - | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | - | - |
| 4 | Beryllium-10 | W, see $^{7}$Be | $1\times10^{3}$ | $2\times10^{2}$ | $6\times10^{-8}$ | $2\times10^{-10}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{7}$Be | - | $1\times10^{1}$ | $6\times10^{-9}$ | $2\times10^{-11}$ | - | - |
| 6 | Carbon-11[2] | Monoxide | - | $1\times10^{6}$ | $5\times10^{-4}$ | $2\times10^{-6}$ | - | - |
| | | Dioxide | - | $6\times10^{5}$ | $3\times10^{-4}$ | $9\times10^{-7}$ | - | - |
| | | Organic | $5\times10^{5}$ | $5\times10^{5}$ | $2\times10^{-4}$ | $6\times10^{-7}$ | $7\times10^{-3}$ | $7\times10^{-2}$ |
| | | D | - | $4\times10^{5}$ | $2\times10^{-4}$ | - | - | - |
| 6 | Carbon-14 | Monoxide | - | $2\times10^{6}$ | $7\times10^{-4}$ | $2\times10^{-6}$ | - | - |
| | | Dioxide | - | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| | | Organic | $2\times10^{3}$ | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | D | - | $2\times10^{3}$ | $1\times10^{-6}$ | - | - | - |

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Enclosure 1

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 9 | Fluorine-18[2] | D, fluorides of H, Li, Na, K, Rb, Cs, Fr | $5\times10^{4}$ | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | $6\times10^{-4}$ | $6\times10^{-3}$ |
| | | W, fluorides of Be, Mg, Ca, Sr, Ba, Ra, Al, Ga, In, Tl, As, Sb, Bi, Fe, Ru, Os, Co, Ni, Pd, Pt, Cu, Ag, Au, Zn, Cd, Hg, Sc, Y, Ti, Zr, V, Nb, Ta, Mn, Tc, Re | - | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| | | Y, lanthanum fluoride | - | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 11 | Sodium-22 | D, all compounds | $4\times10^{2}$ | $6\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-10}$ | $6\times10^{-6}$ | $6\times10^{-5}$ |
| 11 | Sodium-24 | D, all compounds | $4\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| 12 | Magnesium-28 | D, all compounds except those given for W | $7\times10^{2}$ | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | $9\times10^{-6}$ | $9\times10^{-5}$ |
| | | W, oxides, hydroxides, carbides, halides, and nitrates | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 13 | Aluminum-26 | D, all compounds except those given for W | $4\times10^{2}$ | $6\times10^{1}$ | $3\times10^{-8}$ | $9\times10^{-11}$ | $6\times10^{-6}$ | $6\times10^{-5}$ |
| | | W, oxides, hydroxides, carbides, halides, and nitrates | - | $9\times10^{1}$ | $4\times10^{-8}$ | $1\times10^{-10}$ | - | - |

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Enclosure 1

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 14 | Silicon-31 | D, all compounds except those given for W and Y | $9\times10^{3}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, oxides, hydroxides, carbides, and nitrates | - | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | - | - |
| | | Y, aluminosilicate glass | - | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | - | - |
| 14 | Silicon-32 | D, see $^{31}Si$ | $2\times10^{3}$ | $2\times10^{2}$ | $1\times10^{-7}$ | $3\times10^{-10}$ | - | - |
| | | | ($3\times10^{3}$) LLI wall | - | - | - | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{31}Si$ | - | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| | | Y, see $^{31}Si$ | - | $5\times10^{0}$ | $2\times10^{-9}$ | $7\times10^{-12}$ | - | - |
| 15 | Phosphorus-32 | D, all compounds except phosphates given for W | $6\times10^{2}$ | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | $9\times10^{-6}$ | $9\times10^{-5}$ |
| | | W, phosphates of $Zn^{2+}$, $S^{3+}$, $Mg^{2+}$, $Fe^{3+}$, $Bi^{3+}$, and lanthanides | - | $4\times10^{2}$ | $2\times10^{-7}$ | $5\times10^{-10}$ | - | - |
| 15 | Phosphorus-33 | D, see $^{32}P$ | $6\times10^{3}$ | $8\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $8\times10^{-5}$ | $8\times10^{-4}$ |
| | | W, see $^{32}P$ | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 16 | Sulfur-35 | Gas | - | $1\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| | | D, sulfides and sulfates except those given for W | $6\times10^{3}$ | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| | | | ($8\times10^{3}$) LLI wall | - | - | - | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, elemental sulfur, sulfides of Sr, Ba, Ge, Sn, Pb, As, Sb, Bi, Cu, Ag, Au, Zn, Cd, Hg, W, Mo. Sulfates of Ca, Sr, Ba, Ra, As, Sb, Bi | - | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| 17 | Chlorine-36 | D, chlorides of H, Li, Na, K, Rb, Cs, Fr | $2\times10^{3}$ | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, chlorides of lanthanides, Be, Mg, Ca, Sr, Ba, Ra, Al, Ga, In, Tl, Ge, Sn, Pb, As, Sb, Bi, Fe, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt, Cu, Ag, Au, Zn, Cd, Hg, Sc, Y, Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Tc, Re | - | $2\times10^{2}$ | $1\times10^{-7}$ | $3\times10^{-10}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 17 | Chlorine-38[2] | D, see $^{36}Cl$ | $2x10^{4}$ | $4x10^{4}$ | $2x10^{-5}$ | $6x10^{-8}$ | $2x10^{-4}$ | $2x10^{-3}$ |
| | | W, see $^{36}Cl$ | - | $5x10^{4}$ | $2x10^{-5}$ | $6x10^{-8}$ | - | - |
| 17 | Chlorine-39[2] | D, see $^{36}Cl$ | $2x10^{4}$ | $5x10^{4}$ | $2x10^{-5}$ | $7x10^{-8}$ | - | - |
| | | | ($3x10^{4}$) St. wall | - | - | - | $4x10^{-4}$ | $4x10^{-3}$ |
| | | W, see $^{36}Cl$ | - | $6x10^{4}$ | $2x10^{-5}$ | $8x10^{-8}$ | - | - |
| 18 | Argon-39 | Submersion[1] | - | - | $2x10^{-4}$ | $8x10^{-7}$ | - | - |
| 18 | Argon-41 | Submersion[1] | - | - | $3x10^{-6}$ | $1x10^{-8}$ | - | - |
| 19 | Potassium-40 | D, all compounds | $3x10^{2}$ | $4x10^{2}$ | $2x10^{-7}$ | $6x10^{-10}$ | $4x10^{-6}$ | $4x10^{-5}$ |
| 19 | Potassium-42 | D, all compounds | $5x10^{3}$ | $5x10^{3}$ | $2x10^{-6}$ | $7x10^{-9}$ | $6x10^{-5}$ | $6x10^{-4}$ |
| 19 | Potassium-43 | D, all compounds | $6x10^{3}$ | $9x10^{3}$ | $4x10^{-6}$ | $1x10^{-8}$ | $9x10^{-5}$ | $9x10^{-4}$ |
| 19 | Potassium-44[2] | D, all compounds | $2x10^{4}$ | $7x10^{4}$ | $3x10^{-5}$ | $9x10^{-8}$ | - | - |
| | | | ($3x10^{4}$) St. wall | - | - | - | $4x10^{-4}$ | $4x10^{-3}$ |
| 19 | Potassium-45[2] | D, all compounds | $3x10^{4}$ | $1x10^{5}$ | $5x10^{-5}$ | $2x10^{-7}$ | - | - |
| | | | ($5x10^{4}$) St. wall | - | - | - | $7x10^{-4}$ | $7x10^{-3}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 20 | Calcium-41 | W, all compounds | $3x10^{3}$ | $4x10^{3}$ | $2x10^{-6}$ | $5x10^{-9}$ | $4x10^{-5}$ | $4x10^{-4}$ |
| 20 | Calcium-45 | W, all compounds | $2x10^{3}$ | $8x10^{2}$ | $4x10^{-7}$ | $1x10^{-9}$ | $2x10^{-5}$ | $2x10^{-4}$ |
| 20 | Calcium-47 | W, all compounds | $8x10^{2}$ | $9x10^{2}$ | $4x10^{-7}$ | $1x10^{-9}$ | $1x10^{-5}$ | $1x10^{-4}$ |
| 21 | Scandium-43 | Y, all compounds | $7x10^{3}$ | $2x10^{4}$ | $9x10^{-6}$ | $3x10^{-8}$ | $1x10^{-4}$ | $1x10^{-3}$ |
| 21 | Scandium-44m | Y, all compounds | $5x10^{2}$ | $7x10^{2}$ | $3x10^{-7}$ | $1x10^{-9}$ | $7x10^{-6}$ | $7x10^{-5}$ |
| 21 | Scandium-44 | Y, all compounds | $4x10^{3}$ | $1x10^{4}$ | $5x10^{-6}$ | $2x10^{-8}$ | $5x10^{-5}$ | $5x10^{-4}$ |
| 21 | Scandium-46 | Y, all compounds | $9x10^{2}$ | $2x10^{2}$ | $1x10^{-7}$ | $3x10^{-10}$ | $1x10^{-5}$ | $1x10^{-4}$ |
| 21 | Scandium-47 | Y, all compounds | $2x10^{3}$ | $3x10^{3}$ | $1x10^{-6}$ | $4x10^{-9}$ | $3x10^{-5}$ | $3x10^{-4}$ |
| 21 | Scandium-48 | Y, all compounds | $8x10^{2}$ | $1x10^{3}$ | $6x10^{-7}$ | $2x10^{-9}$ | $1x10^{-5}$ | $1x10^{-4}$ |
| 21 | Scandium-49[2] | Y, all compounds | $2x10^{4}$ | $5x10^{4}$ | $2x10^{-5}$ | $8x10^{-8}$ | $3x10^{-4}$ | $3x10^{-3}$ |
| 22 | Titanium-44 | D, all compounds except those given for W and Y | $3x10^{2}$ | $1x10^{1}$ | $5x10^{-9}$ | $2x10^{-11}$ | $4x10^{-6}$ | $4x10^{-5}$ |
| | | W, oxides, hydroxides, carbides, halides, and nitrates | - | $3x10^{1}$ | $1x10^{-8}$ | $4x10^{-11}$ | - | - |
| | | Y, $SrTiO_3$ | - | $6x10^{0}$ | $2x10^{-9}$ | $8x10^{-12}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 22 | Titanium-45 | D, see $^{44}Ti$ | $9\times10^{3}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{44}Ti$ | - | $4\times10^{4}$ | $1\times10^{-5}$ | $5\times10^{-8}$ | - | - |
| | | Y, see $^{44}Ti$ | - | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | - | - |
| 23 | Vanadium-47[2] | D, all compounds except those given for W | $3\times10^{4}$ | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, oxides, hydroxides, carbides, and halides | - | $1\times10^{5}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 23 | Vanadium-48 | D, see $^{47}V$ | $6\times10^{2}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $9\times10^{-6}$ | $9\times10^{-5}$ |
| | | W, see $^{47}V$ | - | $6\times10^{2}$ | $3\times10^{-7}$ | $8\times10^{-10}$ | - | - |
| 23 | Vanadium-49 | D, see $^{47}V$ | $7\times10^{4}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $5\times10^{-8}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, see $^{47}V$ | - | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | - | - |
| 24 | Chromium-48 | D, all compounds except those given for W and Y | $6\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $8\times10^{-5}$ | $8\times10^{-4}$ |
| | | W, halides and nitrates | - | $7\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| | | Y, oxides and hydroxides | - | $7\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| 24 | Chromium-49[2] | D, see $^{48}Cr$ | $3\times10^{4}$ | $8\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, see $^{48}Cr$ | - | $1\times10^{5}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| | | Y, see $^{48}Cr$ | - | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 24 | Chromium-51 | D, see $^{48}Cr$ | $4\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $5\times10^{-4}$ | $5\times10^{-3}$ |
| | | W, see $^{48}Cr$ | - | $2\times10^{4}$ | $1\times10^{-5}$ | $3\times10^{-8}$ | - | - |
| | | Y, see $^{48}Cr$ | - | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | - | - |
| 25 | Manganese-51 | D, all compounds except those given for W | $2\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, oxides, hydroxides, halides and nitrates | - | $6\times10^{4}$ | $3\times10^{-5}$ | $8\times10^{-8}$ | - | - |
| 25 | Manganese-52m | D, see $^{51}Mn$ | $3\times10^{4}$ | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, see $^{51}Mn$ | - | $1\times10^{5}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 25 | Manganese-52 | D, see $^{51}Mn$ | $7\times10^{2}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{51}Mn$ | - | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 25 | Manganese-53 | D, see $^{51}Mn$ | $5\times10^{4}$ | $1\times10^{4}$ | $5\times10^{-6}$ | - | $7\times10^{-4}$ | $7\times10^{-3}$ |
| | | | - | $(2\times10^{4})$ Bone surf. | - | $3\times10^{-8}$ | - | - |
| | | W, see $^{51}Mn$ | - | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 25 | Manganese-54 | D, see $^{51}Mn$ | $2\times10^{3}$ | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-8}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{51}Mn$ | - | $8\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 25 | Manganese-56 | D, see $^{51}Mn$ | $5\times10^{3}$ | $2\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | W, see $^{51}Mn$ | - | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 26 | Iron-52 | D, all compounds except those given for W | $9\times10^{2}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, oxides, hydroxides, and halides | - | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | - | - |
| 26 | Iron-55 | D, see $^{52}Fe$ | $9\times10^{3}$ | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{52}Fe$ | - | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | - | - |
| 26 | Iron-59 | D, see $^{52}Fe$ | $8\times10^{2}$ | $3\times10^{2}$ | $1\times10^{-7}$ | $5\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{52}Fe$ | - | $5\times10^{2}$ | $2\times10^{-7}$ | $7\times10^{-10}$ | - | - |
| 26 | Iron-60 | D, see $^{52}Fe$ | $3\times10^{1}$ | $6\times10^{0}$ | $3\times10^{-9}$ | $9\times10^{-12}$ | $4\times10^{-7}$ | $4\times10^{-6}$ |
| | | W, see $^{52}Fe$ | - | $2\times10^{1}$ | $8\times10^{-9}$ | $3\times10^{-11}$ | - | - |
| 27 | Cobalt-55 | W, all compounds except those given for Y | $1\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, oxides, hydroxides, halides and nitrates | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| 27 | Cobalt-56 | W, see $^{55}Co$ | $4\times10^{2}$ | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | $6\times10^{-6}$ | $6\times10^{-5}$ |
| | | Y, see $^{55}Co$ | - | $2\times10^{2}$ | $8\times10^{-8}$ | $3\times10^{-10}$ | - | - |
| 27 | Cobalt-57 | W, see $^{55}Co$ | $4\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | Y, see $^{55}Co$ | - | $7\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-10}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 27 | Cobalt-58m | W, see $^{55}Co$ | $6\times10^{4}$ | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $8\times10^{-4}$ | $8\times10^{-3}$ |
| | | Y, see $^{55}Co$ | - | $6\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | - | - |
| 27 | Cobalt-58 | W, see $^{55}Co$ | $1\times10^{3}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{55}Co$ | - | $7\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 27 | Cobalt-60m[2] | W, see $^{55}Co$ | $1\times10^{6}$ | $4\times10^{6}$ | $2\times10^{-3}$ | $5\times10^{-6}$ | $1\times10^{-2}$ | $1\times10^{-1}$ |
| | | Y, see $^{55}Co$ | - | $3\times10^{6}$ | $1\times10^{-3}$ | $4\times10^{-6}$ | - | - |
| 27 | Cobalt-60 | W, see $^{55}Co$ | $2\times10^{2}$ | $2\times10^{2}$ | $7\times10^{-8}$ | $2\times10^{-10}$ | $3\times10^{-6}$ | $3\times10^{-5}$ |
| | | Y, see $^{55}Co$ | - | $3\times10^{1}$ | $1\times10^{-8}$ | $5\times10^{-11}$ | - | - |
| 27 | Cobalt-61[2] | W, see $^{55}Co$ | $2\times10^{4}$ | $6\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | Y, see $^{55}Co$ | - | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | - | - |
| 27 | Cobalt-62m[2] | W, see $^{55}Co$ | $4\times10^{4}$ ($5\times10^{4}$) St. wall | $2\times10^{5}$ | $7\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | | | - | - | - | $7\times10^{-4}$ | $7\times10^{-3}$ |
| | | Y, see $^{55}Co$ | - | $2\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 28 | Nickel-56 | D, all compounds except those given for W | $1\times10^{3}$ | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, oxides, hydroxides, and carbides | | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 28 | Nickel-57 | D, see $^{56}Ni$ | $2\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{56}Ni$ | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| 28 | Nickel-59 | D, see $^{56}Ni$ | $2\times10^{4}$ | $4\times10^{3}$ | $2\times10^{-6}$ | $5\times10^{-9}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, see $^{56}Ni$ | - | $7\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| 28 | Nickel-63 | D, see $^{56}Ni$ | $9\times10^{3}$ | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{56}Ni$ | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| 28 | Nickel-65 | D, see $^{56}Ni$ | $8\times10^{3}$ | $2\times10^{4}$ | $1\times10^{-5}$ | $3\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{56}Ni$ | - | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | - | - |
| 28 | Nickel-66 | D, see $^{56}Ni$ | $4\times10^{2}$ | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| | | | ($5\times10^{2}$) LLI wall | - | - | - | $7\times10^{-6}$ | $7\times10^{-5}$ |
| | | W, see $^{56}Ni$ | - | $6\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-10}$ | - | - |
| 29 | Copper-60 | D, all compounds except those given for W and Y | $3\times10^{4}$ | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, sulfides, halides, and nitrates | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | Y, oxides and hydroxides | - | $1\times10^{5}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 29 | Copper-61 | D, see $^{60}Cu$ | $1\times10^{4}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{60}Cu$ | - | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | - | - |
| | | Y, see $^{60}Cu$ | - | $4\times10^{4}$ | $1\times10^{-5}$ | $5\times10^{-8}$ | - | - |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 29 | Copper-64 | D, see $^{60}Cu$ | $1\times10^{4}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{60}Cu$ | - | $2\times10^{4}$ | $1\times10^{-5}$ | $3\times10^{-8}$ | - | - |
| | | Y, see $^{60}Cu$ | - | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | - | - |
| 29 | Copper-67 | D, see $^{60}Cu$ | $5\times10^{3}$ | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | W, see $^{60}Cu$ | - | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | - | - |
| | | Y, see $^{60}Cu$ | - | $5\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | - | - |
| 30 | Zinc-62 | Y, all compounds | $1\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| 30 | Zinc-63[2] | Y, all compounds | $2\times10^{4}$ | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| 30 | Zinc-65 | Y, all compounds | $4\times10^{2}$ | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | $5\times10^{-6}$ | $5\times10^{-5}$ |
| 30 | Zinc-69m | Y, all compounds | $4\times10^{3}$ | $7\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| 30 | Zinc-69[2] | Y, all compounds | $6\times10^{4}$ | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $8\times10^{-4}$ | $8\times10^{-3}$ |
| 30 | Zinc-71m | Y, all compounds | $6\times10^{3}$ | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | $8\times10^{-5}$ | $8\times10^{-4}$ |
| 30 | Zinc-72 | Y, all compounds | $1\times10^{3}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 31 | Gallium-65[2] | D, all compounds except those given for W | $5\times10^{4}$ | $2\times10^{5}$ | $7\times10^{-5}$ | $2\times10^{-7}$ | $6\times10^{-4}$ | $6\times10^{-3}$ |
| | | W, oxides, hydroxides, carbides, halides, and nitrates | - | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 31 | Gallium-66 | D, see $^{65}$Ga | $1\times10^{3}$ | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{65}$Ga | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| 31 | Gallium-67 | D, see $^{65}$Ga | $7\times10^{3}$ | $1\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{65}$Ga | - | $1\times10^{4}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| 31 | Gallium-68[2] | D, see $^{65}$Ga | $2\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{65}$Ga | - | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | - | - |
| 31 | Gallium-70[2] | D, see $^{65}$Ga | $5\times10^{4}$ | $2\times10^{5}$ | $7\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | | ($8\times10^{4}$) St. wall | - | - | - | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, see $^{65}$Ga | - | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| 31 | Gallium-72 | D, see $^{65}$Ga | $1\times10^{3}$ | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{65}$Ga | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| 31 | Gallium-73 | D, see $^{65}$Ga | $5\times10^{3}$ | $2\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | W, see $^{65}$Ga | - | $2\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 32 | Germanium-66 | D, all compounds except those given for W | $2\times10^{4}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, oxides, sulfides, and halides | - | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 32 | Germanium-67[2] | D, see $^{66}$Ge | $3\times10^{4}$ | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| | | | ($5\times10^{4}$) St. wall | - | - | - | $7\times10^{-4}$ | $7\times10^{-3}$ |
| | | W, see $^{66}$Ge | - | $1\times10^{5}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 32 | Germanium-68 | D, see $^{66}$Ge | $5\times10^{3}$ | $4\times10^{3}$ | $2\times10^{-6}$ | $5\times10^{-9}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | W, see $^{66}$Ge | - | $1\times10^{2}$ | $4\times10^{-8}$ | $1\times10^{-10}$ | - | - |
| 32 | Germanium-69 | D, see $^{66}$Ge | $1\times10^{4}$ | $2\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{66}$Ge | - | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| 32 | Germanium-71 | D, see $^{66}$Ge | $5\times10^{5}$ | $4\times10^{5}$ | $2\times10^{-4}$ | $6\times10^{-7}$ | $7\times10^{-3}$ | $7\times10^{-2}$ |
| | | W, see $^{66}$Ge | - | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | - | - |
| 32 | Germanium-75[2] | D, see $^{66}$Ge | $4\times10^{4}$ | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| | | | ($8\times10^{4}$) St. wall | - | - | - | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, see $^{66}$Ge | - | $8\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 32 | Germanium-77 | D, see $^{66}$Ge | $9\times10^{3}$ | $1\times10^{4}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{66}$Ge | - | $6\times10^{3}$ | $2\times10^{-6}$ | $8\times10^{-9}$ | - | - |
| 32 | Germanium-78[2] | D, see $^{66}$Ge | $2\times10^{4}$ | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, see $^{66}$Ge | - | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 33 | Arsenic-69[2] | W, all compounds | $3\times10^{4}$ | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | | ($5\times10^{4}$) St. wall | - | - | - | $7\times10^{-4}$ | $7\times10^{-3}$ |
| 33 | Arsenic-70[2] | W, all compounds | $1\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 33 | Arsenic-71 | W, all compounds | $4\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| 33 | Arsenic-72 | W, all compounds | $9\times10^{2}$ | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 33 | Arsenic-73 | W, all compounds | $8\times10^{3}$ | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 33 | Arsenic-74 | W, all compounds | $1\times10^{3}$ | $8\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| 33 | Arsenic-76 | W, all compounds | $1\times10^{3}$ | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 33 | Arsenic-77 | W, all compounds | $4\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| 33 | Arsenic-78[2] | W, all compounds | $8\times10^{3}$ | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 34 | Selenium-70[2] | D, all compounds except those given for W | $1\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $5\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, oxides, hydroxides, carbides, and elemental Se | - | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | - | - |
| 34 | Selenium-73m[2] | D, see $^{70}$Se | $3\times10^{4}$ | $2\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, see $^{70}$Se | - | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 34 | Selenium-73 | D, see $^{70}$Se | $3\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{70}$Se | - | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 34 | Selenium-75 | D, see $^{70}$Se | $5\times10^{2}$ | $7\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |
| | | W, see $^{70}$Se | - | $6\times10^{2}$ | $3\times10^{-7}$ | $8\times10^{-10}$ | - | - |
| 34 | Selenium-79 | D, see $^{70}$Se | $6\times10^{2}$ | $8\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | $8\times10^{-6}$ | $8\times10^{-5}$ |
| | | W, see $^{70}$Se | - | $6\times10^{2}$ | $2\times10^{-7}$ | $8\times10^{-10}$ | - | - |
| 34 | Selenium-81m[2] | D, see $^{70}$Se | $2\times10^{4}$ | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, see $^{70}$Se | - | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 34 | Selenium-81[2] | D, see $^{70}$Se | $6\times10^{4}$ | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| | | | ($8\times10^{4}$) St. wall | - | - | - | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, see $^{70}$Se | - | $2\times10^{5}$ | $1\times10^{-4}$ | $3\times10^{-7}$ | - | - |
| 34 | Selenium-83[2] | D, see $^{70}$Se | $3\times10^{4}$ | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, see $^{70}$Se | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 35 | Bromine-74m[2] | D, bromides of H, Li, Na, K, Rb, Cs, Fr | $1x10^4$ | $4x10^4$ | $2x10^{-5}$ | $5x10^{-8}$ | - | - |
| | | | ($2x10^4$) St. wall | - | - | - | $3x10^{-4}$ | $3x10^{-3}$ |
| | | W, bromides of lanthanides, Be, Mg, Ca, Sr, Ba, Ra, Al, Ga, In, Tl, Ge, Sn, Pb, As, Sb, Bi, Fe, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt, Cu, Ag, Au, Zn, Cd, Hg, Sc, Y, Ti, Zr, Hf, V, Nb, Ta, Mn, Tc, Re | - | $4x10^4$ | $2x10^{-5}$ | $6x10^{-8}$ | - | - |
| 35 | Bromine-74[2] | D, see $^{74m}Br$ | $2x10^4$ | $7x10^4$ | $3x10^{-5}$ | $1x10^{-7}$ | - | - |
| | | | ($3x10^4$) St. wall | - | - | - | $4x10^{-4}$ | $4x10^{-3}$ |
| | | W, see $^{74m}Br$ | - | $8x10^4$ | $4x10^{-5}$ | $1x10^{-7}$ | - | - |
| 35 | Bromine-75[2] | D, see $^{74m}Br$ | $3x10^4$ | $5x10^4$ | $2x10^{-5}$ | $7x10^{-8}$ | $4x10^{-4}$ | $4x10^{-3}$ |
| | | W, see $^{74m}Br$ | - | $5x10^4$ | $2x10^{-5}$ | $7x10^{-8}$ | - | - |
| 35 | Bromine-76 | D, see $^{74m}Br$ | $4x10^3$ | $5x10^3$ | $2x10^{-6}$ | $7x10^{-9}$ | $5x10^{-5}$ | $5x10^{-4}$ |
| | | W, see $^{74m}Br$ | - | $4x10^3$ | $2x10^{-6}$ | $6x10^{-9}$ | - | - |
| 35 | Bromine-77 | D, see $^{74m}Br$ | $2x10^4$ | $2x10^4$ | $1x10^{-5}$ | $3x10^{-8}$ | $2x10^{-4}$ | $2x10^{-3}$ |
| | | W, see $^{74m}Br$ | - | $2x10^4$ | $8x10^{-6}$ | $3x10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 35 | Bromine-80m | D, see $^{74m}Br$ | $2x10^4$ | $2x10^4$ | $7x10^{-6}$ | $2x10^{-8}$ | $3x10^{-4}$ | $3x10^{-3}$ |
| | | W, see $^{74m}Br$ | - | $1x10^4$ | $6x10^{-6}$ | $2x10^{-8}$ | - | - |
| 35 | Bromine-80[2] | D, see $^{74m}Br$ | $5x10^4$ | $2x10^5$ | $8x10^{-5}$ | $3x10^{-7}$ | - | - |
| | | | ($8x10^4$) St. wall | - | - | - | $1x10^{-3}$ | $1x10^{-2}$ |
| | | W, see $^{74m}Br$ | - | $2x10^5$ | $9x10^{-5}$ | $3x10^{-7}$ | - | - |
| 35 | Bromine-82 | D, see $^{74m}Br$ | $3x10^3$ | $4x10^3$ | $2x10^{-6}$ | $6x10^{-9}$ | $4x10^{-5}$ | $4x10^{-4}$ |
| | | W, see $^{74m}Br$ | - | $4x10^3$ | $2x10^{-6}$ | $5x10^{-9}$ | - | - |
| 35 | Bromine-83 | D, see $^{74m}Br$ | $5x10^4$ | $6x10^4$ | $3x10^{-5}$ | $9x10^{-8}$ | - | - |
| | | | ($8x10^4$) St. wall | - | - | - | $1x10^{-3}$ | $1x10^{-2}$ |
| | | W, see $^{74m}Br$ | - | $6x10^4$ | $3x10^{-5}$ | $9x10^{-8}$ | - | - |
| 35 | Bromine-84[2] | D, see $^{74m}Br$ | $2x10^4$ | $6x10^4$ | $2x10^{-5}$ | $8x10^{-8}$ | - | - |
| | | | ($3x10^4$) St. wall | - | - | - | $4x10^{-4}$ | $4x10^{-3}$ |
| | | W, see $^{74m}Br$ | - | $6x10^4$ | $3x10^{-5}$ | $9x10^{-8}$ | - | - |
| 36 | Krypton-74 | Submersion[1] | - | - | $3x10^{-6}$ | $1x10^{-8}$ | - | - |
| 36 | Krypton-76 | Submersion[1] | - | - | $9x10^{-6}$ | $4x10^{-8}$ | - | - |
| 36 | Krypton-77 | Submersion[1] | - | - | $4x10^{-6}$ | $2x10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 36 | Krypton-79 | Submersion[1] | - | - | $2\times10^{-5}$ | $7\times10^{-8}$ | - | - |
| 36 | Krypton-81 | Submersion[1] | - | - | $7\times10^{-4}$ | $3\times10^{-6}$ | - | - |
| 36 | Krypton-83m | Submersion[1] | - | - | $1\times10^{-2}$ | $5\times10^{-5}$ | - | - |
| 36 | Krypton-85m | Submersion[1] | - | - | $2\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 36 | Krypton-85 | Submersion[1] | - | - | $1\times10^{-4}$ | $7\times10^{-7}$ | - | - |
| 36 | Krypton-87 | Submersion[1] | - | - | $5\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 36 | Krypton-88 | Submersion[1] | - | - | $2\times10^{-6}$ | $9\times10^{-9}$ | - | - |
| 37 | Rubidium-79[2] | D, all compounds | $4\times10^{4}$ ($5\times10^{4}$) St. wall | $1\times10^{5}$ - | $5\times10^{-5}$ - | $2\times10^{-7}$ - | - $7\times10^{-4}$ | - $7\times10^{-3}$ |
| 37 | Rubidium-81m[2] | D, all compounds | $2\times10^{5}$ ($3\times10^{5}$) St. wall | $3\times10^{5}$ - | $1\times10^{-4}$ - | $5\times10^{-7}$ - | - $4\times10^{-3}$ | - $4\times10^{-2}$ |
| 37 | Rubidium-81 | D, all compounds | $4\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | $5\times10^{-4}$ | $5\times10^{-3}$ |
| 37 | Rubidium-82m | D, all compounds | $1\times10^{4}$ | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 37 | Rubidium-83 | D, all compounds | $6\times10^{2}$ | $1\times10^{3}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | $9\times10^{-6}$ | $9\times10^{-5}$ |
| 37 | Rubidium-84 | D, all compounds | $5\times10^{2}$ | $8\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 37 | Rubidium-86 | D, all compounds | $5\times10^{2}$ | $8\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |
| 37 | Rubidium-87 | D, all compounds | $1\times10^{3}$ | $2\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 37 | Rubidium-88[2] | D, all compounds | $2\times10^{4}$ ($3\times10^{4}$) St. wall | $6\times10^{4}$ - | $3\times10^{-5}$ - | $9\times10^{-8}$ - | - $4\times10^{-4}$ | - $4\times10^{-3}$ |
| 37 | Rubidium-89[2] | D, all compounds | $4\times10^{4}$ ($5\times10^{4}$) St. wall | $1\times10^{5}$ - | $6\times10^{-5}$ - | $2\times10^{-7}$ - | - $7\times10^{-4}$ | - $7\times10^{-3}$ |
| 38 | Strontium-80[2] | D, all soluble compounds except $SrTiO_3$ | $4\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | Y, all insoluble compounds and $SrTiO_3$ | - | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 38 | Strontium-81[2] | D, see $^{80}Sr$ | $2\times10^{4}$ | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | Y, see $^{80}Sr$ | - | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 38 | Strontium-83 | D, see $^{80}Sr$ | $2\times10^{3}$ | $7\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | Y, see $^{80}Sr$ | - | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | - | - |
| 38 | Strontium-85m[2] | D, see $^{80}Sr$ | $2\times10^{5}$ | $6\times10^{5}$ | $3\times10^{-4}$ | $9\times10^{-7}$ | $3\times10^{-3}$ | $3\times10^{-2}$ |
| | | Y, see $^{80}Sr$ | - | $8\times10^{5}$ | $4\times10^{-4}$ | $1\times10^{-6}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 38 | Strontium-85 | D, see $^{80}Sr$ | $3\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | Y, see $^{80}Sr$ | - | $2\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 38 | Strontium-87m | D, see $^{80}Sr$ | $4\times10^{4}$ | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | $6\times10^{-4}$ | $6\times10^{-3}$ |
| | | Y, see $^{80}Sr$ | - | $2\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 38 | Strontium-89 | D, see $^{80}Sr$ | $5\times10^{2}$ | $8\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | $6\times10^{-6}$ | $6\times10^{-5}$ |
| | | Y, see $^{80}Sr$ | - | $1\times10^{2}$ | $6\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 38 | Strontium-90 | D, see $^{80}Sr$ | $3\times10^{1}$ | $2\times10^{1}$ | $8\times10^{-9}$ | $3\times10^{-11}$ | $4\times10^{-7}$ | $4\times10^{-6}$ |
| | | Y, see $^{80}Sr$ | - | $4\times10^{0}$ | $2\times10^{-9}$ | $5\times10^{-12}$ | - | - |
| 38 | Strontium-91 | D, see $^{80}Sr$ | $2\times10^{3}$ | $6\times10^{3}$ | $2\times10^{-6}$ | $8\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{80}Sr$ | - | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | - | - |
| 38 | Strontium-92 | D, see $^{80}Sr$ | $3\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | Y, see $^{80}Sr$ | - | $7\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | - | - |
| 39 | Yttrium-86m[2] | W, all compounds except those given for Y | $2\times10^{4}$ | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | Y, oxides and hydroxides | - | $5\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | - | - |
| 39 | Yttrium-86 | W, see $^{86m}Y$ | $1\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{86m}Y$ | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 39 | Yttrium-87 | W, see $^{86m}Y$ | $2\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | Y, see $^{86m}Y$ | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| 39 | Yttrium-88 | W, see $^{86m}Y$ | $1\times10^{3}$ | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{86m}Y$ | - | $2\times10^{2}$ | $1\times10^{-7}$ | $3\times10^{-10}$ | - | - |
| 39 | Yttrium-90m | W, see $^{86m}Y$ | $8\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | Y, see $^{86m}Y$ | - | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 39 | Yttrium-90 | W, see $^{86m}Y$ | $4\times10^{2}$ | $7\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-7}$ | $6\times10^{-6}$ | $6\times10^{-5}$ |
| | | Y, see $^{86m}Y$ | - | $6\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-10}$ | - | - |
| 39 | Yttrium-91m[2] | W, see $^{86m}Y$ | $1\times10^{5}$ | $2\times10^{5}$ | $1\times10^{-4}$ | $3\times10^{-7}$ | $2\times10^{-3}$ | $2\times10^{-2}$ |
| | | Y, see $^{86m}Y$ | - | $2\times10^{5}$ | $7\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 39 | Yttrium-91 | W, see $^{86m}Y$ | $5\times10^{2}$ | $2\times10^{2}$ | $7\times10^{-8}$ | $2\times10^{-10}$ | $6\times10^{-6}$ | $6\times10^{-5}$ |
| | | Y, see $^{86m}Y$ | - | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 39 | Yttrium-92 | W, see $^{86m}Y$ | $3\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | Y, see $^{86m}Y$ | - | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| 39 | Yttrium-93 | W, see $^{86m}Y$ | $1\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{86m}Y$ | - | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 39 | Yttrium-94[2] | W, see $^{86m}Y$ | $2\times10^{4}$ | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| | | | ($3\times10^{4}$) St. wall | - | - | - | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | Y, see $^{86m}Y$ | - | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 39 | Yttrium-95 | W, see $^{86m}Y$ | $4\times10^{4}$ | $2\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | | ($5\times10^{4}$) St. wall | - | - | - | $7\times10^{-4}$ | $7\times10^{-3}$ |
| | | Y, see $^{86m}Y$ | - | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 40 | Zirconium-86 | D, all compounds except those given for W and Y | $1\times10^{3}$ | $4\times10^{3}$ | $2\times10^{-6}$ | $5\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, oxides, hydroxides, halides and nitrates | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| | | Y, carbide | - | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | - | - |
| 40 | Zirconium-88 | D, see $^{86}Zr$ | $4\times10^{3}$ | $2\times10^{2}$ | $9\times10^{-8}$ | $3\times10^{-10}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| | | W, see $^{86}Zr$ | - | $5\times10^{2}$ | $2\times10^{-7}$ | $7\times10^{-10}$ | - | - |
| | | Y, see $^{86}Zr$ | - | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | - | - |
| 40 | Zirconium-89 | D, see $^{86}Zr$ | $2\times10^{3}$ | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{86}Zr$ | - | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | - | - |
| | | Y, see $^{86}Zr$ | - | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 40 | Zirconium-93 | D, see $^{86}Zr$ | $1\times10^{3}$ | $6\times10^{0}$ | $3\times10^{-9}$ | - | - | - |
| | | | ($3\times10^{3}$) Bone surf. | ($2\times10^{1}$) Bone surf. | - | $2\times10^{-11}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{86}Zr$ | - | $2\times10^{1}$ | $1\times10^{-8}$ | - | - | - |
| | | | - | ($5\times10^{1}$) Bone surf. | - | $8\times10^{-11}$ | - | - |
| | | Y, see $^{86}Zr$ | - | $6\times10^{1}$ | $2\times10^{-8}$ | - | - | - |
| | | | - | ($8\times10^{1}$) Bone surf. | - | $1\times10^{-10}$ | - | - |
| 40 | Zirconium-95 | D, see $^{86}Zr$ | $1\times10^{3}$ | $1\times10^{2}$ | $5\times10^{-8}$ | - | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | | - | ($3\times10^{2}$) Bone surf. | - | $4\times10^{-10}$ | - | - |
| | | W, see $^{86}Zr$ | - | $4\times10^{2}$ | $2\times10^{-7}$ | $5\times10^{-10}$ | - | - |
| | | Y, see $^{86}Zr$ | - | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | - | - |
| 40 | Zirconium-97 | D, see $^{86}Zr$ | $6\times10^{2}$ | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | $9\times10^{-6}$ | $9\times10^{-5}$ |
| | | W, see $^{86}Zr$ | - | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| | | Y, see $^{86}Zr$ | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 41 | Niobium-88[2] | W, all compounds except those given for Y | $5\times10^{4}$ | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| | | | ($8\times10^{4}$) St. wall | - | - | - | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | Y, oxides and hydroxides | - | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 41 | Niobium-89[2] (66 min) | W, see $^{88}$Nb | $1\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | Y, see $^{88}$Nb | - | $4\times10^{4}$ | $2\times10^{-5}$ | $5\times10^{-8}$ | - | - |
| 41 | Niobium-89 (122 min) | W, see $^{88}$Nb | $5\times10^{3}$ | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | Y, see $^{88}$Nb | - | $2\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 41 | Niobium-90 | W, see $^{88}$Nb | $1\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{88}$Nb | - | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | - | - |
| 41 | Niobium-93m | W, see $^{88}$Nb | $9\times10^{3}$ | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| | | | ($1\times10^{4}$) LLI wall | - | - | - | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | Y, see $^{88}$Nb | - | $2\times10^{2}$ | $7\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 41 | Niobium-94 | W, see $^{88}$Nb | $9\times10^{2}$ | $2\times10^{2}$ | $8\times10^{-8}$ | $3\times10^{-10}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{88}$Nb | - | $2\times10^{1}$ | $6\times10^{-9}$ | $2\times10^{-11}$ | - | - |
| 41 | Niobium-95m | W, see $^{88}$Nb | $2\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | Y, see $^{88}$Nb | - | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| 41 | Niobium-95 | W, see $^{88}$Nb | $2\times10^{3}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | Y, see $^{88}$Nb | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 41 | Niobium-96 | W, see $^{88}$Nb | $1\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{88}$Nb | - | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 41 | Niobium-97[2] | W, see $^{88}$Nb | $2\times10^{4}$ | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | Y, see $^{88}$Nb | - | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 41 | Niobium-98[2] | W, see $^{88}$Nb | $1\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | Y, see $^{88}$Nb | - | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | - | - |
| 42 | Molybdenum-90 | D, all compounds except those given for Y | $2\times10^{3}$ | $7\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | Y, oxides, hydroxides, and $MoS_2$ | - | $5\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | - | - |
| 42 | Molybdenum-93m | D, see $^{90}$Mo | $4\times10^{3}$ | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | Y, see $^{90}$Mo | - | $1\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 42 | Molybdenum-93 | D, see $^{90}$Mo | $4\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| | | Y, see $^{90}$Mo | - | $2\times10^{2}$ | $8\times10^{-8}$ | $3\times10^{-10}$ | - | - |
| 42 | Molybdenum-99 | D, see $^{90}$Mo | $1\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{90}$Mo | - | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 42 | Molybdenum-101[2] | D, see $^{90}$Mo | $4\times10^{4}$ | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $6\times10^{-4}$ | $6\times10^{-3}$ |
| | | Y, see $^{90}$Mo | - | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 43 | Technetium-93m[2] | D, all compounds except those given for W | $7\times10^{4}$ | $2\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, oxides, hydroxides, halides, and nitrates | - | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 43 | Technetium-93 | D, see $^{93m}$Tc | $3\times10^{4}$ | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, see $^{93m}$Tc | - | $1\times10^{5}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 43 | Technetium-94m[2] | D, see $^{93m}$Tc | $2\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, see $^{93m}$Tc | - | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-7}$ | - | - |
| 43 | Technetium-94 | D, see $^{93m}$Tc | $9\times10^{3}$ | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{93m}$Tc | - | $2\times10^{4}$ | $1\times10^{-5}$ | $3\times10^{-8}$ | - | - |
| 43 | Technetium-96m[2] | D, see $^{93m}$Tc | $2\times10^{5}$ | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | $2\times10^{-3}$ | $2\times10^{-2}$ |
| | | W, see $^{93m}$Tc | - | $2\times10^{5}$ | $1\times10^{-4}$ | $3\times10^{-7}$ | - | - |
| 43 | Technetium-96 | D, see $^{93m}$Tc | $2\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{93m}$Tc | - | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| 43 | Technetium-97m | D, see $^{93m}$Tc | $5\times10^{3}$ | $7\times10^{3}$ | $3\times10^{-6}$ | - | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | | - | ($8\times10^{3}$) St. wall | - | $1\times10^{-8}$ | - | - |
| | | W, see $^{93m}$Tc | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 43 | Technetium-97 | D, see $^{93m}$Tc | $4\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | $5\times10^{-4}$ | $5\times10^{-3}$ |
| | | W, see $^{93m}$Tc | - | $6\times10^{3}$ | $2\times10^{-6}$ | $8\times10^{-9}$ | - | - |
| 43 | Technetium-98 | D, see $^{93m}$Tc | $1\times10^{3}$ | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{93m}$Tc | - | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 43 | Technetium-99m | D, see $^{93m}$Tc | $8\times10^{4}$ | $2\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, see $^{93m}$Tc | - | $2\times10^{5}$ | $1\times10^{-4}$ | $3\times10^{-7}$ | - | - |
| 43 | Technetium-99 | D, see $^{93m}$Tc | $4\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $8\times10^{-9}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | W, see $^{93m}$Tc | - | $7\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-10}$ | - | - |
| 43 | Technetium-101[2] | D, see $^{93m}$Tc | $9\times10^{4}$ | $3\times10^{5}$ | $1\times10^{-4}$ | $5\times10^{-7}$ | - | - |
| | | | ($1\times10^{5}$) St. wall | - | - | - | $2\times10^{-3}$ | $2\times10^{-2}$ |
| | | W, see $^{93m}$Tc | - | $4\times10^{5}$ | $2\times10^{-4}$ | $5\times10^{-7}$ | - | - |
| 43 | Technetium-104[2] | D, see $^{93m}$Tc | $2\times10^{4}$ | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| | | | ($3\times10^{4}$) St. wall | - | - | - | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, see $^{93m}$Tc | - | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 44 | Ruthenium-94[2] | D, all compounds except those given for W and Y | $2\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, halides | - | $6\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | - | - |
| | | Y, oxides and hydroxides | - | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | - | - |
| 44 | Ruthenium-97 | D, see $^{94}$Ru | $8\times10^{3}$ | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{94}$Ru | - | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| | | Y, see $^{94}$Ru | - | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 44 | Ruthenium-103 | D, see $^{94}Ru$ | $2\times10^{3}$ | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{94}Ru$ | - | $1\times10^{3}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| | | Y, see $^{94}Ru$ | - | $6\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-10}$ | - | - |
| 44 | Ruthenium-105 | D, see $^{94}Ru$ | $5\times10^{3}$ | $2\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | W, see $^{94}Ru$ | - | $1\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| | | Y, see $^{94}Ru$ | - | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 44 | Ruthenium-106 | D, see $^{94}Ru$ | $2\times10^{2}$ | $9\times10^{1}$ | $4\times10^{-8}$ | $1\times10^{-10}$ | $3\times10^{-6}$ | $3\times10^{-5}$ |
| | | W, see $^{94}Ru$ | - | $5\times10^{1}$ | $2\times10^{-8}$ | $7\times10^{-11}$ | - | - |
| | | Y, see $^{94}Ru$ | - | $1\times10^{1}$ | $5\times10^{-9}$ | $2\times10^{-11}$ | - | - |
| 45 | Rhodium-99m | D, all compounds except those given for W and Y | $2\times10^{4}$ | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, halides | - | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| | | Y, oxides and hydroxides | - | $7\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | - | - |
| 45 | Rhodium-99 | D, see $^{99m}Rh$ | $2\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{99m}Rh$ | - | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| | | Y, see $^{99m}Rh$ | - | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| 45 | Rhodium-100 | D, see $^{99m}Rh$ | $2\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{99m}Rh$ | - | $4\times10^{3}$ | $2\times10^{-6}$ | $5\times10^{-9}$ | - | - |
| | | Y, see $^{99m}Rh$ | - | $4\times10^{3}$ | $2\times10^{-6}$ | $5\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 45 | Rhodium-101m | D, see $^{99m}Rh$ | $6\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $8\times10^{-5}$ | $8\times10^{-4}$ |
| | | W, see $^{99m}Rh$ | - | $8\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| | | Y, see $^{99m}Rh$ | - | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| 45 | Rhodium-101 | D, see $^{99m}Rh$ | $2\times10^{3}$ | $5\times10^{2}$ | $2\times10^{-7}$ | $7\times10^{-10}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{99m}Rh$ | - | $8\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| | | Y, see $^{99m}Rh$ | - | $2\times10^{2}$ | $6\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 45 | Rhodium-102m | D, see $^{99m}Rh$ | $1\times10^{3}$ | $5\times10^{2}$ | $2\times10^{-7}$ | $7\times10^{-10}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{99m}Rh$ | - | $4\times10^{2}$ | $2\times10^{-7}$ | $5\times10^{-10}$ | - | - |
| | | Y, see $^{99m}Rh$ | - | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 45 | Rhodium-102 | D, see $^{99m}Rh$ | $6\times10^{2}$ | $9\times10^{1}$ | $4\times10^{-8}$ | $1\times10^{-10}$ | $8\times10^{-6}$ | $8\times10^{-5}$ |
| | | W, see $^{99m}Rh$ | - | $2\times10^{2}$ | $7\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| | | Y, see $^{99m}Rh$ | - | $6\times10^{1}$ | $2\times10^{-8}$ | $8\times10^{-11}$ | - | - |
| 45 | Rhodium-103m[2] | D, see $^{99m}Rh$ | $4\times10^{5}$ | $1\times10^{6}$ | $5\times10^{-4}$ | $2\times10^{-6}$ | $6\times10^{-3}$ | $6\times10^{-2}$ |
| | | W, see $^{99m}Rh$ | - | $1\times10^{6}$ | $5\times10^{-4}$ | $2\times10^{-6}$ | - | - |
| | | Y, see $^{99m}Rh$ | - | $1\times10^{6}$ | $5\times10^{-4}$ | $2\times10^{-6}$ | - | - |
| 45 | Rhodium-105 | D, see $^{99m}Rh$ | $4\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| | | W, see $^{99m}Rh$ | - | $6\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | - | - |
| | | Y, see $^{99m}Rh$ | - | $6\times10^{3}$ | $2\times10^{-6}$ | $8\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 45 | Rhodium-106m | D, see $^{99m}Rh$ | $8\times10^{3}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{99m}Rh$ | - | $4\times10^{4}$ | $2\times10^{-5}$ | $5\times10^{-8}$ | - | - |
| | | Y, see $^{99m}Rh$ | - | $4\times10^{4}$ | $1\times10^{-5}$ | $5\times10^{-8}$ | - | - |
| 45 | Rhodium-107[2] | D, see $^{99m}Rh$ | $7\times10^{4}$ | $2\times10^{5}$ | $1\times10^{-4}$ | $3\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, see $^{99m}Rh$ | - | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | - | - |
| | | Y, see $^{99m}Rh$ | - | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | - | - |
| 46 | Palladium-100 | D, all compounds except those given for W and Y | $1\times10^{3}$ | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, nitrates | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| | | Y, oxides and hydroxides | - | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 46 | Palladium-101 | D, see $^{100}Pd$ | $1\times10^{4}$* | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{100}Pd$ | - | $3\times10^{4}$ | $1\times10^{-5}$ | $5\times10^{-8}$ | - | - |
| | | Y, see $^{100}Pd$ | - | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | - | - |
| 46 | Palladium-103 | D, see $^{100}Pd$ | $6\times10^{3}$ | $6\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | - | - |
| | | | ($8\times10^{3}$) LLI wall | - | - | - | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{100}Pd$ | - | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | - | - |
| | | Y, see $^{100}Pd$ | - | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 46 | Palladium-107 | D, see $^{100}Pd$ | $3\times10^{4}$ | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, see $^{100}Pd$ | - | $7\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| | | Y, see $^{100}Pd$ | - | $4\times10^{2}$ | $2\times10^{-7}$ | $5\times10^{-10}$ | - | - |
| 46 | Palladium-109 | D, see $^{100}Pd$ | $2\times10^{3}$ | $6\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{100}Pd$ | - | $5\times10^{3}$ | $2\times10^{-6}$ | $8\times10^{-9}$ | - | - |
| | | Y, see $^{100}Pd$ | - | $5\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | - | - |
| 47 | Silver-102[2] | D, all compounds except those given for W and Y | $5\times10^{4}$* | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | $6\times10^{-4}$ | $6\times10^{-3}$ |
| | | W, nitrates and sulfides | - | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| | | Y, oxides and hydroxides | - | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | - | |
| 47 | Silver-103[2] | D, see $^{102}Ag$ | $4\times10^{4}$ | $1\times10^{5}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $5\times10^{-4}$ | $5\times10^{-3}$ |
| | | W, see $^{102}Ag$ | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | Y, see $^{102}Ag$ | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 47 | Silver-104m[2] | D, see $^{102}Ag$ | $3\times10^{4}$ | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, see $^{102}Ag$ | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | Y, see $^{102}Ag$ | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 47 | Silver-104[2] | D, see $^{102}Ag$ | $2\times10^{4}$ | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, see $^{102}Ag$ | - | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | Y, see $^{102}Ag$ | - | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 47 | Silver-105 | D, see $^{102}Ag$ | $3\times10^{3}$ | $1\times10^{3}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{102}Ag$ | - | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| | | Y, see $^{102}Ag$ | - | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 47 | Silver-106m | D, see $^{102}Ag$ | $8\times10^{2}$ | $7\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{102}Ag$ | - | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| | | Y, see $^{102}Ag$ | - | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 47 | Silver-106[2] | D, see $^{102}Ag$ | $6\times10^{4}$ | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | $8\times10^{-4}$ | $8\times10^{-3}$ |
| | | W, see $^{102}Ag$ | - | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| | | Y, see $^{102}Ag$ | - | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| 47 | Silver-108m | D, see $^{102}Ag$ | $6\times10^{2}$ | $2\times10^{2}$ | $8\times10^{-8}$ | $3\times10^{-10}$ | $9\times10^{-6}$ | $9\times10^{-5}$ |
| | | W, see $^{102}Ag$ | - | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | - | - |
| | | Y, see $^{102}Ag$ | - | $2\times10^{1}$ | $1\times10^{-8}$ | $3\times10^{-11}$ | - | - |
| 47 | Silver-110m | D, see $^{102}Ag$ | $5\times10^{2}$ | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | $6\times10^{-6}$ | $6\times10^{-5}$ |
| | | W, see $^{102}Ag$ | - | $2\times10^{2}$ | $8\times10^{-8}$ | $3\times10^{-10}$ | - | - |
| | | Y, see $^{102}Ag$ | - | $9\times10^{1}$ | $4\times10^{-8}$ | $1\times10^{-10}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 47 | Silver-111 | D, see $^{102}Ag$ | $9\times10^{2}$ | $2\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| | | | ($1\times10^{3}$) LLI wall | - | - | - | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{102}Ag$ | - | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| | | Y, see $^{102}Ag$ | - | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 47 | Silver-112 | D, see $^{102}Ag$ | $3\times10^{3}$ | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{102}Ag$ | - | $1\times10^{4}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| | | Y, see $^{102}Ag$ | - | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| 47 | Silver-115[2] | D, see $^{102}Ag$ | $3\times10^{4}$ | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, see $^{102}Ag$ | - | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| | | Y, see $^{102}Ag$ | - | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 48 | Cadmium-104[2] | D, all compounds except those given for W and Y | $2\times10^{4}$ | $7\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, sulfides, halides, and nitrates | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | Y, oxides and hydroxides | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 48 | Cadmium-107 | D, see $^{104}Cd$ | $2\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, see $^{104}Cd$ | - | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | - | - |
| | | Y, see $^{104}Cd$ | - | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 48 | Cadmium-109 | D, see $^{104}$Cd | $3\times10^{2}$ | $4\times10^{1}$ | $1\times10^{-8}$ | $5\times10^{-11}$ | $4\times10^{-6}$ | $4\times10^{-5}$ |
| | | W, see $^{104}$Cd | - | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| | | Y, see $^{104}$Cd | - | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 48 | Cadmium-113m | D, see $^{104}$Cd | $2\times10^{1}$ | $2\times10^{0}$ | $1\times10^{-9}$ | $3\times10^{-12}$ | $3\times10^{-7}$ | $3\times10^{-6}$ |
| | | W, see $^{104}$Cd | - | $8\times10^{0}$ | $4\times10^{-9}$ | $1\times10^{-11}$ | - | - |
| | | Y, see $^{104}$Cd | - | $1\times10^{1}$ | $5\times10^{-9}$ | $2\times10^{-11}$ | - | - |
| 48 | Cadmium-113 | D, see $^{104}$Cd | $2\times10^{1}$ | $2\times10^{0}$ | $9\times10^{-10}$ | $4\times10^{-12}$ | $3\times10^{-7}$ | $3\times10^{-6}$ |
| | | W, see $^{104}$Cd | - | $8\times10^{0}$ | $3\times10^{-9}$ | $1\times10^{-11}$ | - | - |
| | | Y, see $^{104}$Cd | - | $1\times10^{1}$ | $6\times10^{-9}$ | $2\times10^{-11}$ | - | - |
| 48 | Cadmium-115m | D, see $^{104}$Cd | $3\times10^{2}$ | $5\times10^{1}$ | $2\times10^{-8}$ | $8\times10^{-11}$ | $4\times10^{-6}$ | $4\times10^{-5}$ |
| | | W, see $^{104}$Cd | - | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| | | Y, see $^{104}$Cd | - | $1\times10^{2}$ | $6\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 48 | Cadmium-115 | D, see $^{104}$Cd | $9\times10^{2}$ | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{104}$Cd | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| | | Y, see $^{104}$Cd | - | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 48 | Cadmium-117m | D, see $^{104}$Cd | $5\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | W, see $^{104}$Cd | - | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| | | Y, see $^{104}$Cd | - | $1\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | - | - |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 48 | Cadmium-117 | D, see $^{104}$Cd | $5\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | W, see $^{104}$Cd | - | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| | | Y, see $^{104}$Cd | - | $1\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 49 | Indium-109 | D, all compounds except those given for W | $2\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, oxides, hydroxides, halides and nitrates | - | $6\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | - | - |
| 49 | Indium-110[2] (69.1 min) | D, see $^{109}$In | $2\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{109}$In | - | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | - | - |
| 49 | Indium-110 (4.9 h) | D, see $^{109}$In | $5\times10^{3}$ | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | W, see $^{109}$In | - | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | - | - |
| 49 | Indium-111 | D, see $^{109}$In | $4\times10^{3}$ | $6\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | W, see $^{109}$In | - | $6\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | - | - |
| 49 | Indium-112[2] | D, see $^{109}$In | $2\times10^{5}$ | $6\times10^{5}$ | $3\times10^{-4}$ | $9\times10^{-7}$ | $2\times10^{-3}$ | $2\times10^{-2}$ |
| | | W, see $^{109}$In | - | $7\times10^{5}$ | $3\times10^{-4}$ | $1\times10^{-6}$ | - | - |
| 49 | Indium-113m[2] | D, see $^{109}$In | $5\times10^{4}$ | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $7\times10^{-4}$ | $7\times10^{-3}$ |
| | | W, see $^{109}$In | - | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| 49 | Indium-114m | D, see $^{109}$In | $3\times10^{2}$ | $6\times10^{1}$ | $3\times10^{-8}$ | $9\times10^{-11}$ | $4\times10^{-6}$ | $4\times10^{-5}$ |
| | | W, see $^{109}$In | - | $1\times10^{2}$ | $4\times10^{-8}$ | $1\times10^{-10}$ | - | - |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 49 | Indium-115m | D, see $^{109}$In | $1\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{109}$In | - | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | - | - |
| 49 | Indium-115 | D, see $^{109}$In | $4\times10^{1}$ | $1\times10^{0}$ | $6\times10^{-10}$ | $2\times10^{-12}$ | $5\times10^{-7}$ | $5\times10^{-6}$ |
| | | W, see $^{109}$In | - | $5\times10^{0}$ | $2\times10^{-9}$ | $7\times10^{-12}$ | - | - |
| 49 | Indium-116m[2] | D, see $^{109}$In | $2\times10^{4}$ | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, see $^{109}$In | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 49 | Indium-117m[2] | D, see $^{109}$In | $1\times10^{4}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $5\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{109}$In | - | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | - | - |
| 49 | Indium-117[2] | D, see $^{109}$In | $6\times10^{4}$ | $2\times10^{5}$ | $7\times10^{-5}$ | $2\times10^{-7}$ | $8\times10^{-4}$ | $8\times10^{-3}$ |
| | | W, see $^{109}$In | - | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| 49 | Indium-119m[2] | D, see $^{109}$In | $4\times10^{4}$ | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | | ($5\times10^{4}$) St. wall | - | - | - | $7\times10^{-4}$ | $7\times10^{-3}$ |
| | | W, see $^{109}$In | - | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 50 | Tin-110 | D, all compounds except those given for W | $4\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| | | W, sulfides, oxides, hydroxides, halides, nitrates, and stannic phosphate | - | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 50 | Tin-111[2] | D, see $^{110}$Sn | $7\times10^{4}$ | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, see $^{110}$Sn | - | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | - | - |
| 50 | Tin-113 | D, see $^{110}$Sn | $2\times10^{3}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{110}$Sn | - | $5\times10^{2}$ | $2\times10^{-7}$ | $8\times10^{-10}$ | - | - |
| 50 | Tin-117m | D, see $^{110}$Sn | $2\times10^{3}$ | $1\times10^{3}$ | $5\times10^{-7}$ | - | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | | - | ($2\times10^{3}$) Bone surf. | - | $3\times10^{-9}$ | - | - |
| | | W, see $^{110}$Sn | - | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 50 | Tin-119m | D, see $^{110}$Sn | $3\times10^{3}$ | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | - | - |
| | | | ($5\times10^{3}$) LLI wall | - | - | - | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | W, see $^{110}$Sn | - | $1\times10^{3}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 50 | Tin-121m[2] | D, see $^{110}$Sn | $3\times10^{3}$ | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{110}$Sn | - | $5\times10^{2}$ | $2\times10^{-7}$ | $8\times10^{-10}$ | - | - |
| 50 | Tin-121 | D, see $^{110}$Sn | $6\times10^{3}$ | $2\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | $8\times10^{-5}$ | $8\times10^{-4}$ |
| | | W, see $^{110}$Sn | - | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 50 | Tin-123m | D, see $^{110}$Sn | $5\times10^{4}$ | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | $7\times10^{-4}$ | $7\times10^{-3}$ |
| | | W, see $^{110}$Sn | - | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 50 | Tin-123 | D, see $^{110}Sn$ | $5\times10^{2}$ | $6\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-10}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |
| | | W, see $^{110}Sn$ | - | $2\times10^{2}$ | $7\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 50 | Tin-125 | D, see $^{110}Sn$ | $4\times10^{2}$ | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| | | | ($5\times10^{2}$)* LLI wall | - | - | - | $7\times10^{-6}$ | $7\times10^{-5}$ |
| | | W, see $^{110}Sn$ | - | $4\times10^{2}$ | $1\times10^{-7}$ | $5\times10^{-10}$ | - | - |
| 50 | Tin-126 | D, see $^{110}Sn$ | $3\times10^{2}$ | $6\times10^{1}$ | $2\times10^{-8}$ | $8\times10^{-11}$ | $4\times10^{-6}$ | $4\times10^{-5}$ |
| | | W, see $^{110}Sn$ | - | $7\times10^{1}$ | $3\times10^{-8}$ | $9\times10^{-11}$ | - | - |
| 50 | Tin-127 | D, see $^{110}Sn$ | $7\times10^{3}$ | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | $9\times10^{-5}$ | $9\times10^{-4}$ |
| | | W, see $^{110}Sn$ | - | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | - | - |
| 50 | Tin-128[2] | D, see $^{110}Sn$ | $9\times10^{3}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{110}Sn$ | - | $4\times10^{4}$ | $1\times10^{-5}$ | $5\times10^{-8}$ | - | - |
| 51 | Antimony-115[2] | D, all compounds except those given for W | $8\times10^{4}$ | $2\times10^{5}$ | $1\times10^{-4}$ | $3\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, oxides, hydroxides, halides, sulfides, sulfates, and nitrates | - | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | - | - |
| 51 | Antimony-116m[2] | D, see $^{115}Sb$ | $2\times10^{4}$ | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, see $^{115}Sb$ | - | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 51 | Antimony-116 | D, see $^{115}Sb$ | $8\times10^{4}$ | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, see $^{115}Sb$ | - | $3\times10^{5}$ | $1\times10^{-4}$ | $5\times10^{-7}$ | - | - |
| 51 | Antimony-117 | D, see $^{115}Sb$ | $7\times10^{4}$ | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | $9\times10^{-4}$ | $9\times10^{-3}$ |
| | | W, see $^{115}Sb$ | - | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | - | - |
| 51 | Antimony-118m | D, see $^{115}Sb$ | $5\times10^{3}$ | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | W, see $^{115}Sb$ | - | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | - | - |
| 51 | Antimony-119 | D, see $^{115}Sb$ | $1\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{115}Sb$ | - | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | - | - |
| 51 | Antimony-120[2] (16 min) | D, see $^{115}Sb$ | $1\times10^{5}$ | $4\times10^{5}$ | $2\times10^{-4}$ | $6\times10^{-7}$ | - | - |
| | | | ($2\times10^{5}$) St. wall | - | - | - | $2\times10^{-3}$ | $2\times10^{-2}$ |
| | | W, see $^{115}Sb$ | - | $5\times10^{5}$ | $2\times10^{-4}$ | $7\times10^{-7}$ | - | - |
| 51 | Antimony-120 (5.76 d) | D, see $^{115}Sb$ | $9\times10^{2}$ | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{115}Sb$ | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 51 | Antimony-122 | D, see $^{115}Sb$ | $7\times10^{2}$ | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | $9\times10^{-6}$ | $9\times10^{-5}$ |
| | | W, see $^{115}Sb$ | - | $1\times10^{3}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 51 | Antimony-124m[2] | D, see $^{115}$Sb | $2\times10^{5}$ | $8\times10^{5}$ | $4\times10^{-4}$ | $1\times10^{-6}$ | - | - |
| | | | ($3\times10^{5}$) St. wall | - | - | - | $4\times10^{-3}$ | $4\times10^{-2}$ |
| | | W, see $^{115}$Sb | - | $6\times10^{5}$ | $2\times10^{-4}$ | $8\times10^{-7}$ | - | - |
| 51 | Antimony-124 | D, see $^{115}$Sb | $5\times10^{2}$ | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |
| | | W, see $^{115}$Sb | - | $2\times10^{2}$ | $1\times10^{-7}$ | $3\times10^{-10}$ | - | - |
| 51 | Antimony-125 | D, see $^{115}$Sb | $2\times10^{3}$ | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{115}$Sb | - | $5\times10^{2}$ | $2\times10^{-7}$ | $7\times10^{-10}$ | - | - |
| 51 | Antimony-126m[2] | D, see $^{115}$Sb | $5\times10^{4}$ | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | $7\times10^{-4}$ | $7\times10^{-3}$ |
| | | W, see $^{115}$Sb | - | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| 51 | Antimony-126 | D, see $^{115}$Sb | $5\times10^{2}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |
| | | W, see $^{115}$Sb | - | $5\times10^{2}$ | $2\times10^{-7}$ | $7\times10^{-10}$ | - | - |
| 51 | Antimony-127 | D, see $^{115}$Sb | $7\times10^{2}$ | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{115}$Sb | - | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 51 | Antimony-128[2] (10.4 min) | D, see $^{115}$Sb | $8\times10^{4}$ | $4\times10^{5}$ | $2\times10^{-4}$ | $5\times10^{-7}$ | - | - |
| | | | ($1\times10^{5}$) St. wall | - | - | - | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, see $^{115}$Sb | - | $4\times10^{5}$ | $2\times10^{-4}$ | $6\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 51 | Antimony-128 (9.01 h) | D, see $^{115}$Sb | $1\times10^{3}$ | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{115}$Sb | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| 51 | Antimony-129 | D, see $^{115}$Sb | $3\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-3}$ |
| | | W, see $^{115}$Sb | - | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| 51 | Antimony-130[2] | D, see $^{115}$Sb | $2\times10^{4}$ | $6\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, see $^{115}$Sb | - | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 51 | Antimony-131[2] | D, see $^{115}$Sb | $1\times10^{4}$ | $2\times10^{4}$ | $1\times10^{-5}$ | - | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | | - | ($3\times10^{4}$) Thyroid | - | $4\times10^{-8}$ | - | - |
| | | W, see $^{115}$Sb | - | $2\times10^{4}$ | $1\times10^{-5}$ | - | - | - |
| | | | - | ($5\times10^{4}$) Thyroid | - | $8\times10^{-8}$ | - | - |
| 52 | Tellurium-116 | D, all compounds except those given for W | $8\times10^{3}$ | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, oxides, hydroxides, and nitrates | - | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | - | - |
| 52 | Tellurium-121m | D, see $^{116}$Te | $5\times10^{2}$ | $2\times10^{2}$ | $8\times10^{-8}$ | - | - | - |
| | | | ($8\times10^{2}$) Bone surf. | ($3\times10^{2}$) Bone surf. | - | $4\times10^{-10}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{116}$Te | - | $4\times10^{2}$ | $2\times10^{-7}$ | $6\times10^{-10}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 52 | Tellurium-121 | D, see $^{116}$Te | $3\times10^{3}$ | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{116}$Te | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| 52 | Tellurium-123m | D, see $^{116}$Te | $6\times10^{2}$ | $2\times10^{2}$ | $9\times10^{-8}$ | - | - | - |
| | | | ($1\times10^{3}$) Bone surf. | ($5\times10^{2}$) Bone surf. | - | $8\times10^{-10}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{116}$Te | - | $5\times10^{2}$ | $2\times10^{-7}$ | $7\times10^{-10}$ | - | - |
| 52 | Tellurium-123 | D, see $^{116}$Te | $5\times10^{2}$ | $2\times10^{2}$ | $8\times10^{-8}$ | - | - | - |
| | | | ($1\times10^{3}$) Bone surf. | ($5\times10^{2}$) Bone surf. | - | $8\times10^{-10}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{116}$Te | - | $4\times10^{2}$ | $2\times10^{-7}$ | - | - | - |
| | | | - | ($1\times10^{3}$) Bone surf. | - | $2\times10^{-9}$ | - | - |
| 52 | Tellurium-125m | D, see $^{116}$Te | $1\times10^{3}$ | $4\times10^{2}$ | $2\times10^{-7}$ | - | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | | - | ($1\times10^{3}$) Bone surf. | - | $2\times10^{-9}$ | - | - |
| | | W, see $^{116}$Te | - | $7\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 52 | Tellurium-127m | D, see $^{116}$Te | $6\times10^{2}$ | $3\times10^{2}$ | $1\times10^{-7}$ | - | $9\times10^{-6}$ | $9\times10^{-5}$ |
| | | | - | ($5\times10^{2}$) Bone surf. | - | $8\times10^{-10}$ | - | - |
| | | W, see $^{116}$Te | - | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 52 | Tellurium-127 | D, see $^{116}$Te | $7\times10^{3}$ | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{116}$Te | - | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 52 | Tellurium-129m | D, see $^{116}$Te | $5\times10^{2}$ | $6\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-10}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |
| | | W, see $^{116}$Te | - | $2\times10^{2}$ | $1\times10^{-7}$ | $3\times10^{-10}$ | - | - |
| 52 | Tellurium-129[2] | D, see $^{116}$Te | $3\times10^{4}$ | $6\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, see $^{116}$Te | - | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 52 | Tellurium-131m | D, see $^{116}$Te | $3\times10^{2}$ | $4\times10^{2}$ | $2\times10^{-7}$ | - | - | - |
| | | | ($5\times10^{2}$) Thyroid | ($1\times10^{3}$) Thyroid | - | $2\times10^{-9}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |
| | | W, see $^{116}$Te | - | $4\times10^{2}$ | $2\times10^{-7}$ | - | - | - |
| | | | - | ($8\times10^{2}$) Thyroid | - | $1\times10^{-9}$ | - | - |
| 52 | Tellurium-131[2] | D, see $^{116}$Te | $3\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | - | - | - |
| | | | ($5\times10^{3}$) Thyroid | ($1\times10^{4}$) Thyroid | - | $2\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | W, see $^{116}$Te | - | $5\times10^{3}$ | $2\times10^{-6}$ | - | - | - |
| | | | - | ($1\times10^{4}$) Thyroid | - | $2\times10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 52 | Tellurium-132 | D, see $^{116}$Te | $2\times10^{2}$ | $2\times10^{2}$ | $9\times10^{-8}$ | - | - | - |
| | | | ($5\times10^{2}$) Thyroid | ($8\times10^{2}$) Thyroid | - | $1\times10^{-9}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |
| | | W, see $^{116}$Te | - | $2\times10^{2}$ | $9\times10^{-8}$ | - | - | - |
| | | | - | ($5\times10^{2}$) Thyroid | - | $8\times10^{-10}$ | - | - |
| 52 | Tellurium-133m[2] | D, see $^{116}$Te | $3\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | - | - | - |
| | | | ($5\times10^{3}$) Thyroid | ($1\times10^{4}$) Thyroid | - | $2\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | W, see $^{116}$Te | - | $5\times10^{3}$ | $2\times10^{-6}$ | - | - | - |
| | | | - | ($1\times10^{4}$) Thyroid | - | $2\times10^{-8}$ | - | - |
| 52 | Tellurium-133[2] | D, see $^{116}$Te | $1\times10^{4}$ | $2\times10^{4}$ | $9\times10^{-6}$ | - | - | - |
| | | | ($3\times10^{4}$) Thyroid | ($5\times10^{4}$) Thyroid | - | $8\times10^{-8}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, see $^{116}$Te | - | $2\times10^{4}$ | $9\times10^{-6}$ | - | - | - |
| | | | - | ($5\times10^{4}$) Thyroid | - | $8\times10^{-8}$ | - | - |
| 52 | Tellurium-134[2] | D, see $^{116}$Te | $2\times10^{4}$ | $2\times10^{4}$ | $1\times10^{-5}$ | - | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | | - | ($5\times10^{4}$) Thyroid | - | $8\times10^{-8}$ | - | - |
| | | W, see $^{116}$Te | - | $2\times10^{4}$ | $1\times10^{-5}$ | - | - | - |
| | | | - | ($5\times10^{4}$) Thyroid | - | $8\times10^{-8}$ | - | - |
| 53 | Iodine-120m[2] | D, all compounds | $1\times10^{4}$ | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 53 | Iodine-120[2] | D, all compounds | $4\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | - | - | - |
| | | | ($8\times10^{3}$) Thyroid | ($1\times10^{4}$) Thyroid | - | $2\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 53 | Iodine-121 | D, all compounds | $1\times10^{4}$ | $2\times10^{4}$ | $8\times10^{-6}$ | - | - | - |
| | | | ($3\times10^{4}$) Thyroid | ($5\times10^{4}$) Thyroid | - | $8\times10^{-8}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| 53 | Iodine-123 | D, all compounds | $3\times10^{3}$ | $6\times10^{3}$ | $3\times10^{-6}$ | - | - | - |
| | | | ($1\times10^{4}$) Thyroid | ($2\times10^{4}$) Thyroid | - | $3\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 53 | Iodine-124 | D, all compounds | $5\times10^{1}$ | $8\times10^{1}$ | $3\times10^{-8}$ | - | - | - |
| | | | ($2\times10^{2}$) Thyroid | ($3\times10^{2}$) Thyroid | - | $4\times10^{-10}$ | $2\times10^{-6}$ | $2\times10^{-5}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 53 | Iodine-125 | D, all compounds | $4\times10^{1}$ ($1\times10^{2}$) Thyroid | $6\times10^{1}$ ($2\times10^{2}$) Thyroid | $3\times10^{-8}$ - | - $3\times10^{-10}$ | - $2\times10^{-6}$ | - $2\times10^{-5}$ |
| 53 | Iodine-126 | D, all compounds | $2\times10^{1}$ ($8\times10^{2}$) Thyroid | $4\times10^{1}$ ($1\times10^{2}$) Thyroid | $1\times10^{-8}$ - | - $2\times10^{-10}$ | - $1\times10^{-6}$ | - $1\times10^{-5}$ |
| 53 | Iodine-128[2] | D, all compounds | $4\times10^{4}$ | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | $6\times10^{-4}$ | $6\times10^{-3}$ |
| 53 | Iodine-129 | D, all compounds | $5\times10^{0}$ ($2\times10^{1}$) Thyroid | $9\times10^{0}$ ($3\times10^{1}$) Thyroid | $4\times10^{-9}$ - | - $4\times10^{-11}$ | - $3\times10^{-7}$ | - $3\times10^{-6}$ |
| 53 | Iodine-130 | D, all compounds | $4\times10^{2}$ ($1\times10^{3}$) Thyroid | $7\times10^{2}$ ($2\times10^{3}$) Thyroid | $3\times10^{-7}$ - | - $3\times10^{-9}$ | - $1\times10^{-5}$ | - $1\times10^{-4}$ |
| 53 | Iodine-131 | D, all compounds | $3\times10^{1}$ ($1\times10^{2}$) Thyroid | $5\times10^{1}$ ($2\times10^{2}$) Thyroid | $2\times10^{-8}$ - | - $2\times10^{-10}$ | - $1\times10^{-6}$ | - $1\times10^{-5}$ |
| 53 | Iodine-132m[2] | D, all compounds | $4\times10^{3}$ ($1\times10^{4}$) Thyroid | $8\times10^{3}$ ($2\times10^{4}$) Thyroid | $4\times10^{-6}$ - | - $3\times10^{-8}$ | - $1\times10^{-4}$ | - $1\times10^{-3}$ |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 53 | Iodine-132 | D, all compounds | $4\times10^{3}$ ($8\times10^{3}$) Thyroid | $8\times10^{3}$ ($2\times10^{4}$) Thyroid | $3\times10^{-6}$ - | - $2\times10^{-8}$ | - $1\times10^{-4}$ | - $1\times10^{-3}$ |
| 53 | Iodine-133 | D, all compounds | $1\times10^{2}$ ($5\times10^{2}$) Thyroid | $3\times10^{2}$ ($8\times10^{2}$) Thyroid | $1\times10^{-7}$ - | - $1\times10^{-9}$ | - $7\times10^{-6}$ | - $7\times10^{-5}$ |
| 53 | Iodine-134[2] | D, all compounds | $2\times10^{4}$ ($3\times10^{4}$) Thyroid | $5\times10^{4}$ - | $2\times10^{-5}$ - | $6\times10^{-8}$ - | - $4\times10^{-4}$ | - $4\times10^{-3}$ |
| 53 | Iodine-135 | D, all compounds | $8\times10^{2}$ ($2\times10^{3}$) Thyroid | $2\times10^{3}$ ($5\times10^{3}$) Thyroid | $7\times10^{-7}$ - | - $8\times10^{-9}$ | - $3\times10^{-5}$ | - $3\times10^{-4}$ |
| 54 | Xenon-120 | Submersion[1] | - | - | $1\times10^{-5}$ | $4\times10^{-8}$ | - | - |
| 54 | Xenon-121 | Submersion[1] | - | - | $2\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| 54 | Xenon-122 | Submersion[1] | - | - | $7\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| 54 | Xenon-123 | Submersion[1] | - | - | $6\times10^{-6}$ | $3\times10^{-8}$ | - | - |
| 54 | Xenon-125 | Submersion[1] | | - | $2\times10^{-5}$ | $7\times10^{-8}$ | - | - |
| 54 | Xenon-127 | Submersion[1] | - | - | $1\times10^{-5}$ | $6\times10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 54 | Xenon-129m | Submersion[1] | - | - | $2\times10^{-4}$ | $9\times10^{-7}$ | - | - |
| 54 | Xenon-131m | Submersion[1] | - | - | $4\times10^{-4}$ | $2\times10^{-6}$ | - | - |
| 54 | Xenon-133m | Submersion[1] | - | - | $1\times10^{-4}$ | $6\times10^{-7}$ | - | - |
| 54 | Xenon-133 | Submersion[1] | - | - | $1\times10^{-4}$ | $5\times10^{-7}$ | - | - |
| 54 | Xenon-135m | Submersion[1] | - | - | $9\times10^{-6}$ | $4\times10^{-8}$ | - | - |
| 54 | Xenon-135 | Submersion[1] | - | - | $1\times10^{-5}$ | $7\times10^{-8}$ | - | - |
| 54 | Xenon-138 | Submersion[1] | - | - | $4\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 55 | Cesium-125[2] | D, all compounds | $5\times10^{4}$ ($8\times10^{4}$) St. wall | $1\times10^{5}$ - | $6\times10^{-5}$ - | $2\times10^{-7}$ - | - $1\times10^{-3}$ | - $1\times10^{-2}$ |
| 55 | Cesium-127 | D, all compounds | $6\times10^{4}$ | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $9\times10^{-4}$ | $9\times10^{-3}$ |
| 55 | Cesium-129 | D, all compounds | $2\times10^{4}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $5\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| 55 | Cesium-130[2] | D, all compounds | $6\times10^{4}$ ($1\times10^{5}$) St. wall | $2\times10^{5}$ - | $8\times10^{-5}$ - | $3\times10^{-7}$ - | - $1\times10^{-3}$ | - $1\times10^{-2}$ |
| 55 | Cesium-131 | D, all compounds | $2\times10^{4}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| 55 | Cesium-132 | D, all compounds | $3\times10^{3}$ | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 55 | Cesium-134m | D, all compounds | $1\times10^{5}$ | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $2\times10^{-3}$ | $2\times10^{-2}$ |
| 55 | Cesium-134 | D, all compounds | $7\times10^{1}$ | $1\times10^{2}$ | $4\times10^{-8}$ | $1\times10^{-10}$ | $9\times10^{-7}$ | $9\times10^{-6}$ |
| 55 | Cesium-135m[2] | D, all compounds | $1\times10^{5}$ | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| 55 | Cesium-135 | D, all compounds | $7\times10^{2}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 55 | Cesium-136 | D, all compounds | $4\times10^{2}$ | $7\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-10}$ | $6\times10^{-6}$ | $6\times10^{-5}$ |
| 55 | Cesium-137 | D, all compounds | $1\times10^{2}$ | $2\times10^{2}$ | $6\times10^{-8}$ | $2\times10^{-10}$ | $1\times10^{-6}$ | $1\times10^{-5}$ |
| 55 | Cesium-138[2] | D, all compounds | $2\times10^{4}$ ($3\times10^{4}$) St. wall | $6\times10^{4}$ - | $2\times10^{-5}$ - | $8\times10^{-8}$ - | - $4\times10^{-4}$ | - $4\times10^{-3}$ |
| 56 | Barium-126[2] | D, all compounds | $6\times10^{3}$ | $2\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | $8\times10^{-5}$ | $8\times10^{-4}$ |
| 56 | Barium-128 | D, all compounds | $5\times10^{2}$ | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |
| 56 | Barium-131m[2] | D, all compounds | $4\times10^{5}$ ($5\times10^{5}$) St. wall | $1\times10^{6}$ - | $6\times10^{-4}$ - | $2\times10^{-6}$ - | - $7\times10^{-3}$ | - $7\times10^{-2}$ |
| 56 | Barium-131 | D, all compounds | $3\times10^{3}$ | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| 56 | Barium-133m | D, all compounds | $2\times10^{3}$ ($3\times10^{3}$) LLI wall | $9\times10^{3}$ - | $4\times10^{-6}$ - | $1\times10^{-8}$ - | - $4\times10^{-5}$ | - $4\times10^{-4}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 56 | Barium-133 | D, all compounds | $2x10^{3}$ | $7x10^{2}$ | $3x10^{-7}$ | $1x10^{-9}$ | $2x10^{-5}$ | $2x10^{-4}$ |
| 56 | Barium-135m | D, all compounds | $3x10^{3}$ | $1x10^{4}$ | $5x10^{-6}$ | $2x10^{-8}$ | $4x10^{-5}$ | $4x10^{-4}$ |
| 56 | Barium-139[2] | D, all compounds | $1x10^{4}$ | $3x10^{4}$ | $1x10^{-5}$ | $4x10^{-8}$ | $2x10^{-4}$ | $2x10^{-3}$ |
| 56 | Barium-140 | D, all compounds | $5x10^{2}$ | $1x10^{3}$ | $6x10^{-7}$ | $2x10^{-9}$ | $7x10^{-6}$ | $7x10^{-5}$ |
| 56 | Barium-141[2] | D, all compounds | $2x10^{4}$ | $7x10^{4}$ | $3x10^{-5}$ | $1x10^{-7}$ | $3x10^{-4}$ | $3x10^{-3}$ |
| 56 | Barium-142[2] | D, all compounds | $5x10^{4}$ | $1x10^{5}$ | $6x10^{-5}$ | $2x10^{-7}$ | $7x10^{-4}$ | $7x10^{-3}$ |
| 57 | Lanthanum-131[2] | D, all compounds except those given for W | $5x10^{4}$ | $1x10^{5}$ | $5x10^{-5}$ | $2x10^{-7}$ | $6x10^{-4}$ | $6x10^{-3}$ |
| | | W, oxides and hydroxides | - | $2x10^{5}$ | $7x10^{-5}$ | $2x10^{-7}$ | - | - |
| 57 | Lanthanum-132 | D, see $^{131}La$ | $3x10^{3}$ | $1x10^{4}$ | $4x10^{-6}$ | $1x10^{-8}$ | $4x10^{-5}$ | $4x10^{-4}$ |
| | | W, see $^{131}La$ | - | $1x10^{4}$ | $5x10^{-6}$ | $2x10^{-8}$ | - | - |
| 57 | Lanthanum-135 | D, see $^{131}La$ | $4x10^{4}$ | $1x10^{5}$ | $4x10^{-5}$ | $1x10^{-7}$ | $5x10^{-4}$ | $5x10^{-3}$ |
| | | W, see $^{131}La$ | - | $9x10^{4}$ | $4x10^{-5}$ | $1x10^{-7}$ | - | - |
| 57 | Lanthanum-137 | D, see $^{131}La$ | $1x10^{4}$ | $6x10^{1}$ | $3x10^{-8}$ | - | $2x10^{-4}$ | $2x10^{-3}$ |
| | | | - | $(8x10^{1})$ Liver | - | $1x10^{-10}$ | - | - |
| | | W, see $^{131}La$ | - | $3x10^{2}$ | $1x10^{-7}$ | $4x10^{-10}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 57 | Lanthanum-138 | D, see $^{131}La$ | $9x10^{2}$ | $4x10^{0}$ | $1x10^{-9}$ | $5x10^{-12}$ | $1x10^{-5}$ | $1x10^{-4}$ |
| | | W, see $^{131}La$ | - | $1x10^{1}$ | $6x10^{-9}$ | $2x10^{-11}$ | - | - |
| 57 | Lanthanum-140 | D, see $^{131}La$ | $6x10^{2}$ | $1x10^{3}$ | $6x10^{-7}$ | $2x10^{-9}$ | $9x10^{-6}$ | $9x10^{-5}$ |
| | | W, see $^{131}La$ | - | $1x10^{3}$ | $5x10^{-7}$ | $2x10^{-9}$ | - | - |
| 57 | Lanthanum-141 | D, see $^{131}La$ | $4x10^{3}$ | $9x10^{3}$ | $4x10^{-6}$ | $1x10^{-8}$ | $5x10^{-5}$ | $5x10^{-4}$ |
| | | W, see $^{131}La$ | - | $1x10^{4}$ | $5x10^{-6}$ | $2x10^{-8}$ | - | - |
| 57 | Lanthanum-142[2] | D, see $^{131}La$ | $8x10^{3}$ | $2x10^{4}$ | $9x10^{-6}$ | $3x10^{-8}$ | $1x10^{-4}$ | $1x10^{-3}$ |
| | | W, see $^{131}La$ | - | $3x10^{4}$ | $1x10^{-5}$ | $5x10^{-8}$ | - | - |
| 57 | Lanthanum-143[2] | D, see $^{131}La$ | $4x10^{4}$ | $1x10^{5}$ | $4x10^{-5}$ | $1x10^{-7}$ | $5x10^{-4}$ | $5x10^{-3}$ |
| | | W, see $^{131}La$ | - | $9x10^{4}$ | $4x10^{-5}$ | $1x10^{-7}$ | - | - |
| 58 | Cerium-134 | W, all compounds except those given for Y | $5x10^{2}$ | $7x10^{2}$ | $3x10^{-7}$ | $1x10^{-9}$ | $7x10^{-6}$ | $7x10^{-5}$ |
| | | Y, oxides, hydroxides and fluorides | - | $7x10^{2}$ | $3x10^{-7}$ | $9x10^{-10}$ | - | - |
| 58 | Cerium-135 | W, see $^{134}Ce$ | $2x10^{3}$ | $4x10^{3}$ | $2x10^{-6}$ | $5x10^{-9}$ | $2x10^{-5}$ | $2x10^{-4}$ |
| | | Y, see $^{134}Ce$ | - | $4x10^{3}$ | $1x10^{-6}$ | $5x10^{-9}$ | - | - |
| 58 | Cerium-137m | W, see $^{134}Ce$ | $2x10^{3}$ | $4x10^{3}$ | $2x10^{-6}$ | $6x10^{-9}$ | $3x10^{-5}$ | $3x10^{-4}$ |
| | | Y, see $^{134}Ce$ | - | $4x10^{3}$ | $2x10^{-6}$ | $5x10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 58 | Cerium-137 | W, see $^{134}Ce$ | $5\times10^{4}$ | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $7\times10^{-4}$ | $7\times10^{-3}$ |
| | | Y, see $^{134}Ce$ | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 58 | Cerium-139 | W, see $^{134}Ce$ | $5\times10^{3}$ | $8\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | Y, see $^{134}Ce$ | - | $7\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-9}$ | - | - |
| 58 | Cerium-141 | W, see $^{134}Ce$ | $2\times10^{3}$ | $7\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{134}Ce$ | - | $6\times10^{2}$ | $2\times10^{-7}$ | $8\times10^{-10}$ | - | - |
| 58 | Cerium-143 | W, see $^{134}Ce$ | $1\times10^{3}$ | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{134}Ce$ | - | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 58 | Cerium-144 | W, see $^{134}Ce$ | $2\times10^{2}$ | $3\times10^{1}$ | $1\times10^{-8}$ | $4\times10^{-11}$ | $3\times10^{-6}$ | $3\times10^{-5}$ |
| | | Y, see $^{134}Ce$ | - | $1\times10^{1}$ | $6\times10^{-9}$ | $2\times10^{-11}$ | - | - |
| 59 | Praseodymium-136[2] | W, all compounds except those given for Y | $5\times10^{4}$ | $2\times10^{5}$ | $1\times10^{-4}$ | $3\times10^{-7}$ | - | - |
| | | | ($8\times10^{4}$) St. wall | - | - | - | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | Y, oxides, hydroxides, carbides and fluorides | - | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| 59 | Praseodymium-137[2] | W, see $^{136}Pr$ | $4\times10^{4}$ | $2\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $5\times10^{-4}$ | $5\times10^{-3}$ |
| | | Y, see $^{136}Pr$ | - | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 59 | Praseodymium-138m | W, see $^{136}Pr$ | $1\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | Y, see $^{136}Pr$ | - | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | - | - |
| 59 | Praseodymium-139 | W, see $^{136}Pr$ | $4\times10^{4}$ | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | $6\times10^{-4}$ | $6\times10^{-3}$ |
| | | Y, see $^{136}Pr$ | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 59 | Praseodymium-142m[2] | W, see $^{136}Pr$ | $8\times10^{4}$ | $2\times10^{5}$ | $7\times10^{-5}$ | $2\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | Y, see $^{136}Pr$ | - | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 59 | Praseodymium-142 | W, see $^{136}Pr$ | $1\times10^{3}$ | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{136}Pr$ | - | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| 59 | Praseodymium-143 | W, see $^{136}Pr$ | $9\times10^{2}$ | $8\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| | | | ($1\times10^{3}$) LLI wall | - | - | - | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{136}Pr$ | - | $7\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-10}$ | - | - |
| 59 | Praseodymium-144[2] | W, see $^{136}Pr$ | $3\times10^{4}$ | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | | ($5\times10^{4}$) St. wall | - | - | - | $7\times10^{-4}$ | $7\times10^{-3}$ |
| | | Y, see $^{136}Pr$ | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 59 | Praseodymium-145 | W, see $^{136}Pr$ | $3\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | Y, see $^{136}Pr$ | - | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 59 | Praseodymium-147[2] | W, see $^{136}Pr$ | $5\times10^{4}$ | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| | | | ($8\times10^{4}$) St. wall | - | - | - | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | Y, see $^{136}Pr$ | - | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| 60 | Neodymium-136[2] | W, all compounds except those given for Y | $1\times10^{4}$ | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | Y, oxides, hydroxides, carbides and fluorides | - | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | - | - |
| 60 | Neodymium-138 | W, see $^{136}Nd$ | $2\times10^{3}$ | $6\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | Y, see $^{136}Nd$ | - | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | - | - |
| 60 | Neodymium-139m | W, see $^{136}Nd$ | $5\times10^{3}$ | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | Y, see $^{136}Nd$ | - | $1\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 60 | Neodymium-139[2] | W, see $^{136}Nd$ | $9\times10^{4}$ | $3\times10^{5}$ | $1\times10^{-4}$ | $5\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | Y, see $^{136}Nd$ | - | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | - | - |
| 60 | Neodymium-141 | W, see $^{136}Nd$ | $2\times10^{5}$ | $7\times10^{5}$ | $3\times10^{-4}$ | $1\times10^{-6}$ | $2\times10^{-3}$ | $2\times10^{-2}$ |
| | | Y, see $^{136}Nd$ | - | $6\times10^{5}$ | $3\times10^{-4}$ | $8\times10^{-7}$ | - | - |
| 60 | Neodymium-147 | W, see $^{136}Nd$ | $1\times10^{3}$ | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{136}Nd$ | - | $8\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 60 | Neodymium-149[2] | W, see $^{136}Nd$ | $1\times10^{4}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | Y, see $^{136}Nd$ | - | $2\times10^{4}$ | $1\times10^{-5}$ | $3\times10^{-8}$ | - | - |
| 60 | Neodymium-151[2] | W, see $^{136}Nd$ | $7\times10^{4}$ | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | $9\times10^{-4}$ | $9\times10^{-3}$ |
| | | Y, see $^{136}Nd$ | - | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| 61 | Promethium-141[2] | W, all compounds except those given for Y | $5\times10^{4}$ | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | $7\times10^{-4}$ | $7\times10^{-3}$ |
| | | Y, oxides, hydroxides, carbides and fluorides | - | $2\times10^{5}$ | $7\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 61 | Promethium-143 | W, see $^{141}Pm$ | $5\times10^{3}$ | $6\times10^{2}$ | $2\times10^{-7}$ | $8\times10^{-10}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | Y, see $^{141}Pm$ | - | $7\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 61 | Promethium-144 | W, see $^{141}Pm$ | $1\times10^{3}$ | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{141}Pm$ | - | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 61 | Promethium-145 | W, see $^{141}Pm$ | $1\times10^{4}$ | $2\times10^{2}$ | $7\times10^{-8}$ | $2\times10^{-10}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | Y, see $^{141}Pm$ | - | $2\times10^{2}$ | $8\times10^{-8}$ | $3\times10^{-10}$ | - | - |
| 61 | Promethium-146 | W, see $^{141}Pm$ | $2\times10^{3}$ | $5\times10^{1}$ | $2\times10^{-8}$ | $7\times10^{-11}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{141}Pm$ | - | $4\times10^{1}$ | $2\times10^{-8}$ | $6\times10^{-11}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 61 | Promethium-147 | W, see $^{141}Pm$ | $4\times10^{3}$ | $1\times10^{2}$ | $5\times10^{-8}$ | - | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | | - | $(2\times10^{2})$ Bone surf. | - | $3\times10^{-10}$ | - | - |
| | | Y, see $^{141}Pm$ | - | $1\times10^{2}$ | $6\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 61 | Promethium-148m | W, see $^{141}Pm$ | $7\times10^{2}$ | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{141}Pm$ | - | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | - | - |
| 61 | Promethium-148 | W, see $^{141}Pm$ | $4\times10^{2}$ | $5\times10^{2}$ | $2\times10^{-7}$ | $8\times10^{-10}$ | $6\times10^{-6}$ | $6\times10^{-5}$ |
| | | Y, see $^{141}Pm$ | - | $5\times10^{2}$ | $2\times10^{-7}$ | $7\times10^{-10}$ | - | - |
| 61 | Promethium-149 | W, see $^{141}Pm$ | $1\times10^{3}$ | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{141}Pm$ | - | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| 61 | Promethium-150 | W, see $^{141}Pm$ | $5\times10^{3}$ | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | Y, see $^{141}Pm$ | - | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 61 | Promethium-151 | W, see $^{141}Pm$ | $2\times10^{3}$ | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{141}Pm$ | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| 62 | Samarium-141m[2] | W, all compounds | $3\times10^{4}$ | $1\times10^{5}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| 62 | Samarium-141[2] | W, all compounds | $5\times10^{4}$ | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | $6\times10^{-4}$ | $6\times10^{-3}$ |
| 62 | Samarium-142[2] | W, all compounds | $8\times10^{3}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 62 | Samarium-145 | W, all compounds | $6\times10^{3}$ | $5\times10^{2}$ | $2\times10^{-7}$ | $7\times10^{-10}$ | $8\times10^{-5}$ | $8\times10^{-4}$ |
| 62 | Samarium-146 | W, all compounds | $1\times10^{1}$ | $4\times10^{-2}$ | $1\times10^{-11}$ | - | - | - |
| | | | $(2\times10^{1})$ Bone surf. | $(5\times10^{-2})$ Bone surf. | - | $8\times10^{-14}$ | $3\times10^{-7}$ | $3\times10^{-6}$ |
| 62 | Samarium-147 | W, all compounds | $2\times10^{1}$ | $4\times10^{-2}$ | $2\times10^{-11}$ | - | - | - |
| | | | $(3\times10^{1})$ Bone surf. | $(8\times10^{-2})$ Bone surf. | - | $1\times10^{-13}$ | $4\times10^{-7}$ | $4\times10^{-6}$ |
| 62 | Samarium-151 | W, all compounds | $1\times10^{4}$ | $1\times10^{2}$ | $4\times10^{-8}$ | - | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | | - | $(2\times10^{2})$ Bone surf. | - | $3\times10^{-10}$ | - | - |
| 62 | Samarium-153 | W, all compounds | $2\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| 62 | Samarium-155[2] | W, all compounds | $6\times10^{4}$ | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| | | | $(8\times10^{4})$ St. wall | - | - | - | $1\times10^{-3}$ | $1\times10^{-2}$ |
| 62 | Samarium-156 | W, all compounds | $5\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| 63 | Europium-145 | W, all compounds | $2\times10^{3}$ | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| 63 | Europium-146 | W, all compounds | $1\times10^{3}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 63 | Europium-147 | W, all compounds | $3\times10^{3}$ | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 63 | Europium-148 | W, all compounds | $1\times10^{3}$ | $4\times10^{2}$ | $1\times10^{-7}$ | $5\times10^{-10}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 63 | Europium-149 | W, all compounds | $1\times10^{4}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 63 | Europium-150 (12.62h) | W, all compounds | $3\times10^{3}$ | $8\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| 63 | Europium-150 (34.2y) | W, all compounds | $8\times10^{2}$ | $2\times10^{1}$ | $8\times10^{-9}$ | $3\times10^{-11}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 63 | Europium-152m | W, all compounds | $3\times10^{3}$ | $6\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| 63 | Europium-152 | W, all compounds | $8\times10^{2}$ | $2\times10^{1}$ | $1\times10^{-8}$ | $3\times10^{-11}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 63 | Europium-154 | W, all compounds | $5\times10^{2}$ | $2\times10^{1}$ | $8\times10^{-9}$ | $3\times10^{-11}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |
| 63 | Europium-155 | W, all compounds | $4\times10^{3}$ | $9\times10^{1}$ | $4\times10^{-8}$ | - | $5\times10^{-5}$ | $5\times10^{-4}$ |
| | | | - | $(1\times10^{2})$ Bone surf. | - | $2\times10^{-10}$ | - | - |
| 63 | Europium-156 | W, all compounds | $6\times10^{2}$ | $5\times10^{2}$ | $2\times10^{-7}$ | $6\times10^{-10}$ | $8\times10^{-6}$ | $8\times10^{-5}$ |
| 63 | Europium-157 | W, all compounds | $2\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| 63 | Europium-158[2] | W, all compounds | $2\times10^{4}$ | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| 64 | Gadolinium-145[2] | D, all compounds except those given for W | $5\times10^{4}$ | $2\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $6\times10^{-4}$ | $6\times10^{-3}$ |
| | | W, oxides, hydroxides, and fluorides | - | $2\times10^{5}$ | $7\times10^{-5}$ | $2\times10^{-7}$ | - | - |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 64 | Gadolinium-146 | D, see $^{145}$Gd | $1\times10^{3}$ | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{145}$Gd | - | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | - | - |
| 64 | Gadolinium-147 | D, see $^{145}$Gd | $2\times10^{3}$ | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{145}$Gd | - | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | - | - |
| 64 | Gadolinium-148 | D, see $^{145}$Gd | $1\times10^{1}$ | $8\times10^{-3}$ | $3\times10^{-12}$ | - | - | - |
| | | | $(2\times10^{1})$ Bone surf. | $(2\times10^{-2})$ Bone surf. | - | $2\times10^{-14}$ | $3\times10^{-7}$ | $3\times10^{-6}$ |
| | | W, see $^{145}$Gd | - | $3\times10^{-2}$ | $1\times10^{-11}$ | - | - | - |
| | | | - | $(5\times10^{2})$ Bone surf. | - | $8\times10^{-14}$ | - | - |
| 64 | Gadolinium-149 | D, see $^{145}$Gd | $3\times10^{3}$ | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{145}$Gd | - | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | - | - |
| 64 | Gadolinium-151 | D, see $^{145}$Gd | $6\times10^{3}$ | $4\times10^{2}$ | $2\times10^{-7}$ | - | $9\times10^{-5}$ | $9\times10^{-4}$ |
| | | | - | $(5\times10^{2})$ Bone surf. | - | $8\times10^{-10}$ | - | - |
| | | W, see $^{145}$Gd | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 64 | Gadolinium-152 | D, see $^{145}$Gd | $2\times10^{1}$ | $1\times10^{-2}$ | $4\times10^{-12}$ | - | - | - |
| | | | $(3\times10^{1})$ Bone surf. | $(2\times10^{-2})$ Bone surf. | - | $3\times10^{-14}$ | $4\times10^{-7}$ | $4\times10^{-6}$ |
| | | W, see $^{145}$Gd | - | $4\times10^{-2}$ | $2\times10^{-11}$ | - | - | - |
| | | | - | $(8\times10^{-2})$ Bone surf. | - | $1\times10^{-13}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 64 | Gadolinium-153 | D, see $^{145}$Gd | $5\times10^{3}$ | $1\times10^{2}$ | $6\times10^{-8}$ | - | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | | | ($2\times10^{2}$) Bone surf. | - | $3\times10^{-10}$ | - | - |
| | | W, see $^{145}$Gd | | $6\times10^{2}$ | $2\times10^{-7}$ | $8\times10^{-10}$ | - | - |
| 64 | Gadolinium-159 | D, see $^{145}$Gd | $3\times10^{3}$ | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{145}$Gd | - | $6\times10^{3}$ | $2\times10^{-6}$ | $8\times10^{-9}$ | - | - |
| 65 | Terbium-147[2] | W, all compounds | $9\times10^{3}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 65 | Terbium-149 | W, all compounds | $5\times10^{3}$ | $7\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| 65 | Terbium-150 | W, all compounds | $5\times10^{3}$ | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| 65 | Terbium-151 | W, all compounds | $4\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| 65 | Terbium-153 | W, all compounds | $5\times10^{3}$ | $7\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| 65 | Terbium-154 | W, all compounds | $2\times10^{3}$ | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| 65 | Terbium-155 | W, all compounds | $6\times10^{3}$ | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $8\times10^{-5}$ | $8\times10^{-4}$ |
| 65 | Terbium-156m (5.0 h) | W, all compounds | $2\times10^{4}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 65 | Terbium-156m (24.4 h) | W, all compounds | $7\times10^{3}$ | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 65 | Terbium-156 | W, all compounds | $1\times10^{3}$ | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 65 | Terbium-157 | W, all compounds | $5\times10^{4}$ | $3\times10^{2}$ | $1\times10^{-7}$ | - | $6\times10^{-4}$ | $6\times10^{-3}$ |
| | | | - | ($5\times10^{2}$) Bone surf. | - | $8\times10^{-10}$ | - | - |
| 65 | Terbium-158 | W, all compounds | $1\times10^{3}$ | $2\times10^{1}$ | $8\times10^{-9}$ | $3\times10^{-11}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| 65 | Terbium-160 | W, all compounds | $8\times10^{2}$ | $2\times10^{2}$ | $9\times10^{-8}$ | $3\times10^{-10}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 65 | Terbium-161 | W, all compounds | $2\times10^{3}$ | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| 66 | Dysprosium-155 | W, all compounds | $9\times10^{3}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 66 | Dysprosium-157 | W, all compounds | $2\times10^{4}$ | $6\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| 66 | Dysprosium-159 | W, all compounds | $1\times10^{4}$ | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 66 | Dysprosium-165 | W, all compounds | $1\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 66 | Dysprosium-166 | W, all compounds | $6\times10^{2}$ | $7\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| | | | ($8\times10^{2}$) LLI wall | - | - | - | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 67 | Holmium-155[2] | W, all compounds | $4\times10^{4}$ | $2\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $6\times10^{-4}$ | $6\times10^{-3}$ |
| 67 | Holmium-157[2] | W, all compounds | $3\times10^{5}$ | $1\times10^{6}$ | $6\times10^{-4}$ | $2\times10^{-6}$ | $4\times10^{-3}$ | $4\times10^{-2}$ |
| 67 | Holmium-159[2] | W, all compounds | $2\times10^{5}$ | $1\times10^{6}$ | $4\times10^{-4}$ | $1\times10^{-6}$ | $3\times10^{-3}$ | $3\times10^{-2}$ |
| 67 | Holmium-161 | W, all compounds | $1\times10^{5}$ | $4\times10^{5}$ | $2\times10^{-4}$ | $6\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 67 | Holmium-162m[2] | W, all compounds | $5\times10^{4}$ | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | $7\times10^{-4}$ | $7\times10^{-3}$ |
| 67 | Holmium-162[2] | W, all compounds | $5\times10^{5}$ | $2\times10^{6}$ | $1\times10^{-3}$ | $3\times10^{-6}$ | - | - |
| | | | ($8\times10^{5}$) St. wall | - | - | - | $1\times10^{-2}$ | $1\times10^{-1}$ |
| 67 | Holmium-164m[2] | W, all compounds | $1\times10^{5}$ | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| 67 | Holmium-164[2] | W, all compounds | $2\times10^{5}$ | $6\times10^{5}$ | $3\times10^{-4}$ | $9\times10^{-7}$ | $3\times10^{-3}$ | $3\times10^{-2}$ |
| 67 | Holmium-166m | W, all compounds | $6\times10^{2}$ | $7\times10^{0}$ | $3\times10^{-9}$ | $1\times10^{-11}$ | $9\times10^{-6}$ | $9\times10^{-5}$ |
| 67 | Holmium-166 | W, all compounds | $9\times10^{2}$ | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 67 | Holmium-167 | W, all compounds | $2\times10^{4}$ | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 68 | Erbium-161 | W, all compounds | $2\times10^{4}$ | $6\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 68 | Erbium-165 | W, all compounds | $6\times10^{4}$ | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | $9\times10^{-4}$ | $9\times10^{-3}$ |
| 68 | Erbium-169 | W, all compounds | $3\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| 68 | Erbium-171 | W, all compounds | $4\times10^{3}$ | $1\times10^{4}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| 68 | Erbium-172 | W, all compounds | $1\times10^{3}$ | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| 69 | Thulium-162[2] | W, all compounds | $7\times10^{4}$ | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | - | - |
| | | | ($8\times10^{4}$) St. wall | - | - | - | $1\times10^{-3}$ | $1\times10^{-2}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 69 | Thulium-166 | W, all compounds | $4\times10^{3}$ | $1\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| 69 | Thulium-167 | W, all compounds | $2\times10^{3}$ | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| 69 | Thulium-170 | W, all compounds | $8\times10^{2}$ | $2\times10^{2}$ | $9\times10^{-8}$ | $3\times10^{-10}$ | - | - |
| | | | ($1\times10^{3}$) LLI wall | - | - | - | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 69 | Thulium-171 | W, all compounds | $1\times10^{4}$ | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 69 | Thulium-172 | W, all compounds | $7\times10^{2}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| 69 | Thulium-173 | W, all compounds | $4\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| 69 | Thulium-175[2] | W, all compounds | $7\times10^{4}$ | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | - | - |
| | | | ($8\times10^{4}$) St. wall | - | - | - | $1\times10^{-3}$ | $1\times10^{-2}$ |
| 70 | Ytterbium-162[2] | W, all compounds except those given for Y | $7\times10^{4}$ | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | Y, oxides, hydroxides, and fluorides | - | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | - | - |
| 70 | Ytterbium-166 | W, see $^{162}$Yb | $1\times10^{3}$ | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{162}$Yb | - | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| 70 | Ytterbium-167[2] | W, see $^{162}$Yb | $3\times10^{5}$ | $8\times10^{5}$ | $3\times10^{-4}$ | $1\times10^{-6}$ | $4\times10^{-3}$ | $4\times10^{-2}$ |
| | | Y, see $^{162}$Yb | - | $7\times10^{5}$ | $3\times10^{-4}$ | $1\times10^{-6}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 70 | Ytterbium-169 | W, see $^{162}$Yb | $2\times10^{3}$ | $8\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{162}$Yb | - | $7\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 70 | Ytterbium-175 | W, see $^{162}$Yb | $3\times10^{3}$ | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | Y, see $^{162}$Yb | - | $3\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | - | - |
| 70 | Ytterbium-177[2] | W, see $^{162}$Yb | $2\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | Y, see $^{162}$Yb | - | $5\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | - | - |
| 70 | Ytterbium-178[2] | W, see $^{162}$Yb | $1\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | Y, see $^{162}$Yb | - | $4\times10^{4}$ | $2\times10^{-5}$ | $5\times10^{-8}$ | - | - |
| 71 | Lutetium-169 | W, all compounds except those given for Y | $3\times10^{3}$ | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | Y, oxides, hydroxides, and fluorides | - | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | - | - |
| 71 | Lutetium-170 | W, see $^{170}$Lu | $1\times10^{3}$ | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{170}$Lu | - | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| 71 | Lutetium-171 | W, see $^{170}$Lu | $2\times10^{3}$ | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | Y, see $^{170}$Lu | - | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| 71 | Lutetium-172 | W, see $^{170}$Lu | $1\times10^{3}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{170}$Lu | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 71 | Lutetium-173 | W, see $^{170}$Lu | $5\times10^{3}$ | $3\times10^{2}$ | $1\times10^{-7}$ | - | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | | - | $(5\times10^{2})$ Bone surf. | - | $8\times10^{-10}$ | - | - |
| | | Y, see $^{170}$Lu | - | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | - | - |
| 71 | Lutetium-174m | W, see $^{170}$Lu | $2\times10^{3}$ | $2\times10^{2}$ | $1\times10^{-7}$ | - | - | - |
| | | | $(3\times10^{3})$ LLI wall | $(3\times10^{2})$ Bone surf. | - | $4\times10^{-10}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | Y, see $^{170}$Lu | - | $2\times10^{2}$ | $9\times10^{-8}$ | $3\times10^{-10}$ | - | - |
| 71 | Lutetium-174 | W, see $^{170}$Lu | $5\times10^{3}$ | $1\times10^{2}$ | $5\times10^{-8}$ | - | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | | - | $(2\times10^{2})$ Bone surf. | - | $3\times10^{-10}$ | - | - |
| | | Y, see $^{170}$Lu | - | $2\times10^{2}$ | $6\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 71 | Lutetium-176m | W, see $^{170}$Lu | $8\times10^{3}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | Y, see $^{170}$Lu | - | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | - | - |
| 71 | Lutetium-176 | W, see $^{170}$Lu | $7\times10^{2}$ | $5\times10^{0}$ | $2\times10^{-9}$ | - | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | | - | $(1\times10^{1})$ Bone surf. | - | $2\times10^{-11}$ | - | - |
| | | Y, see $^{170}$Lu | - | $8\times10^{0}$ | $3\times10^{-9}$ | $1\times10^{-11}$ | - | - |
| 71 | Lutetium-177m | W, see $^{170}$Lu | $7\times10^{2}$ | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{170}$Lu | - | $8\times10^{1}$ | $3\times10^{-8}$ | $1\times10^{-10}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 71 | Lutetium-177 | W, see $^{170}$Lu | $2\times10^{3}$ | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | Y, see $^{170}$Lu | - | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| 71 | Lutetium-178m[2] | W, see $^{170}$Lu | $5\times10^{4}$ | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | $7\times10^{-4}$ | $7\times10^{-3}$ |
| | | Y, see $^{170}$Lu | - | $2\times10^{5}$ | $7\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 71 | Lutetium-178[2] | W, see $^{170}$Lu | $4\times10^{4}$ ($5\times10^{4}$) St. wall | $1\times10^{5}$ - | $5\times10^{-5}$ - | $2\times10^{-7}$ - | - $7\times10^{-4}$ | - $7\times10^{-3}$ |
| | | Y, see $^{170}$Lu | - | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 71 | Lutetium-179 | W, see $^{170}$Lu | $6\times10^{3}$ | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | $9\times10^{-5}$ | $9\times10^{-4}$ |
| | | Y, see $^{170}$Lu | - | $2\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 72 | Hafnium-170 | D, all compounds except those given for W | $3\times10^{3}$ | $6\times10^{3}$ | $2\times10^{-6}$ | $8\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, oxides, hydroxides, halides, carbides, and nitrates | - | $5\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | - | - |
| 72 | Hafnium-172 | D, see $^{170}$Hf | $1\times10^{3}$ | $9\times10^{0}$ ($2\times10^{1}$) Bone surf. | $4\times10^{-9}$ - | - $3\times10^{-11}$ | $2\times10^{-5}$ - | $2\times10^{-4}$ - |
| | | W, see $^{170}$Hf | - - | $4\times10^{1}$ ($5\times10^{1}$) Bone surf. | $2\times10^{-8}$ - | - $8\times10^{-11}$ | - - | - - |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 72 | Hafnium-173 | D, see $^{170}$Hf | $5\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | W, see $^{170}$Hf | - | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 72 | Hafnium-175 | D, see $^{170}$Hf | $3\times10^{3}$ | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{170}$Hf | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 72 | Hafnium-177m[2] | D, see $^{170}$Hf | $2\times10^{4}$ | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, see $^{170}$Hf | - | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 72 | Hafnium-178m | D, see $^{170}$Hf | $3\times10^{2}$ | $1\times10^{0}$ ($2\times10^{0}$) Bone surf. | $5\times10^{-10}$ - | - $3\times10^{-12}$ | $3\times10^{-6}$ - | $3\times10^{-5}$ - |
| | | W, see $^{170}$Hf | - - | $5\times10^{0}$ ($8\times10^{0}$) Bone surf. | $2\times10^{-9}$ - | - $1\times10^{-11}$ | - - | - - |
| 72 | Hafnium-179m | D, see $^{170}$Hf | $1\times10^{3}$ | $3\times10^{2}$ ($5\times10^{2}$) Bone surf. | $1\times10^{-7}$ - | - $8\times10^{-10}$ | $1\times10^{-5}$ - | $1\times10^{-4}$ - |
| | | W, see $^{170}$Hf | - | $6\times10^{2}$ | $3\times10^{-7}$ | $8\times10^{-10}$ | - | - |
| 72 | Hafnium-180m | D, see $^{170}$Hf | $7\times10^{3}$ | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{170}$Hf | - | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 72 | Hafnium-181 | D, see $^{170}$Hf | $1\times10^{3}$ | $2\times10^{2}$ | $7\times10^{-8}$ | - | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | | - | $(3\times10^{2})$ Bone surf. | - | $4\times10^{-10}$ | - | - |
| | | W, see $^{170}$Hf | - | $4\times10^{2}$ | $2\times10^{-7}$ | $6\times10^{-10}$ | - | - |
| 72 | Hafnium-182m[2] | D, see $^{170}$Hf | $4\times10^{4}$ | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $5\times10^{-4}$ | $5\times10^{-3}$ |
| | | W, see $^{170}$Hf | - | $2\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 72 | Hafnium-182 | D, see $^{170}$Hf | $2\times10^{2}$ | $8\times10^{-1}$ | $3\times10^{-10}$ | - | - | - |
| | | | $(3\times10^{2})$ Bone surf. | $(2\times10^{0})$ Bone surf. | - | $3\times10^{-12}$ | $4\times10^{-6}$ | $4\times10^{-5}$ |
| | | W, see $^{170}$Hf | - | $3\times10^{0}$ | $1\times10^{-9}$ | - | - | - |
| | | | - | $(8\times10^{0})$ Bone surf. | - | $1\times10^{-11}$ | - | - |
| 72 | Hafnium-183[2] | D, see $^{170}$Hf | $2\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | W, see $^{170}$Hf | - | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | - | - |
| 72 | Hafnium-184 | D, see $^{170}$Hf | $2\times10^{3}$ | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{170}$Hf | - | $6\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | - | - |
| 73 | Tantalum-172[2] | W, all compounds except those given for Y | $4\times10^{4}$ | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | $5\times10^{-4}$ | $5\times10^{-3}$ |
| | | Y, elemental Ta, oxides, hydroxides, halides, carbides, nitrates, and nitrides | - | $1\times10^{5}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 73 | Tantalum-173 | W, see $^{172}$Ta | $7\times10^{3}$ | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | $9\times10^{-5}$ | $9\times10^{-4}$ |
| | | Y, see $^{172}$Ta | - | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 73 | Tantalum-174[2] | W, see $^{172}$Ta | $3\times10^{4}$ | $1\times10^{5}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | Y, see $^{172}$Ta | - | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 73 | Tantalum-175 | W, see $^{172}$Ta | $6\times10^{3}$ | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | $8\times10^{-5}$ | $8\times10^{-4}$ |
| | | Y, see $^{172}$Ta | - | $1\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 73 | Tantalum-176 | W, see $^{172}$Ta | $4\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| | | Y, see $^{172}$Ta | - | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 73 | Tantalum-177 | W, see $^{172}$Ta | $1\times10^{4}$ | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | Y, see $^{172}$Ta | - | $2\times10^{4}$ | $7\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 73 | Tantalum-178 | W, see $^{172}$Ta | $2\times10^{4}$ | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | Y, see $^{172}$Ta | - | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 73 | Tantalum-179 | W, see $^{172}$Ta | $2\times10^{4}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | Y, see $^{172}$Ta | - | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 73 | Tantalum-180m | W, see $^{172}$Ta | $2\times10^{4}$ | $7\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | Y, see $^{172}$Ta | - | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 73 | Tantalum-180 | W, see $^{172}$Ta | $1\times10^{3}$ | $4\times10^{2}$ | $2\times10^{-7}$ | $6\times10^{-10}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{172}$Ta | - | $2\times10^{1}$ | $1\times10^{-8}$ | $3\times10^{-11}$ | - | - |
| 73 | Tantalum-182m[2] | W, see $^{172}$Ta | $2\times10^{5}$ | $5\times10^{5}$ | $2\times10^{-4}$ | $7\times10^{-7}$ | $2\times10^{-3}$ | $2\times10^{-2}$ |
| | | Y, see $^{172}$Ta | - | $4\times10^{5}$ | $2\times10^{-4}$ | $6\times10^{-7}$ | - | - |
| 73 | Tantalum-182 | W, see $^{172}$Ta | $8\times10^{2}$ | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{172}$Ta | - | $1\times10^{2}$ | $6\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 73 | Tantalum-183 | W, see $^{172}$Ta | $9\times10^{2}$ ($1\times10^{3}$) LLI wall | $1\times10^{3}$ - | $5\times10^{-7}$ - | $2\times10^{-9}$ - | - $1\times10^{-5}$ | - $1\times10^{-4}$ |
| | | Y, see $^{172}$Ta | - | $1\times10^{3}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 73 | Tantalum-184 | W, see $^{172}$Ta | $2\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | Y, see $^{172}$Ta | - | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | - | - |
| 73 | Tantalum-185[2] | W, see $^{172}$Ta | $3\times10^{4}$ | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | Y, see $^{172}$Ta | - | $6\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | - | - |
| 73 | Tantalum-186[2] | W, see $^{172}$Ta | $5\times10^{4}$ ($8\times10^{4}$) St. wall | $2\times10^{5}$ - | $1\times10^{-4}$ - | $3\times10^{-7}$ - | - $1\times10^{-3}$ | - $1\times10^{-2}$ |
| | | Y, see $^{172}$Ta | - | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 74 | Tungsten-176 | D, all compounds | $1\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 74 | Tungsten-177 | D, all compounds | $2\times10^{4}$ | $9\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| 74 | Tungsten-178 | D, all compounds | $5\times10^{3}$ | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| 74 | Tungsten-179[2] | D, all compounds | $5\times10^{5}$ | $2\times10^{6}$ | $7\times10^{-4}$ | $2\times10^{-6}$ | $7\times10^{-3}$ | $7\times10^{-2}$ |
| 74 | Tungsten-181 | D, all compounds | $2\times10^{4}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $5\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 74 | Tungsten-185 | D, all compounds | $2\times10^{3}$ ($3\times10^{3}$) LLI wall | $7\times10^{3}$ - | $3\times10^{-6}$ - | $9\times10^{-9}$ - | - $4\times10^{-5}$ | - $4\times10^{-4}$ |
| 74 | Tungsten-187 | D, all compounds | $2\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| 74 | Tungsten-188 | D, all compounds | $4\times10^{2}$ ($5\times10^{2}$) LLI wall | $1\times10^{3}$ - | $5\times10^{-5}$ - | $2\times10^{-9}$ - | - $7\times10^{-6}$ | - $7\times10^{-5}$ |
| 75 | Rhenium-177[2] | D, all compounds except those given for W | $9\times10^{4}$ | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, oxides, hydroxides, and nitrates | - | $4\times10^{5}$ | $1\times10^{-4}$ | $5\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 75 | Rhenium-178 | D, see $^{177}Re$ | $7\times10^{4}$ ($1\times10^{5}$) St. wall | $3\times10^{5}$ - | $1\times10^{-4}$ - | $4\times10^{-7}$ - | - $1\times10^{-3}$ | - $1\times10^{-2}$ |
| | | W, see $^{177}Re$ | - | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | - | - |
| 75 | Rhenium-181 | D, see $^{177}Re$ | $5\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | W, see $^{177}Re$ | - | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| 75 | Rhenium-182 (12.7 h) | D, see $^{177}Re$ | $7\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $9\times10^{-5}$ | $9\times10^{-4}$ |
| | | W, see $^{177}Re$ | - | $2\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | - | - |
| 75 | Rhenium-182 (64.0 h) | D, see $^{177}Re$ | $1\times10^{3}$ | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{177}Re$ | - | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| 75 | Rhenium-184m | D, see $^{177}Re$ | $2\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{177}Re$ | - | $4\times10^{2}$ | $2\times10^{-7}$ | $6\times10^{-10}$ | - | - |
| 75 | Rhenium-184 | D, see $^{177}Re$ | $2\times10^{3}$ | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{177}Re$ | - | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 75 | Rhenium-186m | D, see $^{177}Re$ | $1\times10^{3}$ ($2\times10^{3}$) St. wall | $2\times10^{3}$ ($2\times10^{3}$) St. wall | $7\times10^{-7}$ - | - $3\times10^{-9}$ | - $2\times10^{-5}$ | - $2\times10^{-4}$ |
| | | W, see $^{177}Re$ | - | $2\times10^{2}$ | $6\times10^{-8}$ | $2\times10^{-10}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 75 | Rhenium-186 | D, see $^{177}Re$ | $2\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{177}Re$ | - | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 75 | Rhenium-187 | D, see $^{177}Re$ | $6\times10^{5}$ | $8\times10^{5}$ | $4\times10^{-4}$ | $1\times10^{-6}$ | $8\times10^{-3}$ | $8\times10^{-2}$ |
| | | W, see $^{177}Re$ | - | $1\times10^{5}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| 75 | Rhenium-188m[2] | D, see $^{177}Re$ | $8\times10^{4}$ | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, see $^{177}Re$ | - | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 75 | Rhenium-188 | D, see $^{177}Re$ | $2\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{177}Re$ | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| 75 | Rhenium-189 | D, see $^{177}Re$ | $3\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{177}Re$ | - | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | - | - |
| 76 | Osmium-180 | D, all compounds except those given for W and Y | $1\times10^{5}$ | $4\times10^{5}$ | $2\times10^{-4}$ | $5\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, halides and nitrates | - | $5\times10^{5}$ | $2\times10^{-4}$ | $7\times10^{-7}$ | - | - |
| | | Y, oxides and hydroxides | - | $5\times10^{5}$ | $2\times10^{-4}$ | $6\times10^{-7}$ | - | - |
| 76 | Osmium-181[2] | D, see $^{180}Os$ | $1\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{180}Os$ | - | $5\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | - | - |
| | | Y, see $^{180}Os$ | - | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 76 | Osmium-182 | D, see $^{180}Os$ | $2x10^{3}$ | $6x10^{3}$ | $2x10^{-6}$ | $8x10^{-9}$ | $3x10^{-5}$ | $3x10^{-4}$ |
| | | W, see $^{180}Os$ | - | $4x10^{3}$ | $2x10^{-6}$ | $6x10^{-9}$ | - | - |
| | | Y, see $^{180}Os$ | - | $4x10^{3}$ | $2x10^{-6}$ | $5x10^{-9}$ | - | - |
| 76 | Osmium-185 | D, see $^{180}Os$ | $2x10^{3}$ | $5x10^{2}$ | $2x10^{-7}$ | $7x10^{-10}$ | $3x10^{-5}$ | $3x10^{-4}$ |
| | | W, see $^{180}Os$ | - | $8x10^{2}$ | $3x10^{-7}$ | $1x10^{-9}$ | - | - |
| | | Y, see $^{180}Os$ | - | $8x10^{2}$ | $3x10^{-7}$ | $1x10^{-9}$ | - | - |
| 76 | Osmium-189m | D, see $^{180}Os$ | $8x10^{4}$ | $2x10^{5}$ | $1x10^{-4}$ | $3x10^{-7}$ | $1x10^{-3}$ | $1x10^{-2}$ |
| | | W, see $^{180}Os$ | - | $2x10^{5}$ | $9x10^{-5}$ | $3x10^{-7}$ | - | - |
| | | Y, see $^{180}Os$ | - | $2x10^{5}$ | $7x10^{-5}$ | $2x10^{-7}$ | - | - |
| 76 | Osmium-191m | D, see $^{180}Os$ | $1x10^{4}$ | $3x10^{4}$ | $1x10^{-5}$ | $4x10^{-8}$ | $2x10^{-4}$ | $2x10^{-3}$ |
| | | W, see $^{180}Os$ | - | $2x10^{4}$ | $8x10^{-6}$ | $3x10^{-8}$ | - | - |
| | | Y, see $^{180}Os$ | - | $2x10^{4}$ | $7x10^{-6}$ | $2x10^{-8}$ | - | - |
| 76 | Osmium-191 | D, see $^{180}Os$ | $2x10^{3}$ | $2x10^{3}$ | $9x10^{-7}$ | $3x10^{-8}$ | $3x10^{-5}$ | $3x10^{-4}$ |
| | | W, see $^{180}Os$ | - | $2x10^{3}$ | $7x10^{-7}$ | $2x10^{-9}$ | - | - |
| | | Y, see $^{180}Os$ | - | $1x10^{3}$ | $6x10^{-7}$ | $2x10^{-9}$ | - | - |
| 76 | Osmium-193 | D, see $^{180}Os$ | $2x10^{3}$ | $5x10^{3}$ | $2x10^{-6}$ | $6x10^{-9}$ | $2x10^{-5}$ | $2x10^{-4}$ |
| | | W, see $^{180}Os$ | - | $3x10^{3}$ | $1x10^{-6}$ | $4x10^{-9}$ | - | - |
| | | Y, see $^{180}Os$ | - | $3x10^{3}$ | $1x10^{-6}$ | $4x10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 76 | Osmium-194 | D, see $^{180}Os$ | $4x10^{2}$ | $4x10^{1}$ | $2x10^{-8}$ | $6x10^{-11}$ | $6x10^{-6}$ | $6x10^{-5}$ |
| | | W, see $^{180}Os$ | - | $6x10^{1}$ | $2x10^{-8}$ | $8x10^{-11}$ | - | - |
| | | Y, see $^{180}Os$ | - | $8x10^{0}$ | $3x10^{-9}$ | $1x10^{-11}$ | - | - |
| 77 | Iridium-182 | D, all compounds except those given for W and Y | $4x10^{4}$ | $1x10^{5}$ | $6x10^{-5}$ | $2x10^{-7}$ | $6x10^{-4}$ | $6x10^{-3}$ |
| | | W, halides, nitrates, and metallic iridium | - | $2x10^{5}$ | $6x10^{-5}$ | $2x10^{-7}$ | - | - |
| | | Y, oxides and hydroxides | - | $1x10^{5}$ | $5x10^{-5}$ | $2x10^{-7}$ | - | - |
| 77 | Iridium-184 | D, see $^{182}Ir$ | $8x10^{3}$ | $2x10^{4}$ | $1x10^{-5}$ | $3x10^{-8}$ | $1x10^{-4}$ | $1x10^{-3}$ |
| | | W, see $^{182}Ir$ | - | $3x10^{4}$ | $1x10^{-5}$ | $4x10^{-8}$ | - | - |
| | | Y, see $^{182}Ir$ | - | $3x10^{4}$ | $1x10^{-5}$ | $4x10^{-8}$ | - | - |
| 77 | Iridium-185 | D, see $^{182}Ir$ | $5x10^{3}$ | $1x10^{4}$ | $5x10^{-6}$ | $2x10^{-8}$ | $7x10^{-5}$ | $7x10^{-4}$ |
| | | W, see $^{182}Ir$ | - | $1x10^{4}$ | $5x10^{-6}$ | $2x10^{-8}$ | - | - |
| | | Y, see $^{182}Ir$ | - | $1x10^{4}$ | $4x10^{-6}$ | $1x10^{-8}$ | - | - |
| 77 | Iridium-186 | D, see $^{182}Ir$ | $2x10^{3}$ | $8x10^{3}$ | $3x10^{-6}$ | $1x10^{-8}$ | $3x10^{-5}$ | $3x10^{-4}$ |
| | | W, see $^{182}Ir$ | - | $6x10^{3}$ | $3x10^{-6}$ | $9x10^{-9}$ | - | - |
| | | Y, see $^{182}Ir$ | - | $6x10^{3}$ | $2x10^{-6}$ | $8x10^{-9}$ | - | - |
| 77 | Iridium-187 | D, see $^{182}Ir$ | $1x10^{4}$ | $3x10^{4}$ | $1x10^{-5}$ | $4x10^{-8}$ | $1x10^{-4}$ | $1x10^{-3}$ |
| | | W, see $^{182}Ir$ | - | $3x10^{4}$ | $1x10^{-5}$ | $4x10^{-8}$ | - | - |
| | | Y, see $^{182}Ir$ | - | $3x10^{4}$ | $1x10^{-5}$ | $4x10^{-8}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 77 | Iridium-188 | D, see $^{182}$Ir | $2\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{182}$Ir | - | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | - | - |
| | | Y, see $^{182}$Ir | - | $3\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | - | - |
| 77 | Iridium-189 | D, see $^{182}$Ir | $5\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | W, see $^{182}$Ir | - | $4\times10^{3}$ | $2\times10^{-6}$ | $5\times10^{-9}$ | - | - |
| | | Y, see $^{182}$Ir | - | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | - | - |
| 77 | Iridium-190m[2] | D, see $^{182}$Ir | $2\times10^{5}$ | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | $2\times10^{-3}$ | $2\times10^{-2}$ |
| | | W, see $^{182}$Ir | - | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| | | Y, see $^{182}$Ir | - | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| 77 | Iridium-190 | D, see $^{182}$Ir | $1\times10^{3}$ | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{182}$Ir | - | $1\times10^{3}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| | | Y, see $^{182}$Ir | - | $9\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| 77 | Iridium-192m | D, see $^{182}$Ir | $3\times10^{3}$ | $9\times10^{1}$ | $4\times10^{-8}$ | $1\times10^{-10}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{182}$Ir | - | $2\times10^{2}$ | $9\times10^{-8}$ | $3\times10^{-10}$ | - | - |
| | | Y, see $^{182}$Ir | - | $2\times10^{1}$ | $6\times10^{-9}$ | $2\times10^{-11}$ | - | - |
| 77 | Iridium-192 | D, see $^{182}$Ir | $9\times10^{2}$ | $3\times10^{2}$ | $1\times10^{-7}$ | $4\times10^{-10}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{182}$Ir | - | $4\times10^{2}$ | $2\times10^{-7}$ | $5\times10^{-10}$ | - | - |
| | | Y, see $^{182}$Ir | - | $2\times10^{2}$ | $9\times10^{-8}$ | $3\times10^{-10}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 77 | Iridium-194m | D, see $^{182}$Ir | $6\times10^{2}$ | $9\times10^{1}$ | $4\times10^{-8}$ | $1\times10^{-10}$ | $9\times10^{-6}$ | $9\times10^{-5}$ |
| | | W, see $^{182}$Ir | - | $2\times10^{2}$ | $7\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| | | Y, see $^{182}$Ir | - | $1\times10^{2}$ | $4\times10^{-8}$ | $1\times10^{-10}$ | - | - |
| 77 | Iridium-194 | D, see $^{182}$Ir | $1\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{182}$Ir | - | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| | | Y, see $^{182}$Ir | - | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| 77 | Iridium-195m | D, see $^{182}$Ir | $8\times10^{3}$ | $2\times10^{4}$ | $1\times10^{-5}$ | $3\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, see $^{182}$Ir | - | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | - | - |
| | | Y, see $^{182}$Ir | - | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | - | - |
| 77 | Iridium-195 | D, see $^{182}$Ir | $1\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{182}$Ir | - | $5\times10^{4}$ | $2\times10^{-5}$ | $7\times10^{-8}$ | - | - |
| | | Y, see $^{182}$Ir | - | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | - | - |
| 78 | Platinum-186 | D, all compounds | $1\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $5\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 78 | Platinum-188 | D, all compounds | $2\times10^{3}$ | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| 78 | Platinum-189 | D, all compounds | $1\times10^{4}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 78 | Platinum-191 | D, all compounds | $4\times10^{3}$ | $8\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| 78 | Platinum-193m | D, all compounds | $3\times10^{3}$ | $6\times10^{3}$ | $3\times10^{-6}$ | $8\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 78 | Platinum-193 | D, all compounds | $4\times10^{4}$ | $2\times10^{4}$ | $1\times10^{-5}$ | $3\times10^{-8}$ | - | - |
| | | | $(5\times10^{4})$ LLI wall | - | - | - | $7\times10^{-4}$ | $7\times10^{-3}$ |
| 78 | Platinum-195m | D, all compounds | $2\times10^{3}$ | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| 78 | Platinum-197m[2] | D, all compounds | $2\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 78 | Platinum-197 | D, all compounds | $3\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| 78 | Platinum-199[2] | D, all compounds | $5\times10^{4}$ | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $7\times10^{-4}$ | $7\times10^{3}$ |
| 78 | Platinum-200 | D, all compounds | $1\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| 79 | Gold-193 | D, all compounds except those given for W and Y | $9\times10^{3}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | W, halides and nitrates | - | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | - | - |
| | | Y, oxides and hydroxides | - | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | - | - |
| 79 | Gold-194 | D, see $^{193}$Au | $3\times10^{3}$ | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{193}$Au | - | $5\times10^{3}$ | $2\times10^{-6}$ | $8\times10^{-9}$ | - | - |
| | | Y, see $^{193}$Au | - | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | - | - |
| 79 | Gold-195 | D, see $^{193}$Au | $5\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | W, see $^{193}$Au | - | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| | | Y, see $^{193}$Au | - | $4\times10^{2}$ | $2\times10^{-7}$ | $6\times10^{-10}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 79 | Gold-198m | D, see $^{193}$Au | $1\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{193}$Au | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| | | Y, see $^{193}$Au | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 79 | Gold-198 | D, see $^{193}$Au | $1\times10^{3}$ | $4\times10^{3}$ | $2\times10^{-6}$ | - | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | | - | $(2\times10^{3})$ Blad. wall | - | - | $2\times10^{-9}$ | - |
| | | W, see $^{193}$Au | - | $2\times10^{3}$ | $8\times10^{-7}$ | $3\times10^{-9}$ | - | - |
| | | Y, see $^{193}$Au | - | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 79 | Gold-199 | D, see $^{193}$Au | $3\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{193}$Au | - | $4\times10^{3}$ | $2\times10^{-6}$ | $5\times10^{-9}$ | - | - |
| | | Y, see $^{193}$Au | - | $4\times10^{3}$ | $2\times10^{-6}$ | $5\times10^{-9}$ | - | - |
| 79 | Gold-200m | D, see $^{193}$Au | $1\times10^{3}$ | $4\times10^{3}$ | $1\times10^{-6}$ | $5\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{193}$Au | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| | | Y, see $^{193}$Au | - | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | - | - |
| 79 | Gold-200[2] | D, see $^{193}$Au | $3\times10^{4}$ | $6\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, see $^{193}$Au | - | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| | | Y, see $^{193}$Au | - | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 79 | Gold-201[2] | D, see $^{193}$Au | $7\times10^{4}$ | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| | | W, see $^{193}$Au | - | $2\times10^{5}$ | $1\times10^{-4}$ | $3\times10^{-7}$ | - | - |
| | | Y, see $^{193}$Au | - | $2\times10^{5}$ | $9\times10^{-5}$ | $3\times10^{-7}$ | - | - |
| 80 | Mercury-193m | Vapor | - | $8\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| | | Organic | $4\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | D, sulfates | $3\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, oxides, hydroxides, halides, nitrates, and sulfides | - | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| 80 | Mercury-193 | Vapor | - | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | - | - |
| | | Organic | $2\times10^{4}$ | $6\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | D, see $^{193m}$Hg | $2\times10^{4}$ | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{193m}$Hg | - | $4\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | - | - |
| 80 | Mercury-194 | Vapor | - | $3\times10^{1}$ | $1\times10^{-8}$ | $4\times10^{-11}$ | - | - |
| | | Organic | $2\times10^{1}$ | $3\times10^{1}$ | $1\times10^{-8}$ | $4\times10^{-11}$ | $2\times10^{-7}$ | $2\times10^{-6}$ |
| | | D, see $^{193m}$Hg | $8\times10^{2}$ | $4\times10^{1}$ | $2\times10^{-8}$ | $6\times10^{-11}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | W, see $^{193m}$Hg | - | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 80 | Mercury-195m | Vapor | - | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | - | - |
| | | Organic | $3\times10^{3}$ | $6\times10^{3}$ | $3\times10^{-6}$ | $8\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | D, see $^{193m}$Hg | $2\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{193m}$Hg | - | $4\times10^{3}$ | $2\times10^{-6}$ | $5\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 80 | Mercury-195 | Vapor | - | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | - | - |
| | | Organic | $2\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $6\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | D, see $^{193m}$Hg | $1\times10^{4}$ | $4\times10^{4}$ | $1\times10^{-5}$ | $5\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | W, see $^{193m}$Hg | - | $3\times10^{4}$ | $1\times10^{-5}$ | $5\times10^{-8}$ | - | - |
| 80 | Mercury-197m | Vapor | - | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | - | - |
| | | Organic | $4\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| | | D, see $^{193m}$Hg | $3\times10^{3}$ | $7\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| | | W, see $^{193m}$Hg | - | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | - | - |
| 80 | Mercury-197 | Vapor | - | $8\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| | | Organic | $7\times10^{3}$ | $1\times10^{4}$ | $6\times10^{-6}$ | $2\times10^{-8}$ | $9\times10^{-5}$ | $9\times10^{-4}$ |
| | | D, see $^{193m}$Hg | $6\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $8\times10^{-5}$ | $8\times10^{-4}$ |
| | | W, see $^{193m}$Hg | - | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | - | - |
| 80 | Mercury-199m[2] | Vapor | - | $8\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | - | - |
| | | Organic | $6\times10^{4}$ | $2\times10^{5}$ | $7\times10^{-5}$ | $2\times10^{-7}$ | $9\times10^{-4}$ | $9\times10^{-3}$ |
| | | D, see $^{193m}$Hg | $6\times10^{4}$ | $1\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | $8\times10^{-4}$ | $8\times10^{-3}$ |
| | | W, see $^{193m}$Hg | - | $2\times10^{5}$ | $7\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 80 | Mercury-203 | Vapor | - | $8\times10^{2}$ | $4\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| | | Organic | $5\times10^{2}$ | $8\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |
| | | D, see $^{193m}$Hg | $2\times10^{3}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | W, see $^{193m}$Hg | - | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Table 1 OCCUPATIONAL VALUES Col. 2- Inhalation ALI (μCi) | Table 1 OCCUPATIONAL VALUES Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 81 | Thallium-194m[2] | D, all compounds | $5\times10^{4}$ | $2\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | | ($8\times10^{4}$) St. wall | - | - | - | $1\times10^{-3}$ | $1\times10^{-2}$ |
| 81 | Thallium-194[2] | D, all compounds | $3\times10^{5}$ | $6\times10^{5}$ | $2\times10^{-4}$ | $8\times10^{-7}$ | $3\times10^{-3}$ | $3\times10^{-2}$ |
| 81 | Thallium-195[2] | D, all compounds | $6\times10^{4}$ | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | $9\times10^{-4}$ | $9\times10^{-3}$ |
| 81 | Thallium-197 | D, all compounds | $7\times10^{4}$ | $1\times10^{5}$ | $5\times10^{-5}$ | $2\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| 81 | Thallium-198m[2] | D, all compounds | $3\times10^{4}$ | $5\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| 81 | Thallium-198 | D, all compounds | $2\times10^{4}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| 81 | Thallium-199 | D, all compounds | $6\times10^{4}$ | $8\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $9\times10^{-4}$ | $9\times10^{-3}$ |
| 81 | Thallium-200 | D, all compounds | $8\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 81 | Thallium-201 | D, all compounds | $2\times10^{4}$ | $2\times10^{4}$ | $9\times10^{-6}$ | $3\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 81 | Thallium-202 | D, all compounds | $4\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| 81 | Thallium-204 | D, all compounds | $2\times10^{3}$ | $2\times10^{3}$ | $9\times10^{-7}$ | $3\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| 82 | Lead-195m[2] | D, all compounds | $6\times10^{4}$ | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | $8\times10^{-4}$ | $8\times10^{-3}$ |
| 82 | Lead-198 | D, all compounds | $3\times10^{4}$ | $6\times10^{4}$ | $3\times10^{-5}$ | $9\times10^{-8}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| 82 | Lead-199[2] | D, all compounds | $2\times10^{4}$ | $7\times10^{4}$ | $3\times10^{-5}$ | $1\times10^{-7}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Table 1 OCCUPATIONAL VALUES Col. 2- Inhalation ALI (μCi) | Table 1 OCCUPATIONAL VALUES Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 82 | Lead-200 | D, all compounds | $3\times10^{3}$ | $6\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| 82 | Lead-201 | D, all compounds | $7\times10^{3}$ | $2\times10^{4}$ | $8\times10^{-6}$ | $3\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 82 | Lead-202m | D, all compounds | $9\times10^{3}$ | $3\times10^{4}$ | $1\times10^{-5}$ | $4\times10^{-8}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 82 | Lead-202 | D, all compounds | $1\times10^{2}$ | $5\times10^{1}$ | $2\times10^{-8}$ | $7\times10^{-11}$ | $2\times10^{-6}$ | $2\times10^{-5}$ |
| 82 | Lead-203 | D, all compounds | $5\times10^{3}$ | $9\times10^{3}$ | $4\times10^{-6}$ | $1\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| 82 | Lead-205 | D, all compounds | $4\times10^{3}$ | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| 82 | Lead-209 | D, all compounds | $2\times10^{4}$ | $6\times10^{4}$ | $2\times10^{-5}$ | $8\times10^{-8}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| 82 | Lead-210 | D, all compounds | $6\times10^{-1}$ | $2\times10^{-1}$ | $1\times10^{-10}$ | - | - | - |
| | | | ($1\times10^{0}$) Bone surf. | ($3\times10^{-1}$) Bone surf. | - | $4\times10^{-13}$ | $1\times10^{-8}$ | $1\times10^{-7}$ |
| 82 | Lead-211 | D, all compounds | $1\times10^{4}$ | $6\times10^{2}$ | $3\times10^{-7}$ | $9\times10^{-10}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| 82 | Lead-212 | D, all compounds | $8\times10^{1}$ | $3\times10^{1}$ | $1\times10^{-8}$ | $5\times10^{-11}$ | - | - |
| | | | ($1\times10^{2}$) Bone surf. | - | - | - | $2\times10^{-6}$ | $2\times10^{-5}$ |
| 82 | Lead-214 | D, all compounds | $9\times10^{3}$ | $8\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | $1\times10^{-4}$ | $1\times10^{-3}$ |
| 83 | Bismuth-200[2] | D, nitrates | $3\times10^{4}$ | $8\times10^{4}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | $4\times10^{-4}$ | $4\times10^{-3}$ |
| | | W, all other compounds | - | $1\times10^{5}$ | $4\times10^{-5}$ | $1\times10^{-7}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 83 | Bismuth-201[2] | D, see $^{200}Bi$ | $1x10^{4}$ | $3x10^{4}$ | $1x10^{-5}$ | $4x10^{-8}$ | $2x10^{-4}$ | $2x10^{-3}$ |
| | | W, see $^{200}Bi$ | - | $4x10^{4}$ | $2x10^{-5}$ | $5x10^{-8}$ | - | - |
| 83 | Bismuth-202[2] | D, see $^{200}Bi$ | $1x10^{4}$ | $4x10^{4}$ | $2x10^{-5}$ | $6x10^{-8}$ | $2x10^{-4}$ | $2x10^{-3}$ |
| | | W, see $^{200}Bi$ | - | $8x10^{4}$ | $3x10^{-5}$ | $1x10^{-7}$ | - | - |
| 83 | Bismuth-203 | D, see $^{200}Bi$ | $2x10^{3}$ | $7x10^{3}$ | $3x10^{-6}$ | $9x10^{-9}$ | $3x10^{-5}$ | $3x10^{-4}$ |
| | | W, see $^{200}Bi$ | - | $6x10^{3}$ | $3x10^{-6}$ | $8x10^{-9}$ | - | - |
| 83 | Bismuth-205 | D, see $^{200}Bi$ | $1x10^{3}$ | $3x10^{3}$ | $1x10^{-6}$ | $4x10^{-9}$ | $2x10^{-5}$ | $2x10^{-4}$ |
| | | W, see $^{200}Bi$ | - | $1x10^{3}$ | $5x10^{-7}$ | $2x10^{-9}$ | - | - |
| 83 | Bismuth-206 | D, see $^{200}Bi$ | $6x10^{2}$ | $1x10^{3}$ | $6x10^{-7}$ | $2x10^{-9}$ | $9x10^{-6}$ | $9x10^{-5}$ |
| | | W, see $^{200}Bi$ | - | $9x10^{2}$ | $4x10^{-7}$ | $1x10^{-9}$ | - | - |
| 83 | Bismuth-207 | D, see $^{200}Bi$ | $1x10^{3}$ | $2x10^{3}$ | $7x10^{-7}$ | $2x10^{-9}$ | $1x10^{-5}$ | $1x10^{-4}$ |
| | | W, see $^{200}Bi$ | - | $4x10^{2}$ | $1x10^{-7}$ | $5x10^{-10}$ | - | - |
| 83 | Bismuth-210m | D, see $^{200}Bi$ | $4x10^{1}$ | $5x10^{0}$ | $2x10^{-9}$ | $6x10^{-12}$ | $6x10^{-7}$ | $6x10^{-6}$ |
| | | W, see $^{200}Bi$ | - | $7x10^{-1}$ | $3x10^{-10}$ | $9x10^{-13}$ | - | - |
| 83 | Bismuth-210 | D, see $^{200}Bi$ | $8x10^{2}$ | $2x10^{2}$ | $1x10^{-7}$ | - | $1x10^{-5}$ | $1x10^{-4}$ |
| | | | - | ($3x10^{2}$) Kidneys | - | $4x10^{-10}$ | - | - |
| | | W, see $^{200}Bi$ | - | $3x10^{1}$ | $1x10^{-8}$ | $4x10^{-11}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 83 | Bismuth-212 | D, see $^{200}Bi$ | $5x10^{3}$ | $2x10^{2}$ | $1x10^{-7}$ | $3x10^{-10}$ | $7x10^{-5}$ | $7x10^{-4}$ |
| | | W, see $^{200}Bi$ | - | $3x10^{2}$ | $1x10^{-7}$ | $4x10^{-10}$ | - | - |
| 83 | Bismuth-213 | D, see $^{200}Bi$ | $7x10^{3}$ | $3x10^{2}$ | $1x10^{-7}$ | $4x10^{-10}$ | $1x10^{-4}$ | $1x10^{-3}$ |
| | | W, see $^{200}Bi$ | - | $4x10^{2}$ | $1x10^{-7}$ | $5x10^{-10}$ | - | - |
| 83 | Bismuth-214 | D, see $^{200}Bi$ | $2x10^{4}$ | $8x10^{2}$ | $3x10^{-7}$ | $1x10^{-9}$ | $2x10^{-4}$ | $2x10^{-3}$ |
| | | W, see $^{200}Bi$ | - | $9x10^{2}$ | $4x10^{-7}$ | $1x10^{-9}$ | - | - |
| 84 | Polonium-203[2] | D, all compounds except those given for W | $3x10^{4}$ | $6x10^{4}$ | $3x10^{-5}$ | $9x10^{-8}$ | $3x10^{-4}$ | $3x10^{-3}$ |
| | | W, oxides, hydroxides and nitrates | - | $9x10^{4}$ | $4x10^{-5}$ | $1x10^{-7}$ | - | - |
| 84 | Polonium-205[2] | D, see $^{203}Po$ | $2x10^{4}$ | $4x10^{4}$ | $2x10^{-5}$ | $5x10^{-8}$ | $3x10^{-4}$ | $3x10^{-3}$ |
| | | W, see $^{203}Po$ | - | $7x10^{4}$ | $3x10^{-5}$ | $1x10^{-7}$ | - | - |
| 84 | Polonium-207 | D, see $^{203}Po$ | $8x10^{3}$ | $3x10^{4}$ | $1x10^{-5}$ | $4x10^{-8}$ | $1x10^{-4}$ | $1x10^{-3}$ |
| | | W, see $^{203}Po$ | - | $3x10^{4}$ | $1x10^{-5}$ | $4x10^{-8}$ | - | - |
| 84 | Polonium-210 | D, see $^{203}Po$ | $3x10^{0}$ | $6x10^{-1}$ | $3x10^{-10}$ | $9x10^{-13}$ | $4x10^{-8}$ | $4x10^{-7}$ |
| | | W, see $^{203}Po$ | - | $6x10^{-1}$ | $3x10^{-10}$ | $9x10^{-13}$ | - | - |
| 85 | Astatine-207 | D, halides | $6x10^{3}$ | $3x10^{3}$ | $1x10^{-6}$ | $4x10^{-9}$ | $8x10^{-5}$ | $8x10^{-4}$ |
| | | W | - | $2x10^{3}$ | $9x10^{-7}$ | $3x10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 85 | Astatine-211 | D, halides | $1x10^{2}$ | $8x10^{1}$ | $3x10^{-8}$ | $1x10^{-10}$ | $2x10^{-6}$ | $2x10^{-5}$ |
| | | W | - | $5x10^{1}$ | $2x10^{-8}$ | $7x10^{-11}$ | - | - |
| 86 | Radon-220 | With daughters removed | - | $2x10^{4}$ | $7x10^{-6}$ | $2x10^{-8}$ | - | - |
| | | With daughters present | - | $2x10^{1}$ (or 14 working level months) | $9x10^{-9}$ (or 1.2 working level) | $3x10^{-11}$ | - | - |
| 86 | Radon-222 | With daughters removed | - | $1x10^{4}$ | $4x10^{-6}$ | $1x10^{-8}$ | - | - |
| | | With daughters present | - | $1x10^{2}$ (or 4 working level months) | $3x10^{-8}$ (or 0.33 working level) | $1x10^{-10}$ | - | - |
| 87 | Francium-222 | D, all compounds | 2x103 | $5x10^{2}$ | $2x10^{-7}$ | $6x10^{-10}$ | $3x10^{-5}$ | $3x10^{-4}$ |
| 87 | Francium-223 | D, all compounds | $6x10^{2}$ | $8x10^{2}$ | $3x10^{-7}$ | $1x10^{-9}$ | $8x10^{-6}$ | $8x10^{-5}$ |
| 88 | Radium-223 | W, all compounds | $5x10^{0}$ | $7x10^{-1}$ | $3x10^{-10}$ | $9x10^{-13}$ | - | - |
| | | | ($8x10^{0}$) Bone surf. | - | - | - | $1x10^{-7}$ | $1x10^{-6}$ |
| 88 | Radium-224 | W, all compounds | $8x10^{0}$ | $2x10^{0}$ | $7x10^{-10}$ | $2x10^{-12}$ | - | - |
| | | | ($2x10^{1}$) Bone surf. | - | - | - | $2x10^{-7}$ | $2x10^{-6}$ |
| 88 | Radium-225 | W, all compounds | $8x10^{0}$ | $7x10^{-1}$ | $3x10^{-10}$ | $9x10^{-13}$ | - | - |
| | | | ($2x10^{1}$) Bone surf. | - | - | - | $2x10^{-7}$ | $2x10^{-6}$ |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 88 | Radium-226 | W, all compounds | $2x10^{0}$ | $6x10^{-1}$ | $3x10^{-10}$ | $9x10^{-13}$ | - | - |
| | | | ($5x10^{0}$) Bone surf. | - | - | - | $7x10^{-8}$ | $7x10^{-7}$ |
| 88 | Radium-227[2] | W, all compounds | $2x10^{4}$ | $1x10^{4}$ | $6x10^{-6}$ | - | $2x10^{-4}$ | $2x10^{-3}$ |
| | | | - | ($2x10^{4}$) Bone surf. | - | $3x10^{-8}$ | - | - |
| 88 | Radium-228 | W, all compounds | $2x10^{0}$ | $1x10^{0}$ | $5x10^{-10}$ | $2x10^{-12}$ | - | - |
| | | | ($3x10^{0}$) Bone surf. | - | - | - | $4x10^{-8}$ | $4x10^{7}$ |
| 89 | Actinium-224 | D, all compounds except those given for W and Y | $2x10^{3}$ | $3x10^{1}$ | $1x10^{-8}$ | $4x10^{-11}$ | $3x10^{-5}$ | $3x10^{-4}$ |
| | | W, halides and nitrates | - | $5x10^{1}$ | $2x10^{-8}$ | $7x10^{-11}$ | - | - |
| | | Y, oxides and hydroxides | - | $5x10^{1}$ | $2x10^{-8}$ | $6x10^{-11}$ | - | - |
| 89 | Actinium-225 | D, see $^{224}Ac$ | $5x10^{1}$ | $3x10^{-1}$ | $1x10^{-10}$ | - | $7x10^{-7}$ | $7x10^{-6}$ |
| | | | - | ($5x10^{-1}$) Bone surf. | - | $8x10^{-13}$ | - | - |
| | | W, see $^{224}Ac$ | - | $6x10^{-1}$ | $3x10^{-10}$ | $9x10^{-13}$ | - | - |
| | | Y, see $^{224}Ac$ | - | $6x10^{-1}$ | $3x10^{-10}$ | $9x10^{-13}$ | - | - |
| 89 | Actinium-226 | D, see $^{224}Ac$ | $1x10^{2}$ | $3x10^{0}$ | $1x10^{-9}$ | $5x10^{-12}$ | $2x10^{-6}$ | $2x10^{-5}$ |
| | | W, see $^{224}Ac$ | - | $5x10^{0}$ | $2x10^{-9}$ | $7x10^{-12}$ | - | - |
| | | Y, see $^{224}Ac$ | - | $5x10^{0}$ | $2x10^{-9}$ | $6x10^{-12}$ | - | - |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 89 | Actinium-227 | D, see $^{224}Ac$ | $2\times10^{-1}$ | $4\times10^{-4}$ | $2\times10^{-13}$ | - | - | - |
| | | | $(3\times10^{-1})$ Bone surf. | $(8\times10^{-4})$ Bone surf. | - | $1\times10^{-15}$ | $4\times10^{-9}$ | $4\times10^{-8}$ |
| | | W, see $^{224}Ac$ | - | $2\times10^{-3}$ | $7\times10^{-13}$ | - | - | - |
| | | | - | $(3\times10^{-3})$ Bone surf. | - | $4\times10^{-15}$ | - | - |
| | | Y, see $^{224}Ac$ | - | $4\times10^{-3}$ | $2\times10^{-12}$ | $5\times10^{-15}$ | - | - |
| 89 | Actinium-228 | D, see $^{224}Ac$ | $2\times10^{3}$ | $9\times10^{0}$ | $4\times10^{-9}$ | - | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | | - | $(2\times10^{1})$ Bone surf. | - | $2\times10^{-11}$ | - | - |
| | | W, see $^{224}Ac$ | - | $4\times10^{1}$ | $2\times10^{-8}$ | - | - | - |
| | | | - | $(5\times10^{1})$ Bone surf. | - | $8\times10^{-11}$ | - | - |
| | | Y, see $^{224}Ac$ | - | $4\times10^{1}$ | $2\times10^{-8}$ | $6\times10^{-11}$ | - | - |
| 90 | Thorium-226 | W, all compounds except those given for Y | $5\times10^{3}$ | $2\times10^{2}$ | $6\times10^{-8}$ | $2\times10^{-10}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |
| | | Y, oxides and hydroxides | - | $1\times10^{2}$ | $6\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 90 | Thorium-227 | W, see $^{226}Th$ | $1\times10^{2}$ | $3\times10^{-1}$ | $1\times10^{-10}$ | $5\times10^{-13}$ | $2\times10^{-6}$ | $2\times10^{-5}$ |
| | | Y, see $^{226}Th$ | - | $3\times10^{-1}$ | $1\times10^{-10}$ | $4\times10^{-13}$ | - | - |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 90 | Thorium-228 | W, see $^{226}Th$ | $6\times10^{0}$ | $1\times10^{-2}$ | $4\times10^{-12}$ | - | - | - |
| | | | $(1\times10^{1})$ Bone surf. | $(2\times10^{-2})$ Bone surf. | - | $3\times10^{-14}$ | $2\times10^{-7}$ | $2\times10^{-6}$ |
| | | Y, see $^{226}Th$ | - | $2\times10^{-2}$ | $7\times10^{-12}$ | $2\times10^{-14}$ | - | - |
| 90 | Thorium-229 | W, see $^{226}Th$ | $6\times10^{-1}$ | $9\times10^{-4}$ | $4\times10^{-13}$ | - | - | - |
| | | | $(1\times10^{0})$ Bone surf. | $(2\times10^{-3})$ Bone surf. | - | $3\times10^{-15}$ | $2\times10^{-8}$ | $2\times10^{-7}$ |
| | | Y, see $^{226}Th$ | - | $2\times10^{-3}$ | $1\times10^{-12}$ | - | - | - |
| | | | - | $(3\times10^{-3})$ Bone surf. | - | $4\times10^{-15}$ | - | - |
| 90 | Thorium-230 | W, see $^{226}Th$ | $4\times10^{0}$ | $6\times10^{-3}$ | $3\times10^{-12}$ | - | - | - |
| | | | $(1\times10^{1})$ Bone surf. | $(2\times10^{-2})$ Bone surf. | - | $2\times10^{-14}$ | $1\times10^{-7}$ | $1\times10^{-6}$ |
| | | Y, see $^{226}Th$ | - | $2\times10^{-2}$ | $6\times10^{-12}$ | $3\times10^{-14}$ | - | - |
| 90 | Thorium-231 | W, see $^{226}Th$ | $4\times10^{3}$ | $6\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| | | Y, see $^{226}Th$ | - | $6\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | - | - |
| 90 | Thorium-232 | W, see $^{226}Th$ | $7\times10^{-1}$ | $1\times10^{-3}$ | $5\times10^{-13}$ | - | - | - |
| | | | $(2\times10^{0})$ Bone surf. | $(3\times10^{-3})$ Bone surf. | - | $4\times10^{-15}$ | $3\times10^{-8}$ | $3\times10^{-7}$ |
| | | Y, see $^{226}Th$ | - | $3\times10^{-3}$ | $1\times10^{-12}$ | - | - | - |
| | | | - | $(5\times10^{-3})$ Bone surf. | - | $8\times10^{-15}$ | - | - |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 90 | Thorium-234 | W, see $^{226}Th$ | $3\times10^{2}$ | $2\times10^{2}$ | $8\times10^{-8}$ | $3\times10^{-10}$ | $4\times10^{-6}$ | $4\times10^{-5}$ |
| | | Y, see $^{226}Th$ | - | $2\times10^{2}$ | $6\times10^{-8}$ | $2\times10^{-10}$ | - | - |
| 91 | Protactinium-227 | W, all compounds except those given for Y | $4\times10^{3}$ | $1\times10^{2}$ | $5\times10^{-8}$ | $2\times10^{-10}$ | $5\times10^{-5}$ | $5\times10^{-4}$ |
| | | Y, oxides and hydroxides | - | $1\times10^{2}$ | $4\times10^{-8}$ | $1\times10^{-10}$ | - | - |
| 91 | Protactinium-228 | W, see $^{227}Pa$ | $1\times10^{3}$ | $1\times10^{1}$ | $5\times10^{-9}$ | - | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | | - | $(2\times10^{1})$ Bone surf. | - | $3\times10^{-11}$ | - | - |
| | | Y, see $^{227}Pa$ | - | $1\times10^{1}$ | $5\times10^{-9}$ | $2\times10^{-11}$ | - | - |
| 91 | Protactinium-230 | W, see $^{227}Pa$ | $6\times10^{2}$ | $5\times10^{0}$ | $2\times10^{-9}$ | $7\times10^{-12}$ | - | - |
| | | | $(8\times10^{2})$ Bone surf. | - | - | - | $1\times10^{-5}$ | $1\times10^{-4}$ |
| | | Y, see $^{227}Pa$ | - | $4\times10^{0}$ | $1\times10^{-9}$ | $5\times10^{-12}$ | - | - |
| 91 | Protactinium-231 | W, see $^{227}Pa$ | $2\times10^{-1}$ | $2\times10^{-3}$ | $6\times10^{-13}$ | - | - | - |
| | | | $(5\times10^{-1})$ Bone surf. | $(3\times10^{-3})$ Bone surf. | - | $4\times10^{-15}$ | $7\times10^{-9}$ | $7\times10^{-8}$ |
| | | Y, see $^{227}Pa$ | - | $4\times10^{-3}$ | $2\times10^{-12}$ | - | - | - |
| | | | - | $(5\times10^{-3})$ Bone surf. | - | $8\times10^{-15}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 91 | Protactinium-232 | W, see $^{227}Pa$ | $1\times10^{3}$ | $2\times10^{1}$ | $9\times10^{-9}$ | - | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | | - | $(5\times10^{1})$ Bone surf. | - | $8\times10^{-11}$ | - | - |
| | | Y, see $^{227}Pa$ | - | $6\times10^{1}$ | $2\times10^{-8}$ | - | - | - |
| | | | - | $(8\times10^{1})$ Bone surf. | - | $1\times10^{-10}$ | - | - |
| 91 | Protactinium-233 | W, see $^{227}Pa$ | $1\times10^{3}$ | $7\times10^{2}$ | $3\times10^{-7}$ | $1\times10^{-9}$ | - | - |
| | | | $(2\times10^{3})$ LLI wall | - | - | - | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | Y, see $^{227}Pa$ | - | $6\times10^{2}$ | $2\times10^{-7}$ | $8\times10^{-10}$ | - | - |
| 91 | Protactinium-234 | W, see $^{227}Pa$ | $2\times10^{3}$ | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | Y, see $^{227}Pa$ | - | $7\times10^{3}$ | $3\times10^{-6}$ | $9\times10^{-9}$ | - | - |
| 92 | Uranium-230 | D, $UF_6$, $UO_2F_2$, $UO_2(NO_3)_2$ | $4\times10^{0}$ | $4\times10^{-1}$ | $2\times10^{-10}$ | $6\times10^{-13}$ | - | - |
| | | | $(5\times10^{0})$ Bone surf. | - | - | - | $7\times10^{-8}$ | $7\times10^{-7}$ |
| | | W, $UO_3$, $UF_4$, $UCl_4$ | - | $4\times10^{-1}$ | $1\times10^{-10}$ | $5\times10^{-13}$ | - | - |
| | | Y, $UO_2$, $U_3O_8$ | - | $3\times10^{-1}$ | $1\times10^{-10}$ | $4\times10^{-13}$ | - | - |
| 92 | Uranium-231 | D, see $^{230}U$ | $4\times10^{3}$ | $8\times10^{3}$ | $3\times10^{-6}$ | $1\times10^{-8}$ | $6\times10^{-5}$ | $6\times10^{-4}$ |
| | | W, see $^{230}U$ | - | $6\times10^{3}$ | $2\times10^{-6}$ | $8\times10^{-9}$ | - | - |
| | | Y, see $^{230}U$ | - | $5\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 92 | Uranium-232 | D, see $^{230}U$ | $2\times10^{0}$ | $2\times10^{-1}$ | $9\times10^{-11}$ | - | - | - |
| | | | $(3\times10^{0})$ Bone surf. | $(5\times10^{-1})$ Bone surf. | - | $8\times10^{-13}$ | $4\times10^{-8}$ | $4\times10^{-7}$ |
| | | W, see $^{230}U$ | - | $4\times10^{-1}$ | $2\times10^{-10}$ | $5\times10^{-13}$ | - | - |
| | | Y, see $^{230}U$ | - | $8\times10^{-3}$ | $3\times10^{-12}$ | $1\times10^{-14}$ | - | - |
| 92 | Uranium-233 | D, see $^{230}U$ | $1\times10^{1}$ | $1\times10^{0}$ | $5\times10^{-10}$ | - | - | - |
| | | | $(2\times10^{1})$ Bone surf. | $(2\times10^{0})$ Bone surf. | - | $3\times10^{-12}$ | $3\times10^{-7}$ | $3\times10^{-6}$ |
| | | W, see $^{230}U$ | - | $7\times10^{-1}$ | $3\times10^{-10}$ | $1\times10^{-12}$ | - | - |
| | | Y, see $^{230}U$ | - | $4\times10^{-2}$ | $2\times10^{-11}$ | $5\times10^{-14}$ | - | - |
| 92 | Uranium-234[3] | D, see $^{230}U$ | $1\times10^{1}$ | $1\times10^{0}$ | $5\times10^{-10}$ | - | - | - |
| | | | $(2\times10^{1})$ Bone surf. | $(2\times10^{0})$ Bone surf. | - | $3\times10^{-12}$ | $3\times10^{-7}$ | $3\times10^{-6}$ |
| | | W, see $^{230}U$ | - | $7\times10^{-1}$ | $3\times10^{-10}$ | $1\times10^{-12}$ | - | - |
| | | Y, see $^{230}U$ | - | $4\times10^{-2}$ | $2\times10^{-11}$ | $5\times10^{-14}$ | - | - |
| 92 | Uranium-235[3] | D, see $^{230}U$ | $1\times10^{1}$ | $1\times10^{0}$ | $6\times10^{-10}$ | - | - | - |
| | | | $(2\times10^{1})$ Bone surf. | $(2\times10^{0})$ Bone surf. | - | $3\times10^{-12}$ | $3\times10^{-7}$ | $3\times10^{-6}$ |
| | | W, see $^{230}U$ | - | $8\times10^{-1}$ | $3\times10^{-10}$ | $1\times10^{-12}$ | - | - |
| | | Y, see $^{230}U$ | - | $4\times10^{-2}$ | $2\times10^{-11}$ | $6\times10^{-14}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 92 | Uranium-236 | D, see $^{230}U$ | $1\times10^{1}$ | $1\times10^{0}$ | $5\times10^{-10}$ | - | - | - |
| | | | $(2\times10^{1})$ Bone surf. | $(2\times10^{0})$ Bone surf. | - | $3\times10^{-12}$ | $3\times10^{-7}$ | $3\times10^{-6}$ |
| | | W, see $^{230}U$ | - | $8\times10^{-1}$ | $3\times10^{-10}$ | $1\times10^{-12}$ | - | - |
| | | Y, see $^{230}U$ | - | $4\times10^{-2}$ | $2\times10^{-11}$ | $5\times10^{-14}$ | - | - |
| 92 | Uranium-237 | D, see $^{230}U$ | $2\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{230}U$ | - | $2\times10^{3}$ | $7\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| | | Y, see $^{230}U$ | - | $1\times10^{3}$ | $6\times10^{-7}$ | $2\times10^{-9}$ | - | - |
| 92 | Uranium-238[3] | D, see $^{230}U$ | $1\times10^{1}$ | $1\times10^{0}$ | $6\times10^{-10}$ | - | - | - |
| | | | $(2\times10^{1})$ Bone surf. | $(2\times10^{0})$ Bone surf. | - | $3\times10^{-12}$ | $3\times10^{-7}$ | $3\times10^{-6}$ |
| | | W, see $^{230}U$ | - | $8\times10^{-1}$ | $3\times10^{-10}$ | $1\times10^{-12}$ | - | - |
| | | Y, see $^{230}U$ | - | $4\times10^{-2}$ | $2\times10^{-11}$ | $6\times10^{-14}$ | - | - |
| 92 | Uranium-239[2] | D, see $^{230}U$ | $7\times10^{4}$ | $2\times10^{5}$ | $8\times10^{-5}$ | $3\times10^{-7}$ | $9\times10^{-4}$ | $9\times10^{-3}$ |
| | | W, see $^{230}U$ | - | $2\times10^{5}$ | $7\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| | | Y, see $^{230}U$ | - | $2\times10^{5}$ | $6\times10^{-5}$ | $2\times10^{-7}$ | - | - |
| 92 | Uranium-240 | D, see $^{230}U$ | $1\times10^{3}$ | $4\times10^{3}$ | $2\times10^{-6}$ | $5\times10^{-9}$ | $2\times10^{-5}$ | $2\times10^{-4}$ |
| | | W, see $^{230}U$ | - | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | - | - |
| | | Y, see $^{230}U$ | - | $2\times10^{3}$ | $1\times10^{-6}$ | $3\times10^{-9}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 92 | Uranium-natural[3] | D, see $^{230}U$ | $1x10^{1}$ | $1x10^{0}$ | $5x10^{-10}$ | - | - | - |
| | | | ($2x10^{1}$) Bone surf. | ($2x10^{0}$) Bone surf. | - | $3x10^{-12}$ | $3x10^{-7}$ | $3x10^{-6}$ |
| | | W, see $^{230}U$ | - | $8x10^{-1}$ | $3x10^{-10}$ | $9x10^{-13}$ | - | - |
| | | Y, see $^{230}U$ | - | $5x10^{-2}$ | $2x10^{-11}$ | $9x10^{-14}$ | - | - |
| 93 | Neptunium-232[2] | W, all compounds | $3x10^{4}$ | $2x10^{3}$ | $1x10^{-6}$ | - | - | - |
| | | | ($5x10^{4}$) Bone surf. | ($5x10^{3}$) Bone surf. | - | $8x10^{-9}$ | $7x10^{-4}$ | $7x10^{-3}$ |
| 93 | Neptunium-233[2] | W, all compounds | $8x10^{5}$ | $3x10^{6}$ | $1x10^{-3}$ | $5x10^{-6}$ | $1x10^{-2}$ | $1x10^{-1}$ |
| 93 | Neptunium-234 | W, all compounds | $2x10^{3}$ | $3x10^{3}$ | $1x10^{-6}$ | $4x10^{-9}$ | $3x10^{-5}$ | $3x10^{-4}$ |
| 93 | Neptunium-235 | W, all compounds | $1x10^{4}$ | $1x10^{3}$ | $5x10^{-7}$ | $2x10^{-9}$ | $2x10^{-4}$ | $2x10^{-3}$ |
| 93 | Neptunium-236 ($1.15x10^{5}$ y) | W, all compounds | $4x10^{-1}$ | $3x10^{-2}$ | $1x10^{-11}$ | - | - | - |
| | | | ($5x10^{-1}$) Bone surf. | ($5x10^{-2}$) Bone surf. | - | $8x10^{-14}$ | $7x10^{-9}$ | $7x10^{-8}$ |
| 93 | Neptunium-236 (22.5 h) | W, all compounds | $5x10^{2}$ | $4x10^{1}$ | $2x10^{-8}$ | - | - | - |
| | | | ($8x10^{2}$) Bone surf. | ($8x10^{1}$) Bone surf. | - | $1x10^{-10}$ | $1x10^{-5}$ | $1x10^{-4}$ |
| 93 | Neptunium-237 | W, all compounds | $7x10^{-2}$ | $6x10^{-3}$ | $2x10^{-12}$ | - | - | - |
| | | | ($1x10^{-1}$) Bone surf. | ($1x10^{-2}$) Bone surf. | - | $2x10^{-14}$ | $2x10^{-9}$ | $2x10^{-8}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 93 | Neptunium-238 | W, all compounds | $8x10^{2}$ | $9x10^{1}$ | $4x10^{-8}$ | - | $1x10^{-5}$ | $1x10^{-4}$ |
| | | | - | ($2x10^{2}$) Bone surf. | - | $2x10^{-10}$ | - | - |
| 93 | Neptunium-239 | W, all compounds | $2x10^{3}$ | $2x10^{3}$ | $1x10^{-6}$ | $3x10^{-9}$ | $2x10^{-5}$ | $2x10^{-4}$ |
| 93 | Neptunium-240[2] | W, all compounds | $2x10^{4}$ | $8x10^{4}$ | $4x10^{-5}$ | $1x10^{-7}$ | $3x10^{-4}$ | $3x10^{-3}$ |
| 94 | Plutonium-234 | W, all compounds except $PuO_2$ | $9x10^{3}$ | $2x10^{2}$ | $9x10^{-8}$ | $3x10^{-10}$ | $1x10^{-4}$ | $1x10^{-3}$ |
| | | Y, $PuO_2$ | - | $2x10^{2}$ | $8x10^{-8}$ | $3x10^{-10}$ | - | - |
| 94 | Plutonium-235[2] | W, see $^{234}Pu$ | $9x10^{5}$ | $3x10^{6}$ | $1x10^{-3}$ | $4x10^{-6}$ | $1x10^{-2}$ | $1x10^{-1}$ |
| | | Y, see $^{234}Pu$ | - | $3x10^{6}$ | $1x10^{-3}$ | $4x10^{-6}$ | - | - |
| 94 | Plutonium-236 | W, see $^{234}Pu$ | $2x10^{1}$ | $2x10^{-2}$ | $8x10^{-12}$ | - | - | - |
| | | | ($3x10^{1}$) Bone surf. | ($3x10^{-2}$) Bone surf. | - | $4x10^{-14}$ | $4x10^{-7}$ | $4x10^{-6}$ |
| | | Y, see $^{234}Pu$ | - | $4x10^{-2}$ | $2x10^{-11}$ | $5x10^{-14}$ | - | - |
| 94 | Plutonium-237 | W, see $^{234}Pu$ | $1x10^{4}$ | $3x10^{3}$ | $1x10^{-6}$ | $4x10^{-9}$ | $2x10^{-4}$ | $2x10^{-3}$ |
| | | Y, see $^{234}Pu$ | - | $3x10^{3}$ | $1x10^{-6}$ | $4x10^{-9}$ | - | - |
| 94 | Plutonium-238 | W, see $^{234}Pu$ | $7x10^{0}$ | $6x10^{-3}$ | $3x10^{-12}$ | - | - | - |
| | | | ($1x10^{1}$) Bone surf. | ($1x10^{-2}$) Bone surf. | - | $2x10^{-14}$ | $2x10^{-7}$ | $2x10^{-6}$ |
| | | Y, see $^{234}Pu$ | - | $2x10^{-2}$ | $7x10^{-12}$ | $2x10^{-14}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 94 | Plutonium-239 | W, see $^{234}Pu$ | $6\times10^{0}$ | $5\times10^{-3}$ | $2\times10^{-12}$ | - | - | - |
| | | | ($1\times10^{1}$) Bone surf. | ($1\times10^{-2}$) Bone surf. | - | $2\times10^{-14}$ | $1\times10^{-7}$ | $1\times10^{-6}$ |
| | | Y, see $^{234}Pu$ | - | $1\times10^{-2}$ | $6\times10^{-12}$ | - | - | - |
| | | | - | ($2\times10^{-2}$) Bone surf. | - | $2\times10^{-14}$ | - | - |
| 94 | Plutonium-240 | W, see $^{234}Pu$ | $6\times10^{0}$ | $5\times10^{-3}$ | $2\times10^{-12}$ | - | - | - |
| | | | ($1\times10^{1}$) Bone surf. | ($1\times10^{-2}$) Bone surf. | - | $2\times10^{-14}$ | $1\times10^{-7}$ | $1\times10^{-6}$ |
| | | Y, see $^{234}Pu$ | - | $1\times10^{-2}$ | $6\times10^{-12}$ | - | - | - |
| | | | - | ($2\times10^{-2}$) Bone surf. | - | $2\times10^{-14}$ | - | - |
| 94 | Plutonium-241 | W, see $^{234}Pu$ | $3\times10^{2}$ | $3\times10^{-1}$ | $1\times10^{-10}$ | - | - | - |
| | | | ($5\times10^{2}$) Bone surf. | ($5\times10^{-1}$) Bone surf. | - | $8\times10^{-13}$ | $7\times10^{-6}$ | $7\times10^{-5}$ |
| | | Y, see $^{234}Pu$ | - | $6\times10^{-1}$ | $3\times10^{-10}$ | - | - | - |
| | | | - | ($8\times10^{-1}$) Bone surf. | - | $1\times10^{-12}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 94 | Plutonium-242 | W, see $^{234}Pu$ | $7\times10^{0}$ | $6\times10^{-3}$ | $2\times10^{-12}$ | - | - | - |
| | | | ($1\times10^{1}$) Bone surf. | ($1\times10^{-2}$) Bone surf. | - | $2\times10^{-14}$ | $2\times10^{-7}$ | $2\times10^{-6}$ |
| | | Y, see $^{234}Pu$ | - | $1\times10^{-2}$ | $6\times10^{-12}$ | - | - | - |
| | | | - | ($2\times10^{-2}$) Bone surf. | - | $2\times10^{-14}$ | - | - |
| 94 | Plutonium-243 | W, see $^{234}Pu$ | $2\times10^{4}$ | $4\times10^{4}$ | $1\times10^{-5}$ | $5\times10^{-8}$ | $2\times10^{-4}$ | $2\times10^{-3}$ |
| | | Y, see $^{234}Pu$ | - | $4\times10^{4}$ | $2\times10^{-5}$ | $5\times10^{-8}$ | - | - |
| 94 | Plutonium-244 | W, see $^{234}Pu$ | $7\times10^{0}$ | $6\times10^{-3}$ | $2\times10^{-12}$ | - | - | - |
| | | | ($1\times10^{1}$) Bone surf. | ($1\times10^{-2}$) Bone surf. | - | $2\times10^{-14}$ | $2\times10^{-7}$ | $2\times10^{-6}$ |
| | | Y, see $^{234}Pu$ | - | $2\times10^{-2}$ | $6\times10^{-12}$ | $2\times10^{-14}$ | - | - |
| 94 | Plutonium-245 | W, see $^{234}Pu$ | $2\times10^{3}$ | $5\times10^{3}$ | $2\times10^{-6}$ | $7\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| | | Y, see $^{234}Pu$ | - | $4\times10^{3}$ | $2\times10^{-6}$ | $6\times10^{-9}$ | - | - |
| 95 | Americium-237[2] | W, all compounds | $8\times10^{4}$ | $3\times10^{5}$ | $1\times10^{-4}$ | $4\times10^{-7}$ | $1\times10^{-3}$ | $1\times10^{-2}$ |
| 95 | Americium-238[2] | W, all compounds | $4\times10^{4}$ | $3\times10^{3}$ | $1\times10^{-6}$ | - | $6\times10^{-4}$ | $6\times10^{-3}$ |
| | | | - | ($5\times10^{3}$) Bone surf. | - | $8\times10^{-9}$ | - | - |
| 95 | Americium-239 | W, all compounds | $5\times10^{3}$ | $1\times10^{4}$ | $5\times10^{-6}$ | $2\times10^{-8}$ | $7\times10^{-5}$ | $7\times10^{-4}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Table 1 OCCUPATIONAL VALUES Col. 2- Inhalation ALI (μCi) | Table 1 OCCUPATIONAL VALUES Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 95 | Americium-240 | W, all compounds | $2x10^{3}$ | $3x10^{3}$ | $1x10^{-6}$ | $4x10^{-9}$ | $3x10^{-5}$ | $3x10^{-4}$ |
| 95 | Americium-241 | W, all compounds | $1x10^{0}$ ($2x10^{0}$) Bone surf. | $5x10^{-3}$ ($1x10^{-2}$) Bone surf. | $2x10^{-12}$ - | - $2x10^{-14}$ | - $3x10^{-8}$ | - $3x10^{-7}$ |
| 95 | Americium-242m | W, all compounds | $1x10^{0}$ ($2x10^{0}$) Bone surf. | $5x10^{-3}$ ($1x10^{-2}$) Bone surf. | $2x10^{-12}$ - | - $2x10^{-14}$ | - $3x10^{-8}$ | - $3x10^{-7}$ |
| 95 | Americium-242 | W, all compounds | $5x10^{3}$ | $8x10^{1}$ | $3x10^{-8}$ | $1x10^{-10}$ | $6x10^{-5}$ | $6x10^{-4}$ |
| 95 | Americium-243 | W, all compounds | $1x10^{0}$ ($2x10^{0}$) Bone surf. | $5x10^{-3}$ ($1x10^{-2}$) Bone surf. | $2x10^{-12}$ - | - $2x10^{-14}$ | - $3x10^{-8}$ | - $3x10^{-7}$ |
| 95 | Americium-244m[2] | W, all compounds | $6x10^{4}$ ($8x10^{4}$) St. wall | $4x10^{3}$ ($5x10^{3}$) Bone surf. | $2x10^{-6}$ - | - $8x10^{-9}$ | - $1x10^{-3}$ | - $1x10^{-2}$ |
| 95 | Americium-244 | W, all compounds | $3x10^{3}$ - | $2x10^{2}$ ($3x10^{2}$) Bone surf. | $7x10^{-8}$ - | - $4x10^{-10}$ | $4x10^{-5}$ - | $4x10^{-4}$ - |
| 95 | Americium-245 | W, all compounds | $3x10^{4}$ | $8x10^{4}$ | $3x10^{-5}$ | $1x10^{-7}$ | $4x10^{-4}$ | $4x10^{-3}$ |
| 95 | Americium-246m[2] | W, all compounds | $5x10^{4}$ | $2x10^{5}$ | $7x10^{-5}$ | $2x10^{-7}$ | $7x10^{-4}$ | $7x10^{-3}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Table 1 OCCUPATIONAL VALUES Col. 2- Inhalation ALI (μCi) | Table 1 OCCUPATIONAL VALUES Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 95 | Americium-246[2] | W, all compounds | $3x10^{4}$ | $1x10^{5}$ | $4x10^{-5}$ | $1x10^{-7}$ | $4x10^{-4}$ | $4x10^{-3}$ |
| 96 | Curium-238 | W, all compounds | $2x10^{4}$ | $1x10^{3}$ | $4x10^{-7}$ | $1x10^{-9}$ | $2x10^{-4}$ | $2x10^{-3}$ |
| 96 | Curium-240 | W, all compounds | $1x10^{2}$ | $5x10^{-1}$ | $2x10^{-10}$ | $8x10^{-13}$ | $2x10^{-6}$ | $2x10^{-5}$ |
| 96 | Curium-241 | W, all compounds | $1x10^{3}$ - | $2x10^{1}$ ($3x10^{1}$) Bone surf. | $9x10^{-9}$ - | - $4x10^{-11}$ | $2x10^{-5}$ - | $2x10^{-4}$ - |
| 96 | Curium-242 | W, all compounds | $6x10^{1}$ ($8x10^{1}$) Bone surf. | $3x10^{-1}$ - | $1x10^{-10}$ - | $4x10^{-13}$ - | - $1x10^{-6}$ | - $1x10^{-5}$ |
| 96 | Curium-243 | W, all compounds | $2x10^{0}$ ($3x10^{0}$) Bone surf. | $8x10^{-3}$ ($1x10^{-2}$) Bone surf. | $4x10^{-12}$ - | - $2x10^{-14}$ | - $4x10^{-8}$ | - $4x10^{-7}$ |
| 96 | Curium-244 | W, all compounds | $2x10^{0}$ ($5x10^{0}$) Bone surf. | $1x10^{-2}$ ($2x10^{-2}$) Bone surf. | $4x10^{-12}$ - | - $3x10^{-14}$ | - $7x10^{-8}$ | - $7x10^{-7}$ |
| 96 | Curium-245 | W, all compounds | $1x10^{0}$ ($2x10^{0}$) Bone surf. | $5x10^{-3}$ ($8x10^{-3}$) Bone surf. | $2x10^{-12}$ - | - $1x10^{-14}$ | - $3x10^{-8}$ | - $3x10^{-7}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 96 | Curium-246 | W, all compounds | $1\times10^{0}$ | $5\times10^{-3}$ | $2\times10^{-12}$ | - | - | - |
| | | | ($2\times10^{0}$) Bone surf. | ($8\times10^{-3}$) Bone surf. | - | $1\times10^{-14}$ | $3\times10^{-8}$ | $3\times10^{-7}$ |
| 96 | Curium-247 | W, all compounds | $1\times10^{0}$ | $6\times10^{-3}$ | $2\times10^{-12}$ | - | - | - |
| | | | ($2\times10^{0}$) Bone surf. | ($1\times10^{-2}$) Bone surf. | - | $2\times10^{-14}$ | $3\times10^{-8}$ | $3\times10^{-7}$ |
| 96 | Curium-248 | W, all compounds | $4\times10^{-1}$ | $1\times10^{-3}$ | $6\times10^{-13}$ | - | - | - |
| | | | ($5\times10^{-1}$) Bone surf. | ($2\times10^{-3}$) Bone surf. | - | $3\times10^{-15}$ | $7\times10^{-9}$ | $7\times10^{-8}$ |
| 96 | Curium-249[2] | W, all compounds | $5\times10^{4}$ | $2\times10^{4}$ | $6\times10^{-6}$ | $3\times10^{-8}$ | $7\times10^{-4}$ | $7\times10^{-3}$ |
| 97 | Berkelium-245 | W, all compounds | $2\times10^{3}$ | $1\times10^{3}$ | $5\times10^{-7}$ | $2\times10^{-9}$ | $3\times10^{-5}$ | $3\times10^{-4}$ |
| 97 | Berkelium-246 | W, all compounds | $3\times10^{3}$ | $3\times10^{3}$ | $1\times10^{-6}$ | $4\times10^{-9}$ | $4\times10^{-5}$ | $4\times10^{-4}$ |
| 97 | Berkelium-247 | W, all compounds | $1\times10^{0}$ | $5\times10^{-3}$ | $2\times10^{-12}$ | - | - | - |
| | | | ($2\times10^{0}$) Bone surf. | ($8\times10^{-3}$) Bone surf. | - | $1\times10^{-14}$ | $3\times10^{-8}$ | $3\times10^{-7}$ |
| 97 | Berkelium-249 | W, all compounds | $5\times10^{2}$ | $2\times10^{0}$ | $9\times10^{-10}$ | - | - | - |
| | | | ($8\times10^{2}$) Bone surf. | ($3\times10^{0}$) Bone surf. | - | $4\times10^{-12}$ | $1\times10^{-5}$ | $1\times10^{-4}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 97 | Berkelium-250 | W, all compounds | $1\times10^{4}$ | $4\times10^{2}$ | $2\times10^{-7}$ | - | $1\times10^{-4}$ | $1\times10^{-3}$ |
| | | | - | ($8\times10^{2}$) Bone surf. | - | $1\times10^{-9}$ | - | - |
| 98 | Californium-244 | W, all compounds except those given for Y | $3\times10^{4}$ | $6\times10^{2}$ | $2\times10^{-7}$ | $8\times10^{-10}$ | $3\times10^{-4}$ | $3\times10^{-3}$ |
| | | Y, oxides and hydroxides | - | $6\times10^{2}$ | $2\times10^{-7}$ | $8\times10^{-10}$ | - | - |
| 98 | Californium-246 | W, see $^{244}Cf$ | $4\times10^{2}$ | $1\times10^{1}$ | $4\times10^{-9}$ | $1\times10^{-11}$ | - | - |
| | | | ($5\times10^{2}$) LLI wall | - | - | - | $7\times10^{-6}$ | $7\times10^{-5}$ |
| | | Y, see $^{244}Cf$ | - | $9\times10^{0}$ | $4\times10^{-9}$ | $1\times10^{-11}$ | - | - |
| 98 | Californium-248 | W, see $^{244}Cf$ | $2\times10^{1}$ | $9\times10^{-2}$ | $4\times10^{-11}$ | - | - | - |
| | | | ($3\times10^{1}$) Bone surf. | ($1\times10^{-1}$) Bone surf. | - | $2\times10^{-13}$ | $4\times10^{-7}$ | $4\times10^{-6}$ |
| | | Y, see $^{244}Cf$ | - | $1\times10^{-1}$ | $5\times10^{-11}$ | $2\times10^{-13}$ | - | - |
| 98 | Californium-249 | W, see $^{244}Cf$ | $1\times10^{0}$ | $5\times10^{-3}$ | $2\times10^{-12}$ | - | - | - |
| | | | ($2\times10^{0}$) Bone surf. | ($8\times10^{-3}$) Bone surf. | - | $1\times10^{-14}$ | $3\times10^{-8}$ | $3\times10^{-7}$ |
| | | Y, see $^{244}Cf$ | - | $1\times10^{-2}$ | $5\times10^{-12}$ | $2\times10^{-14}$ | - | - |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 98 | Californium-250 | W, see $^{244}Cf$ | $3x10^{0}$ | $1x10^{-2}$ | $5x10^{-12}$ | - | - | - |
| | | | ($5x10^{0}$) Bone surf. | ($2x10^{-2}$) Bone surf. | - | $3x10^{-14}$ | $7x10^{-8}$ | $7x10^{-7}$ |
| | | Y, see $^{244}Cf$ | - | $3x10^{-2}$ | $1x10^{-11}$ | $4x10^{-14}$ | - | - |
| 98 | Californium-251 | W, see $^{244}Cf$ | $1x10^{0}$ | $5x10^{-3}$ | $2x10^{-12}$ | - | - | - |
| | | | ($2x10^{0}$) Bone surf. | ($8x10^{-3}$) Bone surf. | - | $1x10^{-14}$ | $3x10^{-8}$ | $3x10^{-7}$ |
| | | Y, see $^{244}Cf$ | - | $1x10^{-2}$ | $5x10^{-12}$ | $2x10^{-14}$ | - | - |
| 98 | Californium-252 | W, see $^{244}Cf$ | $6x10^{0}$ | $3x10^{-2}$ | $1x10^{-11}$ | - | - | - |
| | | | ($1x10^{1}$) Bone surf. | ($5x10^{-2}$) Bone surf. | - | $8x10^{-14}$ | $1x10^{-7}$ | $1x10^{-6}$ |
| | | Y, see $^{244}Cf$ | - | $4x10^{-2}$ | $2x10^{-11}$ | $5x10^{-14}$ | - | - |
| 98 | Californium-253 | W, see $^{244}Cf$ | $6x10^{2}$ | $2x10^{0}$ | $8x10^{-10}$ | $3x10^{-12}$ | - | - |
| | | | ($8x10^{2}$) Bone surf. | - | - | - | $1x10^{-5}$ | $1x10^{-4}$ |
| | | Y, see $^{244}Cf$ | - | $2x10^{0}$ | $7x10^{-10}$ | $2x10^{-12}$ | - | - |
| 98 | Californium-254 | W, see $^{244}Cf$ | $3x10^{0}$ | $2x10^{-2}$ | $9x10^{-12}$ | $3x10^{-14}$ | $4x10^{-8}$ | $4x10^{-7}$ |
| | | Y, see $^{244}Cf$ | - | $2x10^{-2}$ | $7x10^{-12}$ | $2x10^{-14}$ | - | - |
| 99 | Einsteinium-250 | W, all compounds | $5x10^{4}$ | $7x10^{2}$ | $3x10^{-7}$ | - | $7x10^{-4}$ | $7x10^{-3}$ |
| | | | - | ($1x10^{3}$) Bone surf. | - | $2x10^{-9}$ | - | - |

| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| 99 | Einsteinium-251 | W, all compounds | $7x10^{3}$ | $1x10^{3}$ | $5x10^{-7}$ | $2x10^{-9}$ | $1x10^{-4}$ | $1x10^{-3}$ |
| 99 | Einsteinium-253 | W, all compounds | $2x10^{2}$ | $2x10^{0}$ | $6x10^{-10}$ | $2x10^{-12}$ | $3x10^{-6}$ | $3x10^{-5}$ |
| 99 | Einsteinium-254m | W, all compounds | $3x10^{2}$ | $1x10^{1}$ | $4x10^{-9}$ | $1x10^{-11}$ | $4x10^{-6}$ | $4x10^{-5}$ |
| 99 | Einsteinium-254 | W, all compounds | $2x10^{1}$ | $1x10^{-1}$ | $4x10^{-11}$ | $1x10^{-13}$ | - | - |
| | | | ($3x10^{1}$) Bone surf. | - | - | - | $4x10^{-7}$ | $4x10^{-6}$ |
| 100 | Fermium-252 | W, all compounds | $5x10^{2}$ | $1x10^{1}$ | $5x10^{-9}$ | $2x10^{-11}$ | $7x10^{-6}$ | $7x10^{-5}$ |
| 100 | Fermium-253 | W, all compounds | $1x10^{3}$ | $1x10^{1}$ | $4x10^{-9}$ | $1x10^{-11}$ | $2x10^{-5}$ | $2x10^{-4}$ |
| 100 | Fermium-254 | W, all compounds | $3x10^{3}$ | $1x10^{2}$ | $4x10^{-8}$ | $1x10^{-10}$ | $4x10^{-5}$ | $4x10^{-4}$ |
| 100 | Fermium-255 | W, all compounds | $5x10^{2}$ | $2x10^{1}$ | $9x10^{-9}$ | $3x10^{-11}$ | $7x10^{-6}$ | $7x10^{-5}$ |
| 100 | Fermium-257 | W, all compounds | $5x10^{1}$ | $2x10^{-1}$ | $1x10^{-10}$ | $3x10^{-13}$ | - | - |
| | | | ($8x10^{1}$) Bone surf. | - | - | - | $1x10^{-6}$ | $1x10^{-5}$ |
| 101 | Mendelevium-257 | W, all compounds | $9x10^{3}$ | $1x10^{2}$ | $4x10^{-8}$ | $1x10^{-10}$ | $1x10^{-4}$ | $1x10^{-3}$ |
| 101 | Mendelevium-258 | W, all compounds | $7x10^{1}$ | $3x10^{-1}$ | $1x10^{-10}$ | $5x10^{-13}$ | $1x10^{-6}$ | $1x10^{-5}$ |

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| Atomic No. | Radionuclide | Class | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|---|---|
| - | Any single radionuclide not listed above with decay mode other than alpha emission or spontaneous fission and with radioactive half-life less than 2 hours | Submersion[1] | - | $2x10^{2}$ | $1x10^{-7}$ | $1x10^{-9}$ | - | - |
| - | Any single radionuclide not listed above with decay mode other than alpha emission or spontaneous fission and with radioactive half-life greater than 2 hours | | - | $2x10^{-1}$ | $1x10^{-10}$ | $1x10^{-12}$ | $1x10^{-8}$ | $1x10^{-7}$ |
| - | Any single radionuclide not listed above which decays by alpha emission or spontaneous fission, or any mixture for which either the identity or the concentration of any radionuclide in the mixture is not known. | | - | $4x10^{-4}$ | $2x10^{-13}$ | $1x10^{-15}$ | $2x10^{-9}$ | $2x10^{-8}$ |

[1]"Submersion" means that values given are for submersion in a semispherical infinite cloud of airborne material.

[2]These radionuclides have radiological half-lives less than 2 hours. The total dose equivalent received during operations with these radionuclides might include a significant contribution from external exposure. The DAC values for all radionuclides other than those designated Class "Submersion", are based upon the committed effective dose equivalent due to the intake of the radionuclide into the body and do NOT include potentially significant contributions to dose equivalent from external exposures. The licensee may substitute $1 \times 10^{-7}$ μCi/ml for the listed DAC to account for the submersion dose prospectively, but should use individual monitoring devices or other radiation measuring instruments that measure external exposure to demonstrate compliance with the limits. (See § 20.203.)

[3]For soluble mixtures of U-238, U-234 and U-235 in air chemical toxicity may be the limiting factor. If the percent by weight (enrichment) of U-235 is not greater than 5, the concentration value for a 40-hour workweek is 0.2 milligrams uranium per cubic meter of air average. For any enrichment, the product of the average concentration and time of exposure during a 40-hour workweek shall not exceed $8x10^{-3}$ SA μCi-hr/ml, where SA is the specific activity of the uranium inhaled. The specific activity for natural uranium is $6.77x10^{-7}$ curies per gram U. The specific activity for other mixtures of U-238, U-235 and U-234, if not known, shall be: $SA=3.6x10^{-7}$ curies/gram U U-depleted. $SA=(0.4+.38\ E+0.0071\ E^2) \times 10^{-6}$, where $E > 0.72$. E is the percentage by weight of U-235, expressed as percent.

NOTE:

1. If the identity of each radionuclide in a mixture is known but the concentration of one or more of the radionuclides in the mixture is not known, the DAC for the mixture shall be the most restrictive DAC of any radionuclide in the mixture.

2. If the identity of each radionuclide in the mixture is not known, but it is known that certain radionuclides specified in this appendix are not present in the mixture, the inhalation ALI, DAC, and reference level and sewage concentrations for the mixture are the lowest values specified in this appendix for any radionuclide which is not known to be absent from the mixture; or

| Radionuclide | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|
| If it is known that Ac-227-D is not present | - | $7x10^{-4}$ | $3x10^{-13}$ | - | - | - |
| If, in addition, it is known that Ac-227-W,Y, Th-229-W,Y, Th-230-W, Th-232-W,Y, Pa-231-W,Y, Np-237-W, Pu-238-W, Pu-239-W, Pu-240-W, Pu-242-W, Pu-244-W, Am-241-W, Am-242m-W, Am-243-W, Cm-245-W, Cm-246-W, Cm-247-W, Cm-248-W, Bk-247-W, Cf-249-W, and Cf-251-W are not present | - | $7x10^{-3}$ | $3x10^{-12}$ | - | - | - |
| If, in addition, it is known that Sm-146-W, Sm-147-W, Gd-148-D,W, Gd-152-D,W, Th-228-W,Y, Th-230-Y, U-232-Y, U-233-Y, U-234-Y, U-235-Y, U-236-Y, U-238-Y, Np-236-W, Pu-236-W,Y, Pu-238-Y, Pu-239-Y, Pu-240-Y, Pu-242-Y, Pu-244-Y, Cm-243-W, Cm-244-W, Cf-249-Y, Cf-250-W,Y, Cf-251-Y, Cf-252-W,Y, and Cf-254-W,Y are not present | - | $7x10^{-2}$ | $3x10^{-11}$ | - | - | - |
| If, in addition, it is known that Pb-210-D, Po-210-D,W, Ra-226-W, Ac-225-D,Y, Th-227-W,Y, U-230-D,W,Y, U-232-D,W, Pu-241-W,Y, Cm-240-W, Cm-242-W, Cf-248-W,Y, Es-254-W, Fm-257-W and Md-258-W are not present | - | $7x10^{-1}$ | $3x10^{-10}$ | - | - | - |
| If, in addition, it is known that Si-32-Y, Ti-44-Y, Sr-90-Y, Zr-93-D, Cd-113m-D, Cd-113-D, In-115-D,W, La-138-D, Lu-176-W, Hf-178m-D,W, | | | | | | |

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| Radionuclide | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|
| Hf-182-D,W, Bi-210m-D,W, Ra-223-W, Ra-224-W, Ra-225-W, Ra-228-W, Ac-225-W, Ac-226-D,W,Y, Pa-230-W,Y, U-233-D,W, U-234-D,W, U-235-D,W, U-236-D,W, U-238-D,W, Bk-249-W, Cf-253-W,Y, and Es-253-W are not present | - | $7x10^{0}$ | $3x10^{-9}$ | - | - | - |
| If it is known that Ac-227-D,W,Y, Th-229-W,Y, Th-232-W,Y, Pa-231-W,Y and Cm-248-W are not present | - | - | - | $1x10^{-14}$ | - | - |
| If, in addition, it is known that Sm-146-W, Gd-148-D,W, Gd-152-D, Th-228-W,Y, Th-230-W,Y, U-232-Y, U-233-Y, U-234-Y, U-235-Y, U-236-Y, U-238-Y, U-Nat-Y, Np-236-W, Np-237-W, Pu-236-W,Y, Pu-238-W,Y, Pu-239-W,Y, Pu-240-W,Y, Pu-242-W,Y, Pu-244-W,Y, Am-241-W, Am-242m-W, Am-243-W, Cm-243-W, Cm-244-W, Cm-245-W, Cm-246-W, Cm-247-W, Bk-247-W, Cf-249-W,Y, Cf-250-W,Y, Cf-251-W,Y, Cf-252-W,Y, and Cf-254-W,Y are not present | - | - | - | $1x10^{-13}$ | - | - |
| If, in addition, it is known that Sm-147-W, Gd-152-W, Pb-210-D, Bi-210m-W, Po-210-D,W, Ra-223-W, Ra-225-W, Ra-226-W, Ac-225-D,W,Y, Th-227-W,Y, U-230-D,W,Y, U-232-D,W, U-Nat-W, Pu-241-W, Cm-240-W, Cm-242-W, Cf-248-W,Y, Es-254-W, Fm-257-W, and Md-258-W are not present | - | - | - | $1x10^{-12}$ | - | - |
| If, in addition, it is known that Si-32-Y, Ti-44-Y, Fe-60-D, Sr-90-Y, Cd-113m-D, Cd-113-D, In-115-D,W, La-138-D, Hf-178m-D,W, Hf-182-D, Bi-210m-D, Ra-224-W, Ra-228-W, Ac-226-D,W,Y, Pa-230-W,Y, U-233-D,W, U-234-D,W, U-235-D,W, U-236-D,W, U-238-D,W, U-Nat-D, Pu-241-Y, Bk-249-W, Cf-253-W,Y, and Es-253-W are not present | - | - | - | $1x10^{-11}$ | - | - |

| Radionuclide | Table 1 OCCUPATIONAL VALUES Col. 1- Oral Ingestion ALI (μCi) | Col. 2- Inhalation ALI (μCi) | Col. 3- DAC (μCi/ml) | Table 2 REFERENCE LEVEL CONCENTRATIONS Col. 1- Air (μCi/ml) | Col. 2- Water (μCi/ml) | Table 3 RELEASE TO SEWERAGE Monthly Average (μCi/ml) |
|---|---|---|---|---|---|---|
| If it is known that Ac-227, Pa-231, Np-236 ($1.15x10^{5}$y), Np-237 and Cm-248 are not present | - | - | - | - | $1x10^{-8}$ | $1x10^{-7}$ |
| If, in addition, it is known that Pb-210, Po-210, Ra-226, Ra-228, Th-229, Th-232, U-230, U-232, Am-241, Am-242m, Am-243, Cm-243, Cm-244, Cm-245, Cm-246, Cm-247, Bk-247, Cf-249, Cf-250, Cf-251, and Cf-254 are not present | - | - | - | - | $1x10^{-7}$ | $1x10^{-6}$ |
| If, in addition, it is known that Fe-60, Sr-90, Cd-113m, Cd-113, Cd-115, In-115, I-129, Cs-134, Sm-146, Sm-147, Gd-148, Gd-152, Hg-194 (organic), Bi-210, Ra-223, Ra-224, Ra-225, Ac-225, Th-228, Th-230, U-233, U-234, U-235, U-236, U-238, U-Nat, Pu-236, Pu-238, Pu-239, Pu-240, Pu-242, Pu-244, Cf-248, Cf-252, Es-254, and Md-258 are not present | - | - | - | - | $1x10^{-6}$ | $1x10^{-5}$ |

3. If a mixture of radionuclides consists of uranium and its daughters in ore dust (10 μm AMAD particle distribution assumed) prior to chemical separation of the uranium from the ore, the following values may be used for the DAC of the mixture: $6 \times 10^{-11}$ μCi of gross alpha activity from uranium-238, uranium-234, thorium-230, and radium-226 per milliliter of air; $3 \times 10^{-11}$ μCi of natural uranium per milliliter of air; or 45 micrograms of natural uranium per cubic meter of air.

4. If the identity and concentration of each radionuclide in a mixture are known, the limiting values should be derived as follows: Determine, for each radionuclide in the mixture, the ratio between the concentration present in the mixture and the concentration otherwise established in Appendix B for the specific radionuclide when not in a mixture. The sum of such ratios for all of the radionuclides in the mixture may not exceed "1" (i.e., "unity").

Example: If radionuclides "A," "B," and "C" are present in concentrations $C_A$, $C_B$, and $C_C$, and if the applicable DACs are $DAC_A$, $DAC_B$, and $DAC_C$, respectively, then the concentrations shall be limited so that the following relationship exists:

$$\frac{C_A}{DAC_A} + \frac{C_B}{DAC_B} + \frac{C_C}{DAC_C} \leq 1$$

APPENDIX C

QUANTITIES* REQUIRING LABELING

| Radionuclide | Quantity (μCi) | Radionuclide | Quantity (μCi) |
|---|---|---|---|
| Hydrogen-3 | 1,000 | Chromium-48 | 1,000 |
| Beryllium-7 | 1,000 | Chromium-49 | 1,000 |
| Beryllium-10 | 1 | Chromium-51 | 1,000 |
| Carbon-11 | 1,000 | Manganese-51 | 1,000 |
| Carbon-14 | 100 | Manganese-52m | 1,000 |
| Fluorine-18 | 1,000 | Manganese-52 | 100 |
| Sodium-22 | 10 | Manganese-53 | 1,000 |
| Sodium-24 | 100 | Manganese-54 | 100 |
| Magnesium-28 | 100 | Manganese-56 | 1,000 |
| Aluminum-26 | 10 | Iron-52 | 100 |
| Silicon-31 | 1,000 | Iron-55 | 100 |
| Silicon-32 | 1 | Iron-59 | 10 |
| Phosphorus-32 | 10 | Iron-60 | 1 |
| Phosphorus-33 | 100 | Cobalt-55 | 100 |
| Sulfur-35 | 100 | Cobalt-56 | 10 |
| Chlorine-36 | 10 | Cobalt-57 | 100 |
| Chlorine-38 | 1,000 | Cobalt-58m | 1,000 |
| Chlorine-39 | 1,000 | Cobalt-58 | 100 |
| Argon-39 | 1,000 | Cobalt-60m | 1,000 |
| Argon-41 | 1,000 | Cobalt-60 | 1 |
| Potassium-40 | 10 | Cobalt-61 | 1,000 |
| Potassium-42 | 1,000 | Cobalt-62m | 1,000 |
| Potassium-43 | 1,000 | Nickel-56 | 100 |
| Potassium-44 | 1,000 | Nickel-57 | 100 |
| Potassium-45 | 1,000 | Nickel-59 | 100 |
| Calcium-41 | 100 | Nickel-63 | 100 |
| Calcium-45 | 100 | Nickel-65 | 1,000 |
| Calcium-47 | 100 | Nickel-66 | 10 |
| Scandium-43 | 1,000 | Copper-60 | 1,000 |
| Scandium-44m | 100 | Copper-61 | 1,000 |
| Scandium-44 | 100 | Copper-64 | 1,000 |
| Scandium-46 | 10 | Copper-67 | 1,000 |
| Scandium-47 | 100 | Zinc-62 | 100 |
| Scandium-48 | 100 | Zinc-63 | 1,000 |
| Scandium-49 | 1,000 | Zinc-65 | 10 |
| Titanium-44 | 1 | Zinc-69m | 100 |
| Titanium-45 | 1,000 | Zinc-69 | 1,000 |
| Vanadium-47 | 1,000 | Zinc-71m | 1,000 |
| Vanadium-48 | 100 | Zinc-72 | 100 |
| Vanadium-49 | 1,000 | Gallium-65 | 1,000 |

*The quantities listed above were derived by taking 1/10th of the most restrictive ALI listed in Table 1, Columns 1 and 2 of Appendix B of this part, rounding to the nearest factor of ten, and arbitrarily constraining the values listed between 0.001 and 1,000 μCi.





APPENDIX C (continued)

| Radionuclide | Quantity (μCi) | Radionuclide | Quantity (μCi) |
|---|---|---|---|
| Gallium-66 | 100 | Krypton-85 | 1,000 |
| Gallium-67 | 1,000 | Krypton-87 | 1,000 |
| Gallium-68 | 1,000 | Krypton-88 | 1,000 |
| Gallium-70 | 1,000 | Rubidium-79 | 1,000 |
| Gallium-72 | 100 | Rubidium-81m | 1,000 |
| Gallium-73 | 1,000 | Rubidium-81 | 1,000 |
| Germanium-66 | 1,000 | Rubidium-82m | 1,000 |
| Germanium-67 | 1,000 | Rubidium-83 | 100 |
| Germanium-68 | 10 | Rubidium-84 | 100 |
| Germanium-69 | 1,000 | Rubidium-86 | 100 |
| Germanium-71 | 1,000 | Rubidium-87 | 100 |
| Germanium-75 | 1,000 | Rubidium-88 | 1,000 |
| Germanium-77 | 1,000 | Rubidium-89 | 1,000 |
| Germanium-78 | 1,000 | Strontium-80 | 100 |
| Arsenic-69 | 1,000 | Strontium-81 | 1,000 |
| Arsenic-70 | 1,000 | Strontium-83 | 100 |
| Arsenic-71 | 100 | Strontium-85m | 1,000 |
| Arsenic-72 | 100 | Strontium-85 | 100 |
| Arsenic-73 | 100 | Strontium-87m | 1,000 |
| Arsenic-74 | 100 | Strontium-89 | 10 |
| Arsenic-76 | 100 | Strontium-90 | 0.1 |
| Arsenic-77 | 100 | Strontium-91 | 100 |
| Arsenic-78 | 1,000 | Strontium-92 | 100 |
| Selenium-70 | 1,000 | Yttrium-86m | 1,000 |
| Selenium-73m | 1,000 | Yttrium-86 | 100 |
| Selenium-73 | 100 | Yttrium-87 | 100 |
| Selenium-75 | 100 | Yttrium-88 | 10 |
| Selenium-79 | 100 | Yttrium-90m | 1,000 |
| Selenium-81m | 1,000 | Yttrium-90 | 10 |
| Selenium-81 | 1,000 | Yttrium-91m | 1,000 |
| Selenium-83 | 1,000 | Yttrium-91 | 10 |
| Bromine-74m | 1,000 | Yttrium-92 | 100 |
| Bromine-74 | 1,000 | Yttrium-93 | 100 |
| Bromine-75 | 1,000 | Yttrium-94 | 1,000 |
| Bromine-76 | 100 | Yttrium-95 | 1,000 |
| Bromine-77 | 1,000 | Zirconium-86 | 100 |
| Bromine-80m | 1,000 | Zirconium-88 | 10 |
| Bromine-80 | 1,000 | Zirconium-89 | 100 |
| Bromine-82 | 100 | Zirconium-93 | 1 |
| Bromine-83 | 1,000 | Zirconium-95 | 10 |
| Bromine-84 | 1,000 | Zirconium-97 | 100 |
| Krypton-74 | 1,000 | Niobium-88 | 1,000 |
| Krypton-76 | 1,000 | Niobium-89 (66 min) | 1,000 |
| Krypton-77 | 1,000 | Niobium-89 (122 min) | 1,000 |
| Krypton-79 | 1,000 | Niobium-90 | 100 |
| Krypton-81 | 1,000 | Niobium-93m | 10 |
| Krypton-83m | 1,000 | | |
| Krypton-85m | 1,000 | | |

APPENDIX C (continued)

| Radionuclide | Quantity (μCi) | Radionuclide | Quantity (μCi) |
|---|---|---|---|
| Niobium-94 | 1 | Silver-104 | 1,000 |
| Niobium-95m | 100 | Silver-105 | 100 |
| Niobium-95 | 100 | Silver-106m | 100 |
| Niobium-96 | 100 | Silver-106 | 1,000 |
| Niobium-97 | 1,000 | Silver-108m | 1 |
| Niobium-98 | 1,000 | Silver-110m | 10 |
| Molybdenum-90 | 100 | Silver-111 | 100 |
| Molybdenum-93m | 100 | Silver-112 | 100 |
| Molybdenum-93 | 10 | Silver-115 | 1,000 |
| Molybdenum-99 | 100 | Cadmium-104 | 1,000 |
| Molybdenum-101 | 1,000 | Cadmium-107 | 1,000 |
| Technetium-93m | 1,000 | Cadmium-109 | 1 |
| Technetium-93 | 1,000 | Cadmium-113m | 0.1 |
| Technetium-94m | 1,000 | Cadmium-113 | 0.1 |
| Technetium-94 | 1,000 | Cadmium-115m | 10 |
| Technetium-96m | 1,000 | Cadmium-115 | 100 |
| Technetium-96 | 100 | Cadmium-117m | 1,000 |
| Technetium-97m | 100 | Cadmium-117 | 1,000 |
| Technetium-97 | 1,000 | Indium-109 | 1,000 |
| Technetium-98 | 10 | Indium-110m | |
| Technetium-99m | 1,000 | (69.1m) | 1,000 |
| Technetium-99 | 100 | Indium-110m | |
| Technetium-101 | 1,000 | (4.9h) | 1,000 |
| Technetium-104 | 1,000 | Indium-111 | 100 |
| Ruthenium-94 | 1,000 | Indium-112 | 1,000 |
| Ruthenium-97 | 1,000 | Indium-113m | 1,000 |
| Ruthenium-103 | 100 | Indium-114m | 10 |
| Ruthenium-105 | 1,000 | Indium-115m | 1,000 |
| Ruthenium-106 | 1 | Indium-115 | 0.1 |
| Rhodium-99m | 1,000 | Indium-116m | 1,000 |
| Rhodium-99 | 100 | Indium-117m | 1,000 |
| Rhodium-100 | 100 | Indium-117 | 1,000 |
| Rhodium-101m | 1,000 | Indium-119m | 1,000 |
| Rhodium-101 | 10 | Tin-110 | 100 |
| Rhodium-102m | 10 | Tin-111 | 1,000 |
| Rhodium-102 | 10 | Tin 113 | 100 |
| Rhodium-103m | 1,000 | Tin-117m | 100 |
| Rhodium-105 | 100 | Tin-119m | 100 |
| Rhodium-106m | 1,000 | Tin-121m | 100 |
| Rhodium-107 | 1,000 | Tin-121 | 1,000 |
| Palladium-100 | 100 | Tin-123m | 1,000 |
| Palladium-101 | 1,000 | Tin-123 | 10 |
| Palladium-103 | 100 | Tin-125 | 10 |
| Palladium-107 | 10 | Tin-126 | 10 |
| Palladium-109 | 100 | Tin-127 | 1,000 |
| Silver-102 | 1,000 | Tin-128 | 1,000 |
| Silver-103 | 1,000 | Antimony-115 | 1,000 |
| Silver-104m | 1,000 | Antimony-116m | 1,000 |





APPENDIX C (continued)

| Radionuclide | Quantity (μCi) | Radionuclide | Quantity (μCi) |
|---|---|---|---|
| Antimony-116 | 1,000 | Iodine-131 | 1 |
| Antimony-117 | 1,000 | Iodine-132m | 100 |
| Antimony-118m | 1,000 | Iodine-132 | 100 |
| Antimony-119 | 1,000 | Iodine-133 | 10 |
| Antimony-120 | | Iodine-134 | 1,000 |
| (16m) | 1,000 | Iodine-135 | 100 |
| Antimony-120 | | Xenon-120 | 1,000 |
| (5.76d) | 100 | Xenon-121 | 1,000 |
| Antimony-122 | 100 | Xenon-122 | 1,000 |
| Antimony-124m | 1,000 | Xenon-123 | 1,000 |
| Antimony-124 | 10 | Xenon-125 | 1,000 |
| Antimony-125 | 100 | Xenon-127 | 1,000 |
| Antimony-126m | 1,000 | Xenon-129m | 1,000 |
| Antimony-126 | 100 | Xenon-131m | 1,000 |
| Antimony-127 | 100 | Xenon-133m | 1,000 |
| Antimony-128 | | Xenon-133 | 1,000 |
| (10.4m) | 1,000 | Xenon-135m | 1,000 |
| Antimony-128 | | Xenon-135 | 1,000 |
| (9.01h) | 100 | Xenon-138 | 1,000 |
| Antimony-129 | 100 | Cesium-125 | 1,000 |
| Antimony-130 | 1,000 | Cesium-127 | 1,000 |
| Antimony-131 | 1,000 | Cesium-129 | 1,000 |
| Tellurium-116 | 1,000 | Cesium-130 | 1,000 |
| Tellurium-121m | 10 | Cesium-131 | 1,000 |
| Tellurium-121 | 100 | Cesium-132 | 100 |
| Tellurium-123m | 10 | Cesium-134m | 1,000 |
| Tellurium-123 | 10 | Cesium-134 | 10 |
| Tellurium-125m | 10 | Cesium-135m | 1,000 |
| Tellurium-127m | 10 | Cesium-135 | 100 |
| Tellurium-127 | 1,000 | Cesium-136 | 10 |
| Tellurium-129m | 10 | Cesium-137 | 10 |
| Tellurium-129 | 1,000 | Cesium-138 | 1,000 |
| Tellurium-131m | 10 | Barium-126 | 1,000 |
| Tellurium-131 | 100 | Barium-128 | 100 |
| Tellurium-132 | 10 | Barium-131m | 1,000 |
| Tellurium-133m | 100 | Barium-131 | 100 |
| Tellurium-133 | 1,000 | Barium-133m | 100 |
| Tellurium-134 | 1,000 | Barium-133 | 100 |
| Iodine-120m | 1,000 | Barium-135m | 100 |
| Iodine-120 | 100 | Barium-139 | 1,000 |
| Iodine-121 | 1,000 | Barium-140 | 100 |
| Iodine-123 | 100 | Barium-141 | 1,000 |
| Iodine-124 | 10 | Barium-142 | 1,000 |
| Iodine-125 | 1 | Lanthanum-131 | 1,000 |
| Iodine-126 | 1 | Lanthanum-132 | 100 |
| Iodine-128 | 1,000 | Lanthanum-135 | 1,000 |
| Iodine-129 | 1 | Lanthanum-137 | 10 |
| Iodine-130 | 10 | Lanthanum-138 | 1 |

APPENDIX C (continued)

| Radionuclide | Quantity (μCi) | Radionuclide | Quantity (μCi) |
|---|---|---|---|
| Lanthanum-140 | 100 | Samarium-153 | 100 |
| Lanthanum-141 | 100 | Samarium-155 | 1,000 |
| Lanthanum-142 | 1,000 | Samarium-156 | 1,000 |
| Lanthanum-143 | 1,000 | Europium-145 | 100 |
| Cerium-134 | 100 | Europium-146 | 100 |
| Cerium-135 | 100 | Europium-147 | 100 |
| Cerium-137m | 100 | Europium-148 | 10 |
| Cerium-137 | 1,000 | Europium-149 | 100 |
| Cerium-139 | 100 | Europium-150 | |
| Cerium-141 | 100 | (12.62h) | 100 |
| Cerium-143 | 100 | Europium-150 | |
| Cerium-144 | 1 | (34.2y) | 1 |
| Praseodymium-136 | 1,000 | Europium-152m | 100 |
| Praseodymium-137 | 1,000 | Europium-152 | 1 |
| Praseodymium-138m | 1,000 | Europium-154 | 1 |
| Praseodymium-139 | 1,000 | Europium-155 | 10 |
| Praseodymium-142m | 1,000 | Europium-156 | 100 |
| Praseodymium-142 | 100 | Europium-157 | 100 |
| Praseodymium-143 | 100 | Europium-158 | 1,000 |
| Praseodymium-144 | 1,000 | Gadolinium-145 | 1,000 |
| Praseodymium-145 | 100 | Gadolinium-146 | 10 |
| Praseodymium-147 | 1,000 | Gadolinium-147 | 100 |
| Neodymium-136 | 1,000 | Gadolinium-148 | 0.001 |
| Neodymium-138 | 100 | Gadolinium-149 | 100 |
| Neodymium-139m | 1,000 | Gadolinium-151 | 10 |
| Neodymium-139 | 1,000 | Gadolinium-152 | 0.001 |
| Neodymium-141 | 1,000 | Gadolinium-153 | 10 |
| Neodymium-147 | 100 | Gadolinium-159 | 100 |
| Neodymium-149 | 1,000 | Terbium-147 | 1,000 |
| Neodymium-151 | 1,000 | Terbium-149 | 100 |
| Promethium-141 | 1,000 | Terbium-150 | 1,000 |
| Promethium-143 | 100 | Terbium-151 | 100 |
| Promethium-144 | 10 | Terbium-153 | 1,000 |
| Promethium-145 | 10 | Terbium-154 | 100 |
| Promethium-146 | 1 | Terbium-155 | 1,000 |
| Promethium-147 | 10 | Terbium-156m | |
| Promethium-148m | 10 | (5.0h) | 1,000 |
| Promethium-148 | 10 | Terbium-156m | |
| Promethium-149 | 100 | (24.4h) | 1,000 |
| Promethium-150 | 1,000 | Terbium-156 | 100 |
| Promethium-151 | 100 | Terbium-157 | 10 |
| Samarium-141m | 1,000 | Terbium-158 | 1 |
| Samarium-141 | 1,000 | Terbium-160 | 10 |
| Samarium-142 | 1,000 | Terbium-161 | 100 |
| Samarium-145 | 100 | Dysprosium-155 | 1,000 |
| Samarium-146 | 1 | Dysprosium-157 | 1,000 |
| Samarium-147 | 0.001 | Dysprosium-159 | 100 |
| Samarium-151 | 10 | Dysprosium-165 | 1,000 |







APPENDIX C (continued)

| Radionuclide | Quantity (μCi) | Radionuclide | Quantity (μCi) |
|---|---|---|---|
| Dysprosium-166 | 100 | Hafnium-173 | 1,000 |
| Holmium-155 | 1,000 | Hafnium-175 | 100 |
| Holmium-157 | 1,000 | Hafnium-177m | 1,000 |
| Holmium-159 | 1,000 | Hafnium-178m | 0.1 |
| Holmium-161 | 1,000 | Hafnium-179m | 10 |
| Holmium-162m | 1,000 | Hafnium-180m | 1,000 |
| Holmium-162 | 1,000 | Hafnium-181 | 10 |
| Holmium-164m | 1,000 | Hafnium-182m | 1,000 |
| Holmium-164 | 1,000 | Hafnium-182 | 0.1 |
| Holmium-166m | 1 | Hafnium-183 | 1,000 |
| Holmium-166 | 100 | Hafnium-184 | 100 |
| Holmium-167 | 1,000 | Tantalum-172 | 1,000 |
| Erbium-161 | 1,000 | Tantalum-173 | 1,000 |
| Erbium-165 | 1,000 | Tantalum-174 | 1,000 |
| Erbium-169 | 100 | Tantalum-175 | 1,000 |
| Erbium-171 | 100 | Tantalum-176 | 100 |
| Erbium-172 | 100 | Tantalum-177 | 1,000 |
| Thulium-162 | 1,000 | Tantalum-178 | 1,000 |
| Thulium-166 | 100 | Tantalum-179 | 100 |
| Thulium-167 | 100 | Tantalum-180m | 1,000 |
| Thulium-170 | 10 | Tantalum-180 | 1 |
| Thulium-171 | 10 | Tantalum-182m | 1,000 |
| Thulium-172 | 100 | Tantalum-182 | 10 |
| Thulium-173 | 100 | Tantalum-183 | 100 |
| Thulium-175 | 1,000 | Tantalum-184 | 100 |
| Ytterbium-162 | 1,000 | Tantalum-185 | 1,000 |
| Ytterbium-166 | 100 | Tantalum-186 | 1,000 |
| Ytterbium-167 | 1,000 | Tungsten-176 | 1,000 |
| Ytterbium-169 | 100 | Tungsten-177 | 1,000 |
| Ytterbium-175 | 100 | Tungsten-178 | 1,000 |
| Ytterbium-177 | 1,000 | Tungsten-179 | 1,000 |
| Ytterbium-178 | 1,000 | Tungsten-181 | 1,000 |
| Lutetium-169 | 100 | Tungsten-185 | 100 |
| Lutetium-170 | 100 | Tungsten-187 | 100 |
| Lutetium-171 | 100 | Tungsten-188 | 10 |
| Lutetium-172 | 100 | Rhenium-177 | 1,000 |
| Lutetium-173 | 10 | Rhenium-178 | 1,000 |
| Lutetium-174m | 10 | Rhenium-181 | 1,000 |
| Lutetium-174 | 10 | Rhenium-182 | |
| Lutetium-176m | 1,000 | (12.7h) | 1,000 |
| Lutetium-176 | 1 | Rhenium-182 | |
| Lutetium-177m | 10 | (64.0h) | 100 |
| Lutetium-177 | 100 | Rhenium-184m | 10 |
| Lutetium-178m | 1,000 | Rhenium-184 | 100 |
| Lutetium-178 | 1,000 | Rhenium-186m | 10 |
| Lutetium-179 | 1,000 | Rhenium-186 | 100 |
| Hafnium-170 | 100 | Rhenium-187 | 1,000 |
| Hafnium-172 | 1 | Rhenium-188m | 1,000 |

APPENDIX C (continued)

| Radionuclide | Quantity (μCi) | Radionuclide | Quantity (μCi) |
|---|---|---|---|
| Rhenium-188 | 100 | Mercury-194 | 1 |
| Rhenium-189 | 100 | Mercury-195m | 100 |
| Osmium-180 | 1,000 | Mercury-195 | 1,000 |
| Osmium-181 | 1,000 | Mercury-197m | 100 |
| Osmium-182 | 100 | Mercury-197 | 1,000 |
| Osmium-185 | 100 | Mercury-199m | 1,000 |
| Osmium-189m | 1,000 | Mercury-203 | 100 |
| Osmium-191m | 1,000 | Thallium-194m | 1,000 |
| Osmium-191 | 100 | Thallium-194 | 1,000 |
| Osmium-193 | 100 | Thallium-195 | 1,000 |
| Osmium-194 | 1 | Thallium-197 | 1,000 |
| Iridium-182 | 1,000 | Thallium-198m | 1,000 |
| Iridium-184 | 1,000 | Thallium-198 | 1,000 |
| Iridium-185 | 1,000 | Thallium-199 | 1,000 |
| Iridium-186 | 100 | Thallium-200 | 1,000 |
| Iridium-187 | 1,000 | Thallium-201 | 1,000 |
| Iridium-188 | 100 | Thallium-202 | 100 |
| Iridium-189 | 100 | Thallium-204 | 100 |
| Iridium-190m | 1,000 | Lead-195m | 1,000 |
| Iridium-190 | 100 | Lead-198 | 1,000 |
| Iridium-192m | 1 | Lead-199 | 1,000 |
| Iridium-192 | 10 | Lead-200 | 100 |
| Iridium-194m | 10 | Lead-201 | 1,000 |
| Iridium-194 | 100 | Lead-202m | 1,000 |
| Iridium-195m | 1,000 | Lead-202 | 10 |
| Iridium-195 | 1,000 | Lead-203 | 1,000 |
| Platinum-186 | 1,000 | Lead-205 | 100 |
| Platinum-188 | 100 | Lead-209 | 1,000 |
| Platinum-189 | 1,000 | Lead-210 | 0.01 |
| Platinum-191 | 100 | Lead-211 | 100 |
| Platinum-193m | 100 | Lead-212 | 1 |
| Platinum-193 | 1,000 | Lead-214 | 100 |
| Platinum-195m | 100 | Bismuth-200 | 1,000 |
| Platinum-197m | 1,000 | Bismuth-201 | 1,000 |
| Platinum-197 | 100 | Bismuth-202 | 1,000 |
| Platinum-199 | 1,000 | Bismuth-203 | 100 |
| Platinum-200 | 100 | Bismuth-205 | 100 |
| Gold-193 | 1,000 | Bismuth-206 | 100 |
| Gold-194 | 100 | Bismuth-207 | 10 |
| Gold-195 | 10 | Bismuth-210m | 0.1 |
| Gold-198m | 100 | Bismuth-210 | 1 |
| Gold-198 | 100 | Bismuth-212 | 10 |
| Gold-199 | 100 | Bismuth-213 | 10 |
| Gold-200m | 100 | Bismuth-214 | 100 |
| Gold-200 | 1,000 | Polonium-203 | 1,000 |
| Gold-201 | 1,000 | Polonium-205 | 1,000 |
| Mercury-193m | 100 | Polonium-207 | 1,000 |
| Mercury-193 | 1,000 | Polonium-210 | 0.1 |





APPENDIX C (continued)

| Radionuclide | Quantity (μCi) | Radionuclide | Quantity (μCi) |
|---|---|---|---|
| Astatine-207 | 100 | Neptunium-234 | 100 |
| Astatine-211 | 10 | Neptunium-235 | 100 |
| Radon-220 | 1 | Neptunium-236 | |
| Radon-222 | 1 | ($1.15 \times 10^5$y) | 0.001 |
| Francium-222 | 100 | Neptunium-236 | |
| Francium-223 | 100 | (22.5h) | 1 |
| Radium-223 | 0.1 | Neptunium-237 | 0.001 |
| Radium-224 | 0.1 | Neptunium-238 | 10 |
| Radium-225 | 0.1 | Neptunium-239 | 100 |
| Radium-226 | 0.1 | Neptunium-240 | 1,000 |
| Radium-227 | 1,000 | Plutonium-234 | 10 |
| Radium-228 | 0.1 | Plutonium-235 | 1,000 |
| Actinium-224 | 1 | Plutonium-236 | 0.001 |
| Actinium-225 | 0.01 | Plutonium-237 | 100 |
| Actinium-226 | 0.1 | Plutonium-238 | 0.001 |
| Actinium-227 | 0.001 | Plutonium-239 | 0.001 |
| Actinium-228 | 1 | Plutonium-240 | 0.001 |
| Thorium-226 | 10 | Plutonium-241 | 0.01 |
| Thorium-227 | 0.01 | Plutonium-242 | 0.001 |
| Thorium-228 | 0.001 | Plutonium-243 | 1,000 |
| Thorium-229 | 0.001 | Plutonium-244 | 0.001 |
| Thorium-230 | 0.001 | Plutonium-245 | 100 |
| Thorium-231 | 100 | Americium-237 | 1,000 |
| Thorium-232 | 0.001 | Americium-238 | 100 |
| Thorium-234 | 10 | Americium-239 | 1,000 |
| Thorium-natural[1] | 0.001 | Americium-240 | 100 |
| Protactinium-227 | 10 | Americium-241 | 0.001 |
| Protactinium-228 | 1 | Americium-242m | 0.001 |
| Protactinium-230 | 0.1 | Americium-242 | 10 |
| Protactinium-231 | 0.001 | Americium-243 | 0.001 |
| Protactinium-232 | 1 | Americium-244m | 100 |
| Protactinium-233 | 100 | Americium-244 | 10 |
| Protactinium-234 | 100 | Americium-245 | 1,000 |
| Uranium-230 | 0.01 | Americium-246m | 1,000 |
| Uranium-231 | 100 | Americium-246 | 1,000 |
| Uranium-232 | 0.001 | Curium-238 | 100 |
| Uranium-233 | 0.001 | Curium-240 | 0.1 |
| Uranium-234 | 0.001 | Curium-241 | 1 |
| Uranium-235 | 0.001 | Curium-242 | 0.01 |
| Uranium-236 | 0.001 | Curium-243 | 0.001 |
| Uranium-237 | 100 | Curium-244 | 0.001 |
| Uranium-238 | 0.001 | Curium-245 | 0.001 |
| Uranium-239 | 1,000 | Curium-246 | 0.001 |
| Uranium-240 | 100 | Curium-247 | 0.001 |
| Uranium-natural[2] | 0.001 | Curium-248 | 0.001 |
| Neptunium-232 | 100 | Curium-249 | 1,000 |
| Neptunium-233 | 1,000 | Berkelium-245 | 100 |

[7590-01]

APPENDIX C (continued)

| Radionuclide | Quantity (μCi) | Radionuclide | Quantity (μCi) |
|---|---|---|---|
| Berkelium-246 | 100 | Einsteinium-250 | 100 |
| Berkelium-247 | 0.001 | Einsteinium-251 | 100 |
| Berkelium-249 | 0.1 | Einsteinium-253 | 0.1 |
| Berkelium-250 | 10 | Einsteinium-254m | 1 |
| Californium-244 | 100 | Einsteinium-254 | 0.01 |
| Californium-246 | 1 | Fermium-252 | 1 |
| Californium-248 | 0.01 | Fermium-253 | 1 |
| Californium-249 | 0.001 | Fermium-254 | 10 |
| Californium-250 | 0.001 | Fermium-255 | 1 |
| Californium-251 | 0.001 | Fermium-257 | 0.01 |
| Californium-252 | 0.001 | Mendelevium-257 | 10 |
| Californium-253 | 0.1 | Mendelevium-258 | 0.01 |
| Californium-254 | 0.001 | | |
| Any alpha emitting radionuclide not listed above or mixtures of alpha emitters of unknown composition | 0.001 | Any radionuclide other than alpha emitting radionuclides not listed above, or mixtures of beta emitters of unknown composition | 0.01 |

[1]Based on alpha disintegration rate of Th-232, Th-230 and their daughter products.

[2]Based on alpha disintegration rate of U-238, U-234 and U-235.

NOTE: For purposes of §§ 20.902(e), 20.904(c), and 20.1201(a) where there is involved a combination of radionuclides in known amounts, the limit for the combination should be derived as follows: determine, for each radionuclide in the combination, the ratio between the quantity present in the combination and the limit otherwise established for the specific radionuclide when not in combination. The sum of such ratios for all the radionuclides in the combination may not exceed "1" (i.e., "unity").

APPENDIX D

UNITED STATES NUCLEAR REGULATORY COMMISSION REGIONAL OFFICES

| | Address | Telephone (24 hours a day) |
|---|---|---|
| Region I: Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. | USNRC, 631 Park Avenue<br>King of Prussia, PA 19406 | (215)337-5000, (FTS) 488-1000. |
| Region II: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, Puerto Rico, South Carolina, Tennessee, Virginia, Virgin Islands, and West Virginia. | USNRC, 101 Marietta Street<br>Suite 2900<br>Atlanta, GA 30303 | (404)221-4503, (FTS) 242-4503. |
| Region III: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. | USNRC, 799 Roosevelt Road<br>Glen Ellyn, IL 60137 | (312)790-5500, (FTS) 388-5500. |
| Region IV: Arkansas, Colorado, Idaho, Kansas, Louisiana, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah, and Wyoming. | USNRC, 611 Ryan Plaza Drive<br>Suite 1000<br>Arlington, TX 76011 | (817)860-8100, (FTS) 728-8100. |
| Region IV: Field Office | USNRC, Region IV<br>Uranium Recovery Field Office<br>730 Simms Street, Suite 100A<br>P.O. Box 25325<br>Denver, CO 80225 | (303)234-7232, (FTS) 234-7232. |
| Region V: Alaska, Arizona, California, Hawaii, Nevada, Oregon, Washington, and U.S. territories and possessions in the Pacific. | USNRC, 1450 Maria Lane<br>Suite 210<br>Walnut Creek, CA 94596 | (415)943-3700, (FTS) 463-3700. |



Enclosure 1.

APPENDIX E

MATHEMATICAL EXPRESSIONS FOR DEMONSTRATING COMPLIANCE WITH SELECTED DOSE LIMITS AND REFERENCE LEVELS

I. REFERENCE FOR SUBPART C - OCCUPATIONAL DOSE LIMITS AND REFERENCE LEVELS

A. Reference for § 20.201 Occupational dose limits for adults.

(1) The annual limit is the more limiting of--

(i) The sum of the (external) deep dose equivalent to the whole body and the (internal) committed effective dose equivalent being equal to 5 rems. Expressed mathematically:

$$H_d + \Sigma_T w_T H_{c,T} = 5 \text{ (rems)}$$

or

$$\frac{H_d}{5 \text{ (rems)}} + \frac{\Sigma_T w_T H_{c,T}}{5 \text{ (rems)}} = 1$$

where:

$H_d$ is the deep dose equivalent (rems) for the year (Dose equivalents to the extremities, the skin, and the lens of the eye are not considered in computing the whole body dose equivalent);

$w_T H_{c,T}$ is the committed effective dose equivalent for an organ or tissue, T, from radionuclides taken into the body during the year;

$w_T$ is the weighting factor which is the proportion of the risk of stochastic effects resulting from irradiation of tissue, T, to the total risk of stochastic effects when the whole body is irradiated uniformly;







$H_{c,T}$ is the committed dose equivalent for a tissue, T, over a specified time interval; and

$\Sigma_T$ is the sum of the committed effective dose equivalent for all organs or tissues which receive a significant dose relative to the total dose to all organs or tissues; or

(ii) The sum of the deep dose equivalent and the committed dose equivalent being equal to 50 rems to an organ or tissue other than the lens of the eye. Expressed mathematically:

$$H_d + H_{c,T} = 50 \text{ (rems)}$$

B. Reference for § 20.202 Compliance with requirements for summation of external and internal doses.

(1) Intake by Inhalation.

If the only intake of radionuclides is by inhalation, the annual limit is not exceeded--

(i) If the sum of the fraction of the external deep dose equivalent limit and the sum of the fractions of the ALI by inhalation of each radionuclide during the year do not exceed unity. Expressed mathematically:

$$\frac{H_d}{5 \text{ (rems)}} + \Sigma_j \frac{I_{i,j}}{(ALI)_{i,j}} \leq 1$$

where:

$H_d$ is the deep dose equivalent (rems) for the year;

$I_{i,j}$ is the intake of radionuclide j during the year by inhalation, i;

$(ALI)_{i,j}$ is the annual limit of intake of radionuclide j by inhalation, i; and

$\Sigma_j$ is the summation of the ratios for all radionuclides included in the intake.

or

(ii) If the sum of the fraction of the deep dose equivalent limit and the sum of the fractions of the derived air concentration (DAC) of each radionuclide inhaled during the year do not exceed unity. Expressed mathematically:

$$\frac{H_d}{5\ (\text{rems})} + \Sigma_j \frac{AC_j \times t}{(DAC)_j \times 2000\ (\text{hours})} \leq 1$$

where:

$AC_j$ is the average air concentration of radionuclide j over the duration of exposure during the year;

$t$ is the duration of exposure (hours) during the year; and

$(DAC)_j$ is the derived air concentration for radionuclide j.

or

(iii) If the sum of the fraction of the deep dose equivalent limit and the sum of the committed effective dose equivalents to all significantly irradiated[1] organs or tissues, T, calculated from bioassay data and using appropriate biological models, expressed as a fraction of the annual dose limit, does not exceed unity. Expressed mathematically:

$$\frac{H_d}{5\ (\text{rems})} + \Sigma_j \Sigma_T \frac{w_T H_{c,T}}{5\ (\text{rems})} \leq 1$$

[1]An organ or tissue is "significantly irradiated" if, for that organ or tissue, the weighted value per unit intake is greater than 10% of the maximum weighted value of $H_{c,T}$ per unit intake in any organ or tissue.





(2) Intake by oral ingestion.

If the occupationally exposed individuals also receive substantial intakes of radionuclides by oral ingestion, an additional term shall be added to the left side of the inequalities in paragraph B(1) of this reference. Expressed mathematically:

$$\Sigma_j \frac{I_{o,j}}{(ALI)_{o,j}}$$

where:

$I_{o,j}$ is the amount of radionuclide j taken into the body by oral ingestion, o, during the year; and

$(ALI)_{o,j}$ is the annual limit of oral ingestion of radionuclide j.

II. REFERENCE FOR SUBPART D - RADIATION DOSE LIMITS AND REFERENCE LEVELS FOR INDIVIDUAL MEMBERS OF THE PUBLIC

A. Reference for § 20.301 Dose limits for individual members of the public.

(a) The annual dose limit for individual members of the public from all known sources is not exceeded if the inequalities in paragraph I.B(1) and (2) of this appendix, adjusted for the contributions to intake from water and food contaminated as a result of releases in effluents, do not exceed 1/10.

(b) If the exposed population includes children, the ALIs, which were derived for adults, shall be adjusted for age-specific transfer factors. Expressed mathematically:

$$\Sigma_g \left\{ \frac{H_d}{5\ (\text{rems})} + \Sigma_j \left[ \frac{I_{i,j}}{C_1 (ALI)_{i,j}} + \Sigma_k \frac{I_{o,j,k}}{C_2 (ALI)_{j,k}} \right] \right\} \leq \frac{1}{10}$$

where:

$\Sigma_\ell$ indicates that all sources, $\ell$, of exposure except natural background and medical treatment are evaluated and summed;

$\Sigma_k$ indicates that the evaluations are made for each water and food pathway, k, and summed;

$I_{o,j,k}$ is the annual intake of radionuclide j by oral ingestion, o, through pathway k;

$(ALI)_{o,j,k}$ is the annual limit of intake of radionuclide j by oral ingestion for adults;

$C_1$, $C_2$ are age-specific transfer factors used to adjust the annual limits of intake, which were derived for adults, so that they are applicable to other age groups. Values of $C_1$ and $C_2$ are each tentatively assumed to equal 0.5 to account for minors; and

$\frac{1}{10}$ is the fraction of the annual occupational limit which is permitted for individual members of the public.

8. Reference for § 20.303 Reference level for the exposure of individual members of the public.

If a licensee demonstrates that the effective dose equivalent to the individual likely to be the highest exposed is within the 0.1 rem annual reference level, the licensee meets the 0.5 rem annual limit. The licensee may demonstrate operation within the 0.1 rem annual reference level if the sum of the fractions obtained by--

(a) Dividing the whole body annual deep dose equivalent, in units of rem, by the annual dose limit of 5 rems;

(b) Summing all of the fractional parts of the inhalation ALIs (or DACs) of all radionuclides inhaled during the year; and



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(c) Summing all of the fractional parts of the oral ingestion ALIs of all radionuclides taken into the body by oral ingestion during the year, does not exceed 1/50. If the exposed population includes children, both the ALIs for inhalation and the ALIs for oral ingestion, which were derived for adults, shall be adjusted for age-specific transfer factors. Expressed mathematically:

$$\frac{H_d}{5\ (\text{rems})} + \Sigma_j \left[ \frac{I_{i,j}}{C_1 (ALI)_{i,j}} + \Sigma_k \frac{I_{o,j,k}}{C_2 (ALI)_{o,j,k}} \right] \leq \frac{1}{50}$$

or

$$\frac{H_d}{5\ (\text{rems})} + \Sigma_j \left[ \frac{3(AC)_j}{C_1 (DAC)_j} + \Sigma_k \frac{I_{o,j,k}}{C_2 (ALI)_{o,j,k}} \right] \leq \frac{1}{50}$$

where:

3 is a factor which adjusts for the difference in exposure time and inhalation rate between workers and individuals in the public; [$2 \times 10^7$ (ml/24 hours) ÷ $1 \times 10^7$ (ml/8 hours)] x [7 days/wk ÷ 5 days/wk] x [52 (wks/yr) ÷ 50 (wks/yr)] = $2 \times \frac{7}{5} \times \frac{52}{50} \doteq 3$; and

1/50 is the fraction of the annual occupational limit which is represented by the 0.1 rem annual reference level.

## Appendix F—Requirements for Low Level Waste Transfer for Disposal at Land Disposal Facilities and Manifests

*I. Manifest*

The shipment manifest shall contain the name, address, and telephone number of the person generating the waste. The manifest shall also include the name, address, and telephone number or the name and EPA hazardous waste identification number of the person transporting the waste to the land disposal facility. The manifest must also indicate as completely as practicable: a physical description of the waste; the volume; radionuclide identity and quantity; the total radioactivity; and the principal chemical form. The solidification agent must be specified. Waste containing more than 0.1% chelating agents by weight must be identified and the weight percentage of the chelating agent estimated. Wastes classified as Class A, Class B, or Class C in § 61.55 of this chapter must clearly be identified as such in the manifest. The total quantity of the radionuclides H–3, C–14, Tc–99 and I–129 must be shown. The manifest required by this paragraph may be shipping papers used to meet Department of Transportation or Environmental Protection Agency regulations or requirements of the receiver, provided all the required information is included. Copies of manifests required by this section may be legible carbon copies or legible photocopies.

*II. Certification*

The waste generator shall include in the shipment manifest a certification that the transported materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the Commission. An authorized representative of the waste generator shall sign and date the manifest.

*III. Control and Tracking*

A. Any generating licensee who transfers radioactive waste to a land disposal facility or a licensed waste collector shall comply with the requirements in paragraphs A.1 through 8 of this section. Any generating licensee who transfers waste to a licensed waste processor who treats or repackages waste shall comply with the requirements of prargraphs A.4 through 8 of this section. A licensee shall:

1. Prepare all wastes so that the waste is classified according to § 61.55 and meets the waste characteristics requirement in § 61.56 of this chapter;

2. Label each package of waste to identify whether it is Class A waste, Class B waste, or Class C waste, in accordance with § 61.55 of this chapter;

3. Conduct a quality control program to assure compliance with §§ 61.55 and 61.56 of this chapter; the program must include management evaluation of audits;

4. Prepare shipping manifests to meet the requirements of sections I and II of this appendix;

5. Forward a copy of the manifest to the intended recipient, at the time of shipment; or, deliver to a collector at the time the waste is collected, obtaining acknowledgement of receipt in the form of a signed copy of the manifest or equivalent documentation from the collector;

6. Include one copy of the manifest with the shipment;

7. Retain a copy of the manifest and documentation of acknowledgement of receipt as the record of transfer of licensed material as requred by Parts 30, 40, and 70 of this chapter; and,

8. For any shipments or any part of a shipment for which acknowledgement of receipt has not been received within the times set forth in this section, conduct an investigation in accordance with paragraph E of this appendix.

B. Any waste collector licensee who handles only prepackaged waste shall:

1. Acknowledge receipt of the waste from the generator within one week or receipt by returning a signed copy of the manifest or equivalent documentation;

2. Prepare a new manifest to reflect consolidated shipments; the new manifest shall serve as a listing or index for the detailed generator manifests. Copies of the generator manifests shall be a part of the new manifest. The waste collector may prepare a new manifest without attaching the generator manifests, provided the new manifest contains for each package the information specified in section II of this appendix. The collector licensee shall certify that nothing has been done to the waste which would invalidate the generator's certification;

3. Forward a copy of the new manifest to the land disposal facility operator at the time of shipment;

4. Include the new manifest with the shipment to the disposal site;

5. Retain a copy of the manifest and documentation of acknowledgement of receipt as the record of transfer of licensed material as required by Parts 30, 40, and 70 of this chapter, and retain information from generator manifests until disposition is authorized by the Commission; and

6. For any shipments or any part of a shipment for which acknowledgement of receipt is not received within the times set forth in this section, conduct an investigation in accordance with paragaph E of this section.

C. Any licensed waste processor who treats or repackages wastes shall:

1. Acknowledge receipt of the waste from the generator within one week of receipt by returning a signed copy of the manifest or equivalent documentation;

2. Prepare a new manifest that meets the requirements of sections II and III of this appendix. Preparation of the new manifest reflects that the processor is responsible for the waste;

3. Prepare all wastes so that the waste is classified according to § 61.55 and meets the waste characteristics requirements in § 61.56 of this chapter;

4. Label each package of waste to identify whether it is Class A waste, Class B waste, or Class C waste, in accordance with §§ 61.55 and 61.57 of this chapter;

5. Conduct a quality control program to assure compliance with §§ 61.55 and 61.56 of this chapter. The program shall include management evaluation of audits;

6. Foward a copy of the new manifest to the disposal site operator or waste collector at the time of shipment, or deliver to a collector at the time the waste is collected, obtaining acknowledgement of receipt in the form of a signed copy of the manifest or equivalent documentation by the collector;

7. Include the new manifest with the shipment;

8. Retain copies of original manifests and new manifests and documentation of acknowledgement of receipt as the record of transfer of licensed material required by Parts 30, 40, and 70 of this chapter; and

9. For any shipment or part of a shipment for which acknowledgement is not received within the times set forth in this section, conduct an investigation in accordance with paragraph E of this section.

D. The land disposal facility operator shall:

1. Acknowledge receipt of the waste within one week of receipt by returning a signed copy of the manifest or equivalent documentation to the shipper. The shipper to be notified is the licensee who last possessed the waste and transferred the waste to the operator. The returned copy of the manifest or equivalent documentation shall indicate any discrepancies between materials listed on the manifest and materials received;

2. Maintain copies of all completed manifests or equivalent documentation until the Commission authorizes their disposition; and

3. Notify the shipper (i.e., the generator, the collector, or processor) and the Director of the nearest Commission Regional Office listed in Appendix D of this part when any shipment or part of a shipment has not arrived within 60 days after the advance manifest was received.

E. Any shipment or part of a shipment for which acknowledgement is not received within the times set forth in this section, must:

1. Be investigated by the shipper if the shipper has not received notification of receipt within 20 days after transfer; and

2. Be traced and reported. The investigation shall include tracing the shipment and filing a report with the nearest Commission Regional Office listed in Appendix D of this part. Each licensee who conducts a trace investigation shall file a written report with the appropriate NRC Regional office within 2 weeks of completion of the investigation.

The following amendments are also proposed to other parts of the regulations in this chapter.

## PART 19—NOTICES, INSTRUCTIONS, AND REPORTS TO WORKERS; INSPECTIONS

2. The authority citation for Part 19 continues to read as follows:

**Authority:** Sec. 161, as amended (42 U.S.C. 2201); sec. 201, as amended (42 U.S.C. 5481).

3. Section 19.3 is amended by revising paragraph (e) to read as follows:

**§ 19.3 Definitions.**

* * * * *

(e) "Restricted area" means an area, access to which is limited by the licensee for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials. Restricted area does not include areas used as residential quarters, but separate rooms in a residential building may be set apart as a restricted area.

**§ 19.13 [Amended]**

4. In § 19.13(b) the reference to "§20.401(a) and (c)"is changed to read "§ 20.1106."

5. In § 19.13(d) the reference to "§ 20.405 or § 20.408" is changed to read "§§ 20.1202, 20.1203, 20.1204, or 20.1207."

## PART 30—RULES OF GENERAL APPLICABILITY TO DOMESTIC LICENSING OF BYPRODUCT MATERIAL

6. The authority citation for Part 30 continues to read as follows:

**Authority:** Sec. 161, as amended (42 U.S.C. 2201); sec. 201, as amended (42 U.S.C. 5481).

**§ 30.51 [Amended]**

7. In § 30.51(c)(4) the reference to "§ 20.401(c)" is changed to read "§ 20.1108."

## PART 31—GENERAL DOMESTIC LICENSES FOR BYPRODUCT MATERIAL

8. The authority citation for Part 31 continues to read as follows:

**Authority:** Sec. 161, as amended (42 U.S.C. 2201); sec. 201, as amended (42 U.S.C. 5481).

**§ 31.5 [Amended]**

9. In § 31.5(c)(10) the reference to "§§ 20.402 and 20.403" is changed to read "§§ 20.1201 and 20.1202."

**§ 31.7 [Amended]**

10. In § 31.7(b) the reference to §§ 20.402 and 20.403" is changed to read "§§ 20.1201 and 20.1202."

**§ 31.10 [Amended]**

11. In § 31.10(b)(1) the reference to "§ 20.301" is changed to read "§ 20.1001."

12. In § 31.10(b)(3) the reference to "§§ 20.301, 20.402, and 20.403" is changed to read "§§ 20.1001, 20.1201, and 20.1202."

**§ 31.11 [Amended]**

13. In § 31.11(c)(5) the reference to "§ 20.301" is changed to read "§ 20.1001."

14. In § 31.11(f) the reference to "§ 20.301, 20.402, and 20.403" is changed to read "§§ 20.1001, 20.1201, and 20.1202."

## PART 32—SPECIFIC DOMESTIC LICENSES TO MANUFACTURE OR TRANSFER CERTAIN ITEMS CONTAINING BYPRODUCT MATERIAL

15. The authority citation for Part 32 continues to read as follows:

**Authority:** Sec. 161, as amended (42 U.S.C. 2201); sec. 201, as amended (42 U.S.C. 5481).

16. Section 32.51 is amended by revising paragraphs (a)(2)(ii) and (c) to read as follows:

**§ 32.51 By product material contained in devices for use under § 31.5; requirements for license to manufacture or initially transfer.**

(a) * * *

(2) * * *

(ii) Under ordinary conditions of handling, storage and use of the device, the byproduct material contained in the device will not be released or inadvertently removed from the device, and it is unlikely that any person will receive in any period of one calendar year a dose in excess of 10 percent of the annual limits specified in § 20.201(a) of this chapter; and

* * * * *

(c) In the event the applicant desires that the general licensee under § 31.5 of this chapter, or under equivalent regulations of an Agreement State, be authorized to install the device, collect the sample to be analyzed by a specific licensee for leakage of radioactive material, service the device, test the on-off mechanism and indicator, or remove the device from installation, the applicant shall include in the application written instruction to be followed by the general licensee, estimated calendar quarter doses associated with such activity or activities and the bases for such estimates. The submitted information shall demonstrate that performance of such activity or activities by an individual untrained in radiological protection, in addition to other handling, storage, and use of devices under the general license, is unlikely to cause that individual to receive a calendar year dose in excess of 10 percent of the annual limits specified in § 20.201(a) of this chapter.

**§ 32.61 [Amended]**

17. In § 32.61(d) the reference to "§ 20.203(a)" is changed to read "§ 20.901(a)."

**§ 32.71 [Amended]**

18. In § 32.71(c)(2) the reference to "§ 20.203(a)(1)" is changed to read "§ 20.901(a)."

19. In § 32.71(e) the reference to "§ 20.301" is changed to read "§ 20.1001."

## PART 34—LICENSES FOR RADIOGRAPHY AND RADIATION SAFETY REQUIREMENTS FOR RADIOGRAPHIC OPERATIONS

20. The authority citation for Part 34 continues to read as follows:

**Authority:** Sec. 161, as amended (42 U.S.C. 2201); sec. 201, as amended (42 U.S.C. 5481).

**§ 34.29 [Amended]**

21. In § 34.29(a) the reference to "§ 20.203(c)(2)(ii), (2)(iii), or (4)" is changed to read "§ 20.601(a)(2), (3), or (4)."

**§ 34.41 [Amended]**

22. In § 34.41(a) the reference to "§ 20.203(c)(2)" is changed to read "§ 20.601(a) (1), (2), or (3)."

**§ 34.42 [Amended]**

23. In § 34.42 the reference to "§ 20.204(c)" is changed to read "§ 20.903(b)" and the reference to "§ 20.203(b) and (c)(1)" is changed to read "§ 20.902(a) and (b)."

## PART 40—DOMESTIC LICENSING OF SOURCE MATERIAL

24. The authority citation for Part 40 continues to read as follows:

**Authority:** Sec. 161, as amended (42 U.S.C. 2201); sec. 201, as amended (42 U.S.C. 5481).

25. Section § 40.34 is amended by revising paragraph (a)(2) to read as follows:

**§ 40.34 Special requirements for issuance of specific licenses.**

(a) * * *

(2) The application submits sufficient information relating to the design, manufacture, prototype testing, quality control procedures, labeling or marking, proposed uses, and potential hazards of the industrial product or device to provide reasonable assurance that possession, use, or transfer of the depleted uranium in the product or device is not likely to cause any individual to receive in any period of one calendar year a radiation dose in excess of 10 percent of the annual limits specified in § 20.201(a) of this chapter; and

* * * * *

**§ 40.61 [Amended]**

26. In § 40.61(c)(4) the reference to "§ 20.401(c)" is changed to read "§ 20.1108."

## PART 50—DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

27. The authority citation for Part 50 continues to read as follows:

**Authority:** Sec. 161, as amended (42 U.S.C. 2201); sec. 201, as amended (42 U.S.C. 5481).

28. Section 50.34 is amended by revising paragraph (f)(2)(viii) to read as follows:

**§ 50.34 Contents of applications; technical information.**

* * * * *

(f) * * *

(2) * * *

(viii) Provide a capability to promptly obtain and analyze samples from the reactor coolant system and containment that may contain TID 14844 source term radioactive materials without radiation exposures to any individual exceeding 5 rems to the whole-body or 50 rems to the extremeties. Materials to be analyzed and quantified include certain radionuclides that are indicators of the degree of core damage (e.g., noble gases, iodines and cesiums, and non-volatile isotopes), hydrogen in the containment atmosphere, dissolved gases, chloride, and boron concentrations. (II.B.3)

* * * * *

29. In § 50.36a(a) the reference to "§ 20.106" is changed to read "§§ 20.301 and 20.303," and paragraph (b) is revised to read as follows:

**§ 50.36a Technical specifications on effluents from nuclear power reactors.**

* * * * *

(b) In establishing and implementing the operating procedures described in paragraph (a) of this section, the licensee shall be guided by the following considerations: Experience with the design, construction and operation of nuclear power reactors indicates that compliance with the technical specifications described in this section will keep average annual releases of radioactive material in effluents and their resultant committed effective dose equivalents at small percentages of the values specified in §§ 20.301 and 20.303 of this chapter and in the operating license. At the same time, the licensee is permitted the flexibility of operation, compatible with considerations of health and safety, to assure that the public is provided a dependable source of power even under unusual operating conditions which may temporarily result in releases higher than such small percentages, but still within the committed effective dose equivalent values specified in §§ 20.301 and 20.303 of this chapter and the operating license. It is expected that in using this operational flexibility under unusual operating conditions, the licensee will exert his best efforts to keep levels of radioactive material in effluents as low as is reasonably achievable. The guides set out in Appendix I provide numerical guidance on limiting conditions for operation for light-water-cooled nuclear power reactors to meet the requirement that radioactive materials in effluents released to unrestricted areas be kept as low as is reasonably achievable.

30. In § 50.72 in paragraph (a), Footnote 1, the reference to "§ 20.205, § 20.403" is changed to read "§ 20.905, § 20.1202," and paragraphs (b)(2)(iv) (A) and (B) are revised to read as follows:

**§ 50.72 Immediate notification requirements for operating nuclear power reactors.**

* * * * *

(b) * * *

(2) * * *

(iv) (A) Any airborne release that results in concentrations in unrestricted areas that exceed 10 times the applicable reference level concentration specified in Appendix B, Table 2, Column 1 of Part 20 of this chapter, when averaged over a time period of one hour.

(B) Any liquid effluent release that exceeds 10 times the applicable reference level concentration specified in Appendix B, Table 2, Column 2, of Part 20 of this chapter at the point of entry into the receiving waters (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases, when averaged over a time period of one hour. (Immediate notifications made under this paragraph also satisfy the requirements of paragraph (a)(2) and (b)(2) of § 20.1202 of this chapter).

31. Section 50.73 is amended by revising paragraphs (a)(2)(viii) (A) and (B) and (ix) to read as follows:

**§ 50.73 Licensee event reports.**

(a) * * *

(2) * * *

(viii) (A) Any airborne radioactivity release that exceeded 10 times the applicable reference level concentrations specified in Appendix B, Table 2, Column 1, of Part 20 of this chapter, in unrestricted areas, when averaged over a time period of one hour.

(B) Any liquid effluent release that exceeded 10 times the applicable reference level concentrations specified in Appendix B, Table 2, Column 2, of Part 20 of this chapter at the point of entry into the receiving water (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases, when averaged over a time period of one hour.

(ix) Reports submitted to the Commission in accordance with paragraph (a)(2)(viii) of this section also meet the effluent release reporting requirements of § 20.1203(a)(5) of this chapter.

* * * * *

## PART 61—LICENSING REQUIREMENTS FOR LAND DISPOSAL OF RADIOACTIVE WASTE

32. The authority citation for Part 61 continues to read as follows:

**Authority:** Sec. 161, as amended (42 U.S.C. 2201); sec. 201, as amended (42 U.S.C. 5481).

**§ 61.52 [Amended]**

33. In § 61.52(a)(6) the reference to "§ 20.105" is changed to read "§§ 20.301 and 20.303."

## PART 70—DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

34. The authority citation for Part 70 continues to read as follows:

**Authority:** Sec. 161, as amended (42 U.S.C. 2201); sec. 201, as amended (42 U.S.C. 5481).

**§ 70.51 [Amended]**

35. In § 70.51(b)(6) the reference to "§ 20.401(c)" is changed to read "§ 20.1108."

Dated at Washington, DC, this 4th day of December 1985.

For the Nuclear Regulatory Commission.

**Samuel J. Chilk,**

*Secretary of the Commission.*

**Revised NRC Form 4—Occupational Radiation Exposure History**

Revised NRC Form 4 is appended for the convenience of those who may wish to comment on the proposed regulations. It is not a part of the regulations. However, the Commission does solicit comments on its content. If the proposed regulations are adopted and codified in Title 10 of the Code of Federal Regulations, the form will be used by licensees, in accordance with § 20.1104, for recording the occupational radiation exposure history of each individual who enters the licensee's restricted or controlled area and is likely to receive or actually receives an annual dose in excess of 30% of the limits in § 20.201(a).

BILLING CODE 7590-01-M

FORM NRC-4 OCCUPATIONAL RADIATION EXPOSURE HISTORY

| 1. NAME (Print - Last, First, Middle) | 2. SOCIAL SECURITY NO. | 3. DATE OF BIRTH | 4. NAME, ADDRESS, & LICENSE # OF LICENSEE |
|---|---|---|---|
| | | | |

| | | | SUMMATION OF DOSE EQUIVALENT | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5. Previous employments involving radiation exposure - list name and address of employer | 6. Dates of employment (from - To) | 7. Periods of Exposure | 8. Lens of Eye (rems) | 9. Skin (rems) | 10. Extremities (rems) | 11. Whole Body (rems) | 12. Over Exposures (rems) | 13. Planned Special Exposures (rems) | 14. Record, Estimate, or Assumed (R,E, or A) |
| | | | | | | | | | |
| | | | 15. Total | 16. Total | 17. Total | 18. Total | 19. Total | 20. Total | |

21. Remarks

22. CERTIFICATION: I certify that the exposure history listed in Columns 5, 6, and 7 is correct and complete to the best of my knowledge and belief.

Employee Signature _____ Date _____

23. COUNTER CERTIFICATION: I certify that the exposure history and the information on dose is correct and complete to the best of my knowlege and belief.

Employer Signature _____ Date _____

Enclosure 1

[7590-01]

BILLING CODE 7590-01-C

**Instructions for Preparation of NRC Form 4**

A separate copy of this form, or a clear and legible record containing all of the information required on this form, must be prepared by each licensee of the NRC for each individual who enters the licensee's restricted area under circumstances that might result in the individual receiving a dose requiring provision of individual monitoring devices or services under § 20.502 of "Standards for Protection Against Radiation," 10 CFR Part 20. The requirement for completion of this form is stated in § 20.1104.

The licensee shall make a reasonable effort to obtain: a record of all names and addresses of previous employers during employment periods involving radiation exposure; reports of the individual's previously accumulated occupational dose for each period of employment during the current calendar year; and, prior to permitting an individual to participate in a planned special exposure, all planned special exposures and overexposures received during the lifetime of the individual. The licensee may accept an up-to-date NRC Form 4 signed by the individual and countersigned by an appropriate official of the most recent employer or by the individual's current employer, if the individual is not employed by the licensee. The licensee shall use the dose information to control further exposure of the individual within the limits specified in §§ 20.201, 20.205, 20.206, and 20.207.

Listed below by item are instructions and additional information pertinent to completing this form:

Item 1. Self-explanatory.

Item 2. Self-explanatory, except that if the individual has no social security number the word "None" shall be inserted.

Item 3. Self-explanatory.

Item 4. Self-explanatory.

Item 5. List the name and address of each previous employer for all previous work involving occupational exposure to radiation. Start with the first employer and work forward in chronological order to the most recent employer. For periods of self-employment, insert the words "Self-employed."

Item 6. Give the dates of each employment listed in Item 5.

Item 7. List the periods during which occupational exposure to radiation occurred.

Item 8. Enter the dose equivalent to the lens of the eye. The entries shall be for each period of employment during the current calendar year only. The dose entered for the lens of the eye is the eye dose equivalent, unless the licensee evaluates the dose to the lens through whatever shielding is present, or unless the eyes are protected with shields having a tissue equivalent thickness of at least 700 mg/cm.$^2$ In the latter case, the dose entered for the lens of the eye is the deep dose equivalent. Do not include the dose received during planned special exposures.

Item 9 and 10. Enter the dose equivalent to the skin and extremities, respectively. The entries shall be for each period of employment during the current calendar year only. The dose to the skin and extremities is the shallow dose equivalent, and shall be averaged over 10 cm $^2$ in the region of highest exposure. Do not include the dose received during planned special exposures.

Item 11. Enter the sum of the (whole-body, external) deep dose equivalent and the committed effective dose equivalent for each period of employment during the current calendar year. (The licensee may assess deep dose equivalent through a tissue equivalent absorber of 300 mg/cm$^2$ as for eye dose equivalent.) The licensee shall use the data obtained from the records of previous occupational exposures of the individual or, in the absence of records, in accordance with the provisions in § 20.1104. The licensee may use written estimates of dose provided to an individual at termination of employment pursuant to § 19.13(e) until the finally determined personnel monitoring data are available. The licensee shall include dose received as a result of over-exposures, accidents, and emergencies, but shall not include dose received during planned special exposures.

Item 12. Enter that portion of the summation of dose equivalent for each body part that has exceeded the annual limit for that body part in any year during the lifetime of the individual.

Item 13. Enter the summation of dose equivalent received during planned special exposures. Separate entries shall be made for whole body (WB), lens of eye (Eye), skin (Skin), and extremities (Ext). Note that the provisions for planned special exposures do not apply to the intake of radionuclides.

Item 14. Enter whether the data on doses were obtained from records (enter "R"), estimates of dose (enter "E") provided at termination of very recent employment in the absence of the finally determined dose, or assumed (enter "A") in the absence of records in accordance with § 20.1104.

Item 15. Self-explanatory.

Item 16. Self-explanatory.

Item 17. Self-explanatory.

Item 18. Self-explanatory.

Item 19. Self-explanatory.

Item 20. Self-explanatory.

Item 21. This space should be used to record any unusual or limiting information about the data recorded on the form. This should include data on intake of radionuclides prior to (effective date); particularly the kinds or quantities of radionuclides listed in Table 3, § 20.205. It could include notation of contribution to dose from multiple employments during a period, or dose received by the individual as a patient during medical diagnosis and therapy.

Item 22. The employee must certify that the information in Items 5, 6, and 7 is accurate and complete to the best of the individual's knowledge. The date is the date of the individual's signature.

Item 23. This certification may be used to implement the provision for acceptance of an up-to-date NRC Form 4 when countersigned by an appropriate official of the most recent or current employer (see § 20.1104(d)).

**Revised NRC Form 5—Current Occupational Radiation Exposure**

Revised NRC Form 5 is appended for the convenience of those who may wish to comment on the proposed regulations. It is not a part of the regulations. However, the Commission does solicit comments on its content. If the proposed regulations are adopted and codified in Title 10 of the Code of Federal Regulations, the form will be used as a current record of occupational radiation doses for each individual for whom personnel monitoring is required by § 20.502.

BILLING CODE 7590-01-M

NRC FORM 5
10 CFR 20

CURRENT OCCUPATIONAL RADIATION EXPOSURE
(See Instructions on Back)

| 1. NAME (Last, First, Middle) | 2. SOCIAL SECURITY NO. | 3. DATE OF BIRTH (Month, Day, Year) | 4. NAME, ADDRESS, AND LICENSE NO. OF LICENSEE |
|---|---|---|---|
| | | | |

| | EXTERNAL DOSE EQUIVALENT | | | | | INTERNAL EFFECTIVE DOSE EQUIVALENT | | | | SUMMATION OF EFFECTIVE DOSE EQUIVALENT | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5. Monitoring Period (From - To) | 6. Lens of Eye (rems) | 7. Skin (rems) | 8. Extremities (rems) | 9. Whole Body (rems) | 10. Planned Special Exposures (rems) | 11. Radionuclides (Name & Class) | 12. Intake or Organ Burden (uCi) | 13. % of Annual Limit | 14. Committed Effective Dose Equivalent (rems) | 15. For Monitoring Period (rems) | 16. For Calendar Year (rems) | 17. Over Exposures (rems) |
| | | | | | | | | | | | | |

18. Remarks

BILLING CODE 7590-01-C

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Enclosure 1

**Instructions for Preparation of NRC Form 5**

The preparation and safekeeping of this form, or a clear and legible record containing all the information required on this form, is required by § 20.1106 of "Standards for Protection Against Radiation," 10 CFR Part 20, as a current record of occupational radiation doses. Such a record must be maintained for each individual for whom personnel monitoring is required by § 20.502.

Listed below by item are instructions and additional information pertinent to completing this form.

Item 1. Self-explanatory.

Item 2. Self-explanatory, except that if an individual has no social security number the word "None" shall be inserted.

Item 3. Self-explanatory.

Item 4. Self-explanatory.

Item 5. Enter the specific dates that the individual monitoring measurement was initiated and terminated. Entries shall be for periods of time not exceeding 1 calendar quarter. For individuals under continuous monitoring, doses received over a period less than a calendar quarter need not be separately entered on the form provided that the licensee maintains a current record of the dose received by the individual.

Item 6. Enter the external dose equivalent recorded for the lens of the eye. The dose to the lens of the eye is the eye dose equivalent, unless the licensee evaluates the dose to the lens through whatever shielding is present, or unless the eyes are protected with shields having a tissue equivalent thickness of at least 700 mg/cm$^2$. When the eyes are protected with shields having at least 700 mg/cm$^2$ the dose to the lens of the eye is the deep dose equivalent. Do not include the dose received during planned special exposures.

Items 7 and 8. Enter the external dose equivalent recorded for the skin and for the extremities, respectively. The dose to the skin and the extremities is the shallow dose equivalent, and shall be averaged over 10 cm$^2$ in the region of the highest exposure. Do not include the dose received during planned special exposures.

Item 9. Enter the external deep dose equivalent to the whole body. The licensee may assess deep dose equivalent through a tissue equivalent absorber of 300 mg/cm$^2$ as for eye dose equivalent. Include any dose received as a result of overexposures, accidents, and emergencies, but do not include doses received during planned special exposures.

Item 10. Enter the dose equivalent received during planned special exposures. Separate entries shall be made for whole body ("WB"), lens of the eye ("Eye"), skin ("Skin"), and extremities ("Ext"). Note that the provisions for planned special exposures do not apply to the intake of radionuclides.

Item 11. Identify the name and lung clearance class of each radionuclide to which the individual has been exposed. If the licensee does not choose to identify and determine the intake of each individual radionuclide in a mixture, or if the individual has been exposed to an unknown mixture of radionuclides, enter "Unknown Mixture." If the exact composition or the respective concentrations of radionuclides in a mixture is unknown, the licensee may treat the total activity taken into the body in terms of that radionuclide having the most limiting ALI and enter "Mixture" and the identity of the controlling radionuclide.

Item 12. Enter the best assessment of the amount of each radionuclide, in μCi, taken into the body of the individual during the monitoring period. If the licensee has used the provisions for mixtures in Item II, enter the total activity taken into the body. It may be assumed that exposure to uniform concentrations (DAC) of a radionuclide listed in Appendix B, 10 CFR Part 20, for 2,000 hours (40 hours per week for 50 weeks per years, using an inhalation rate of $2\times10^4$ ml/minute) will result in an intake equal to the ALI. Exposure at uniform DAC for fractions of the 2,000 hours may be assumed to result in proportional fractions of the intake limit. If the provisions of § 20.205 for controlling exposures involving radionuclides with very long effective half-lives are used, enter the radionuclide burden in each significantly exposed organ as determined by bioassay. In this case, the calculational techniques, models, and any specific information on the physical and biochemical properties of the radionuclides involved and their behavior in the individual shall be specifically referenced or documented in the exposed individual's record.

Item 13. Calculated the percentage of the ALI represented by the intake of each radionuclide (Item 12) during the monitoring period and enter the sum of the percentages in Item 13. If one of the provisions for mixtures in Item II is used, calculate the percentage of the ALI listed for the most limiting radionuclide present in the mixture, or the ALI for Unknown Mixtures, listed in Appendix B, 10 CFR Part 20, as appropriate for the chosen provision. If the provisions of § 20.205 are used, enter the sum of the precentages of the annual dose limits represented by the weighted annual dose equivalents to each of the significantly exposed organs or tissues.

Item 14. Multiply the percentage value in Item 13 by 5 rems and enter the product in Item 14. This assumes that an intake equivalent to one ALI will result in a committed effective dose equivalent of 5 rems. If the provisions of § 20.205 are used, enter both the annual effective dose equivalent and the 50-year committed effective dose equivalent assoicated with the intake.

Item 15. Enter the sum of the external whole body deep dose equivalent (Item 9) and the internal committed effective dose equivalent (Item 14) received by the individual during the current monitoring period. If the provisions of § 20.205 are used also enter the sum of the external whole body deep dose equivalent and the internal effective dose equivalent.

Item 16. Add the effective dose equivalent summation (Item 15) for each monitoring period to the previous summation of effective dose equivalent recorded for the year and enter the new summation in Item 16.

Item 17. Enter the portion of the effective dose equivalent entered in Item 16 that exceeds the 5-rem annual limit.

Item 18. This space should be used to record any unusual or limiting information about the data recorded on the form. This could include data on intake of radionuclides prior to (effective date), notation of contribution to dose from multiple employments during a period, dose received by the individual as a patient during medical diagnosis and therapy or dose to the embryo/fetus of a declared pregnant woman.

[FR Doc. 85-29249 Filed 12-19-85; 8:45 am]

BILLING CODE 7590-01-M

federal register

Friday
December 20, 1985

## Part III

# Department of Labor

**Employment Standards Administration, Wage and Hour Division**

**Minimum Wages for Federal and Federally Assisted Construction; General Wage Determination Decisions; New Publication Procedures; Notices**

## DEPARTMENT OF LABOR

### Employment Standards Administration, Wage and Hour Division

### Minimum Wages for Federal and Federally Assisted Construction; General Wage Determination Decisions

General wage determination decisions of the Secretary of Labor specify, in accordance with applicable law and on the basis of information available to the Department of Labor from its study of local wage conditions and from other sources, the basic hourly wage rates and fringe benefit payments which are determined to be prevailing for the described classes of laborers and mechanics employed on construction projects of the character and in the localities specified therein.

The determinations in these decisions of such prevailing rates and fringe benefits have been made by authority of the Secretary of Labor pursuant to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Stat. 1494, as amended 40 U.S.C. 276a) and of other Federal statutes referred to in 29 CFR 5.1 (including the statutes listed at 36 FR 306 (1970) following Secretary of Labor's Order No. 24–70) containing provisions for the payment of wages which are dependent upon determination by the Secretary of Labor under the Davis-Bacon Act; and pursuant to the provisions of part 1 of subtitle A of title 29 of Code of Federal Regulations, Procedure for Predetermination of Wage Rates, 48 FR 19533 (1983) and of Secretary of Labor's Order 9–83, 48 FR 35736 (1983), and 6–84, 49 FR 32473 (1984). The prevailing rates and fringe benefits determined in these decisions shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged on contract work of the character and in the localities described therein.

Good cause is hereby found for not utilizing notice and public procedure thereon prior to the issuance of these determinations as prescribed in 5 U.S.C. 553 and not providing for delay in the effective date as prescribed in that section, because the necessity to issue construction industry wage determination frequently and in large volume causes procedures to be impractical and contrary to the public interest.

General wage determination decisions are effective from their date of publication in the **Federal Register** without limitation as to time and are to be used in accordance with the provisions of 29 CFR Parts 1 and 5. Accordingly, the applicable decision together with any modifications issued subsequent to its publication date shall be made a part of every contract for performance of the described work within the geographic area indicated as required by an applicable Federal prevailing wage law and 29 CFR, Part 5. The wage rates contained therein shall be the minimum paid under such contract by contractors and subcontractors on the work.

#### Modifications and Supersedeas Decisions to General Wage Determination Decisions

Modifications and supersedeas decisions to general wage determination decisions are based upon information obtained concerning changes in prevailing hourly wage rates and fringe benefit payments since the decisions were issued.

The determinations of prevailing rates and fringe benefits made in the modifications and supersedeas decisions have been made by authority of the Secretary of Labor pursuant to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Stat. 1494, as amended, 40 U.S.C. 276a) and of other Federal statutes referred to in 29 CFR 5.1 (including the statutes listed at 36 FR 306 (1970) following Secretary of Labor's Order No. 24–70) containing provisions for the payment of wages which are dependent upon determination by the Secretary of Labor under the Davis-Bacon Act; and pursuant to the provisions of Part 1 of Subtitle A of Title 29 of Code of Federal Regulations, Procedure for Predetermination of Wage Rates, 48 FR 19533 (1983) and of Secretary of Labor's Orders 6–84, 49 FR 32473 (1984). The prevailing rates and fringe benefits determined in foregoing general wage determination decisions, as hereby modified, and/or superseded shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged in contract work of the character and in the localities described therein.

Modifications and supersedeas decisions are effective from their date of publication in the **Federal Register** without limitation as to time and are to be used in accordance with the provisions of 29 CFR Parts 1 and 5.

Any person, organization, or governmental agency having an interest in the wages determined as prevailing is encouraged to submit wage rate information for consideration by the Department. Further information and self-explanatory forms for the purpose of submitting this data may be obtained by writing to the U.S. Department of Labor, Employment Standards Administration, Wage and Hour Division, Office of Program Operations, Division of Wage Determinations, Washington, D.C. 20210. The cause for not utilizing the rulemaking procedures prescribed in 5 U.S.C. 553 has been set forth in the original General Determination Decision.

#### Modification to General Wage Determination Decisions

The numbers of the decisions being modified and their dates of publication in the **Federal Register** are listed with each State.

| | |
|---|---|
| Arkansas: | |
| AR85–4045 | Oct. 18, 1985. |
| Florida: | |
| FL85–3038 | July 12, 1985. |
| Massachusetts: | |
| MA85–3013 | Mar. 15, 1985. |
| MA85–3014 | Do. |
| MA85–3015 | Do. |
| Nevada: | |
| NV85–5014 | June 29, 1984 |
| NV84–5014 | June 8, 1984. |
| Oklahoma: | |
| OK85–4051 | Nov. 29, 1985 |
| OK85–4052 | Do. |
| Pennsylvania: | |
| PA84–3004 | Feb. 17, 1984. |
| Rhode Island: | |
| RI84–3042 | Nov. 30, 1984. |
| Washington: | |
| WA85–5038 | Oct. 4, 1985. |

Signed at Washington, DC this 13th day of December 1985.

**James L. Valin,**

*Assistant Administrator.*

BILLING CODE 4510-27-M

| DECISION NO. AR85-4045 - MOD NO. 3 (50FR42334 October 18, 1985) Clark, Garland & Hot Springs Cos. Arkansas | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| OMIT: | | |
| PLUMBERS/PIPEFITTERS: | | |
| Within 10 miles of Garland Co. Courthouse | $13.07 | $1.98 |
| Over 10 miles from Garland Co. Courthouse | 13.97 | 1.98 |
| ADD: | | |
| PLUMBERS/PIPEFITTERS: | | |
| Commercial buildings, schools, colleges, Universities, Motels, Hotels, Banks, All two (2) stories and under; shopping centers, super-markets, malls, fast foods, theaters and churches, warehouses one (1) story, hospitals, one (1) and two (2) stories, hospital additions and remodels of $500,000.00 or less | $12.07 | $1.98 |
| All other work with the exception of that listed above | 14.37 | 1.98 |

| DECISION NO. FL85-3038- MOD. #1 (July 12,1985 in 50 FR 28505) Dade County, Florida | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| CHANGE: | | |
| PLUMBERS: | | |
| Commercial Buildings of five stories or less, except hospitals, manufacturing plants, Miami International Airport: | $11.94 | $3.41 |
| SPRINKLER FITTERS | 16.20 | 3.48 |

| DECISION NO. MA85-3015 - MOD. #4 (50 FR 10500 - March 15, 1985) Berkshire, Franklin, Hampden and Hampshire Counties, Massachusetts | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| CHANGE: | | |
| LABORERS (BUILDING) | | |
| Group 1 | 13.35 | 3.70 |
| Group 2 | 13.60 | 3.70 |
| Group 3 | 14.10 | 3.70 |
| Group 4 | 14.10 | 3.70 |
| Group 5 | 14.35 | 3.70 |
| HEAVY & HIGHWAY | | |
| Area 1 | | |
| Class I | 13.35 | 3.70 |
| Class II | 13.60 | 3.70 |
| Class III | 14.10 | 3.70 |
| Class IV | 14.35 | 3.70 |
| Area 2: | | |
| Class I | 14.05 | 3.70 |
| Class II | 14.25 | 3.70 |
| Class III | 14.80 | 3.70 |
| Class IV | 15.95 | 3.70 |
| ADD: | | |
| LABORERS | | |
| HEAVY & HIGHWAY | | |
| Area 1 | | |
| Class 5 | | |
| Flaggers | 9.75 | 3.70 |

(2)



| DECISION NO. MA85-3013 MOD #4 (50 FR 10587)-March 15, 1985) Essex, Suffolk, Middlesex, Norfolk, Bristol, Plymouth, Barnstable, Dukes, Nantucke Counties, Massachusetts | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Change: | | |
| LABORERS (BUILDING): | | |
| Class I | 14.05 | 3.70 |
| Class II | 14.30 | 3.70 |
| Class III | 14.80 | 3.70 |
| Class IV | 15.05 | 3.70 |
| Class V | 14.80 | 3.70 |
| LABORERS (WRECKING): | | |
| Area 1: | | |
| Class I | 10.70 | 3.55 |
| Class II | 13.80 | 3.55 |
| Class III | 13.90 | 3.55 |
| Class IV | 14.05 | 3.55 |
| Class V | 14.30 | 3.55 |
| Area 2: | | |
| LABORERS (HEAVY & HIGHWAY): | | |
| Class I | 14.05 | 3.70 |
| Class II | 14.25 | 3.70 |
| Class III | 14.80 | 3.70 |
| Class IV | 15.95 | 3.70 |
| Tunnels, caisson and Cylinder Work in Compressed Air: | | |
| Class V-A | 19.83 | 3.70 |
| Class V-B | 21.33 | 3.70 |
| Class V-C | 21.50 | 3.70 |
| Class V-D | 21.57 | 3.70 |
| Class V-E | 22.07 | 3.70 |
| Free Air Operation: | | |
| Shield driven and liner plate in free air: | | |
| Class VI-A | 15.35 | 3.70 |
| Class VI-B | 14.50 | 3.70 |
| cleaning concrete and caulking tunnel (both new and existing): | | |
| Class VI-C | 14.50 | 3.70 |
| Class VI-D | 14.825 | 3.70 |

| DECISION NO. MA85-3013, CONT'D: | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Rock shaft, concrete lining of same and tunnel in free air: | | |
| Class VI-E | 14.25 | 3.70 |
| Class VI-F | 14.40 | 3.70 |
| Class VI-G | 14.50 | 3.70 |
| Class VI-H | 15.35 | 3.70 |
| LABORERS (OPEN AIR CAISSONS, UNDERPINNING AND TEST BORING INDUSTRIES): | | |
| Open Air Caisson, Underpinning Work and Boring Crew: | | |
| Class I-A | 14.05 | 3.70 |
| Class I-B | 14.80 | 3.70 |
| Test Boring: | | |
| Class II-A | 14.05 | 3.70 |
| Class II-B | 14.92 | 3.70 |
| Omit: | | |
| Laborers | | |
| Wrecking | | |
| Group 6 | | |
| Asbestos Removers | 14.55 | 3.00 |
| Add: | | |
| Laborers | | |
| Wrecking | | |
| Group 7 | 14.80 | 3.55 |

(3)

DECISION NO. MA85-3014 - MOD. #4
(50 FR 10594 - March 15, 1985)
Worcester County, Massachusetts

CHANGE:

| | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| LABORERS: | | |
| Building Construction: | | |
| Group 1 | 14.05 | 3.70 |
| Group 2 | 14.30 | 3.70 |
| Group 3 | 14.80 | 3.70 |
| Group 4 | 15.05 | 3.70 |
| Group 5 | 14.80 | 3.70 |
| Wrecking: | | |
| Group 1 | 10.70 | 3.55 |
| Group 2 | 13.80 | 3.55 |
| Group 3 | 13.90 | 3.55 |
| Group 4 | 14.05 | 3.55 |
| Group 5 | 14.30 | 3.55 |
| Group 6 | 14.55 | 3.55 |
| HEAVY & HIGHWAY CONSTRUCTION | | |
| Group 1 | 14.05 | 3.70 |
| Group 2 | 14.25 | 3.70 |
| Group 3 | 14.80 | 3.70 |
| Group 4 | 15.04 | 3.70 |
| Tunnels, Caisson and Cylinder Work in Compressed Air: | | |
| Group 5-A | 19.83 | 3.70 |
| Group 5-B | 21.33 | 3.70 |
| Group 5-C | 21.50 | 3.70 |
| Group 5-D | 21.57 | 3.70 |
| Group 5-E | 22.07 | 3.70 |
| Free Air Operation: Sheild driven and Liner Plate in Free Air: | | |
| Group 6-A | 15.35 | 3.70 |
| Group 6-B | 14.50 | 3.70 |
| Cleaning Concrete and Caulking Tunnel (Both new and existing): | | |
| Group 6-C | 15.40 | 3.70 |
| Group 6-D | 14.825 | 3.70 |
| Rock shaft, Concrete Lining of same and Tunnel in Free Air: | | |
| Group 6-E | 14.25 | 3.70 |
| Group 6-F | 14.40 | 3.70 |
| Group 6-G | 14.50 | 3.70 |
| Group 6-H | 15.35 | 3.70 |

DECISION NO. MA85-3014, CONT'D:

| | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| OPEN AIR CAISSON, UNDERPINNING AND TEST BORING INDUSTRIES: | | |
| Open Air Caisson, Underpining Work and Boring Crew | | |
| Group 1-A | 14.05 | 3.70 |
| Group 1-B | 14.80 | 3.70 |
| Test Boring: | | |
| Group 2-A | 14.05 | 3.70 |
| Group 2-B | 14.92 | 3.70 |

OMIT

| | | |
|---|---|---|
| LABORERS | | |
| Wrecking: | | |
| Group 6 | | |
| Asbestos Removers | 14.55 | 3.00 |

ADD:

| | | |
|---|---|---|
| LABORERS | | |
| Wrecking: | | |
| Group 7 | | |
| Asbestos Removers | 14.80 | 3.55 |





DECISION NO. NV84-5017
MOD #6
(49 FR 26874-June 29, 1984)
Washoe County, Nevada

Change:

| Power Equipment Operators (Except Piledriving and Steel Erection): | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| | Area 1 | Area 2 |
| Group 1-A | 14.64 | 16.14 |
| Group 2 | 15.17 | 16.67 |
| Group 3 | 15.44 | 16.94 |
| Group 4 | 16.18 | 17.68 |
| Group 5 | 16.48 | 17.98 |
| Group 6 | 16.65 | 18.15 |
| Group 7 | 16.90 | 18.40 |
| Group 8 | 17.49 | 18.99 |
| Group 9 | 17.81 | 19.31 |
| Group 10 | 18.16 | 19.66 |
| Group 10-A | 18.35 | 19.85 |
| Group 11 | 18.59 | 20.09 |
| Group 11-A | 20.23 | 21.73 |
| | Area 3 | Area 4 |
| Group 1-A | 16.64 | 17.64 |
| Group 2 | 17.17 | 18.17 |
| Group 3 | 17.44 | 18.44 |
| Group 4 | 18.18 | 19.18 |
| Group 5 | 18.48 | 19.48 |
| Group 6 | 18.65 | 19.65 |
| Group 7 | 18.90 | 19.90 |
| Group 8 | 19.49 | 20.49 |
| Group 9 | 19.81 | 20.81 |
| Group 10 | 20.16 | 21.16 |
| Group 10-A | 20.35 | 21.35 |
| Group 11 | 20.59 | 21.59 |
| Group 11-A | 22.23 | 23.23 |

Fringe Benefits: $7.29

DECISION NO. NV84-5017 (Cont.)

| | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Piledriving: | | |
| Group 1 | 15.61 | 7.29 |
| Group 1-A | 16.16 | 7.29 |
| Group 1-B | 16.47 | 7.29 |
| Group 2-A | 16.47 | 7.29 |
| Group 2-B | 17.33 | 7.29 |
| Group 2-C | 17.67 | 7.29 |
| Group 2-D | 17.91 | 7.29 |
| Group 3 | 18.14 | 7.29 |
| Group 3-A | 18.33 | 7.29 |
| Group 4 | 19.70 | 7.29 |
| Group 5 | 19.98 | 7.29 |
| Group 6 | 21.77 | 7.29 |
| Steel Erection: | | |
| Group 1 | 16.36 | 7.29 |
| Group 2 | 16.94 | 7.29 |
| Group 3 | 18.58 | 7.29 |
| Group 4 | 18.79 | 7.29 |
| Group 4-A | 19.30 | 7.29 |
| Group 5 | 20.09 | 7.29 |
| Group 6 | 20.77 | 7.29 |
| Group 7 | 21.25 | 7.29 |
| Group 8 | 21.71 | 7.29 |
| Group 9 | 23.37 | 7.29 |

DECISION NO. NV84-5014
MOD #16
(49 FR 20988-June 8, 1984)
Statewide (does not include the test Range, or Building construction in Churchill, Lyon and Mineral Counties, or Highway construction in Douglas County), Nevada

Change:
POWER EQUIPMENT OPERATORS:
Remaining Counties:
Power Equipment Operators Except Piledriving and Steel Erection:

| | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| | Area 1 | Area 2 |
| Group 1-A | 14.64 | 16.14 |
| Group 2 | 15.17 | 16.67 |
| Group 3 | 15.44 | 16.94 |
| Group 4 | 16.18 | 17.68 |
| Group 5 | 16.48 | 17.98 |
| Group 6 | 16.65 | 18.15 |
| Group 7 | 16.90 | 18.40 |
| Group 8 | 17.49 | 18.99 |
| Group 9 | 17.81 | 19.31 |
| Group 10 | 18.16 | 19.66 |
| Group 10-A | 18.35 | 19.85 |
| Group 11 | 18.59 | 20.09 |
| Group 11-A | 20.23 | 21.73 |
| | Area 3 | Area 4 |
| Group 1-A | 16.64 | 17.64 |
| Group 2 | 17.17 | 18.17 |
| Group 3 | 17.44 | 18.44 |
| Group 4 | 18.18 | 19.18 |
| Group 5 | 18.48 | 19.48 |
| Group 6 | 18.65 | 19.65 |
| Group 7 | 18.90 | 19.90 |
| Group 8 | 19.49 | 20.49 |
| Group 9 | 19.81 | 20.81 |
| Group 10 | 20.16 | 21.16 |
| Group 10-A | 20.35 | 21.35 |
| Group 11 | 20.59 | 21.59 |
| Group 11-A | 22.23 | 23.23 |

FRINGE BENEFITS:
$7.29

DECISION NO. NV84-5014(Cont.)

| | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Piledriving: | | |
| Group 1 | 15.61 | 7.29 |
| Group 1-A | 16.16 | 7.29 |
| Group 1-B | 16.47 | 7.29 |
| Group 2-A | 16.47 | 7.29 |
| Group 2-B | 17.33 | 7.29 |
| Group 2-C | 17.67 | 7.29 |
| Group 2-D | 17.91 | 7.29 |
| Group 3 | 18.14 | 7.29 |
| Group 3-A | 18.83 | 7.29 |
| Group 4 | 19.70 | 7.29 |
| Group 5 | 19.98 | 7.29 |
| Group 6 | 21.77 | 7.29 |
| Steel Erection: | | |
| Group 1 | 16.36 | 7.29 |
| Group 2 | 16.94 | 7.29 |
| Group 3 | 18.58 | 7.29 |
| Group 4 | 18.79 | 7.29 |
| Group 4-A | 19.30 | 7.29 |
| Group 5 | 20.09 | 7.29 |
| Group 6 | 20.77 | 7.29 |
| Group 7 | 21.25 | 7.29 |
| Group 8 | 21.71 | 7.29 |
| Group 9 | 23.37 | 7.29 |

(6)



DECISION NO. R184-3042 - MOD. #11
(49 FR 47171 - November 30, 1984)
Statewide, Rhode Island

CHANGE:

| | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| LABORERS: | | |
| Flagmen | 10.50 | 2.80 |
| (Building Construction) Laborers; Carpenters Tenders; Cement Finisher Tenders; Mason Tenders; Scaffold Erectors & Wrecking Laborers | 14.95 | 2.80 |
| Asphalt Rakers; Adzeman; pipe-trench Bracers; Demolition Burners; Chain Saw Ops.; Fence & Guard Rail Erectors; Setters of Metal Forms for Roadways; Pipelayers Riprap & Dry Stonewall Builders; Highway Stone Spreaders, Pneumatic Tools Ops., Wagon Drill Ops., Tree Trimmers; Barco Type Jumping tampers; Scaffold Builders; Mortar Mixers | 15.25 | 2.80 |
| Pre-cast Floor & Roof Plant Erectors | 15.45 | 2.80 |
| Air Track Ops.; Block Pavers; Rammers; & Curb Setters | 15.70 | 2.80 |
| Blasters; Powdermen | 16.95 | 2.80 |
| LABORERS (Heavy & Highway Construction): Laborers; Carpenters Tenders; Cement Finishers, Tenders; Mason Tenders; Scaffold Erectors & Wrecking laborers | 14.95 | 2.80 |
| Concrete & Power Buggy Ops.; Concrete Saw Ops; Demolition Burners; Fence & Guard Rail Erectors; Highway Stone Spreaders; Mason Tenders; Mechanical Grinder Ops.; Mortar Mixers; Pipe Trench Bracers; | | |

DECISION NO. R184-3042 (Cont'd)

| | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Pneumatic Tool Ops.; Riprap & Dry Stone Wall Builders; Scaffold Erectors; Setters of Metal Forms for Roadways; Wagon Drill Ops.; Wood Chipper Ops. | 15.20 | 2.80 |
| Air Track Drill Ops.; Brick Pavers; Block Pavers; Rammers; Curb Setters | 16.20 | 2.80 |
| Blaster & Powdermen | 16.95 | 2.80 |

(7)

MODIFICATIONS P. 7

| DECISION NO.: OK85-4051<br>MOD NO.: 2 - (50FR49328-November 29, 1985 | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Alfalfa, Beckham, Blaine, Caddo, Canadian, Carter, Cleveland, Comanche, Cotton, Custer, Dewey, Ellis, Garfield, Garvin, Grady, Grant, Greer, Harmon, Harper, Jackson, Jefferson, Johnston, Kay, Kingfisher, Kiowa, Lincoln, Logan, Love, McClain, Major, Marshall, Murray, Noble, Oklahoma, Payne, Pontotoc, Roger Mills, Pottawatomie, Seminole, Stephens, Tillman, Washita, Woods, & Woodward Counties, Oklahoma. | | |
| ADD: | | |
| SOFT FLOOR LAYERS | 14.60 | 2.03 |
| CHANGE: | | |
| PLUMBERS - AREA I: | | |
| Mechanical contracts under $150,000.00 | 14.00 | 2.475 |
| Mechanical contracts of $150,000.00 & over | 15.56 | 2.475 |
| LABORERS: AREA III | | |
| Group I | 7.50 | 1.31 |
| Group II | 8.00 | 1.31 |

| DECISION NO.: OK85-4052<br>MOD. NO. 2 - (50FR49332 - November 29, 1985) | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| Adair, Atoka, Bryan, Coal, Cherokee, Craig, Creek, Delaware, Haskell, Hughes, Leflore, Latimer, McIntosh, Mayes, Muskogee, Nowata, Okfuskee, Okmulgee, Osage, Ottawa, Pawnee, Pittsburg, Pushmataha, rogers, Tulsa, Sequoyah, Wagoner, and Washington Cos., Oklahoma | | |
| CHANGE: | | |
| ELEVATOR CONSTRUCTORS: | | |
| Area I | | |
| Journeymen | $15.05 | $3.29+a |
| Helpers | 70%JR | 3.29+a |
| Probationary Helpers | 50%JR | |



MODIFICATIONS P. 8

| DECISION NO. PA84-3004 - MOD. 8<br>(49 FR 6209 - February 17, 1984)<br>Armstrong, Beaver, Butler, Fayette, Indiana, Washington, Allegheny & Westmoreland Counties, Pennsylvania. | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| OMIT: | | |
| LABORERS: | | |
| Zones 1, II & III | | |
| ADD: | | |
| LABORERS | | |
| Class 1 | 12.75 | 23.6% |
| Class 2 | 12.90 | 23.6% |

LABORERS CLASSIFICATION DEFINITIONS

Class 1 - COMMON LABORER:

Building laborer, brick removal for alterations, carryable pumps, West Brick Buggy or similar, walk behind forklift or similar (non self-propelled), stripper and mover of forms as follow - cement masons and footers, tool room man, all material conveyors (regardless of power used, including starting and stopping), pouring of mortar or aggregate into blocks or voids.

Class 2 - SKILLED LABORER:

Air tract helper, asbestos removal, west brick buggy or similar (self propelled, power wheelbarrows and buggies, walk behind forklift or similar (self-propelled), wagon drill helper, drill runner, drill runner's helper (including drill-mounted on truck, track or similar), blaster's helper, all operators of compacting equipment, pipelayer, burner, jackhammer man - concrete buster, vibrator operator, clay spade and/or similar, concrete saw operator, hod carrier, scaffold builder, air track operator, bell and bottom man on furnaces and stacks, grout machine feeder and pump operator, gunnite machine operator or similar, gunnite machine potman or similar, lancer helper, mortar mixer, mortar mixer machine (regardless of power used, including starting and stopping), wagon drill operator, gunnite nozzleman, laser cleaner, blaster, lancer.

| DECISION NO. WA85-5038 - Mod#4 (50 FR 40782 - October 4, 1985) Adams, Asotin, *Benton,Columbia *Douglas, Ferry, *Franklin, Garfield, Grant, Lincoln, *Okanogan, Pend Oreille, Stevens Walla Walla & Whitman Counties, Washington | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| CHANGE: | | |
| ASBESTOS WORKERS | $20.15 | $3.53 |
| SPRINKLER FITTERS | 19.17 | 3.40 |
| OMIT: | | |
| TRUCK DRIVERS AREA 1: Omit rates and Classifications. | | |
| ADD: | | |
| TRUCK DRIVERS: | | |
| Area 1: D.O.E. Hanford Site in Benton and Franklin Counties: | | |
| Group 1 | 12.75 | 4.10 |
| TRUCK DRIVERS (Cont'd): | | |
| Group 2 | 14.94 | 4.10 |
| Group 3 | 14.99 | 4.10 |
| Group 4 | 15.04 | 4.10 |
| Group 5 | 15.13 | 4.10 |
| Group 6 | 15.34 | 4.10 |
| Group 7 | 15.38 | 4.10 |
| Group 8 | 15.44 | 4.10 |
| Group 9 | 15.48 | 4.10 |
| Group 10 | 15.59 | 4.10 |
| Group 11 | 15.63 | 4.10 |
| Group 12 | 15.94 | 4.10 |
| Group 13 | 16.08 | 4.10 |
| Group 14 | 16.24 | 4.10 |
| Group 15 | 16.38 | 4.10 |

TRUCK DRIVERS CLASSIFICATIONS

Area 1:

Group 1: Escort Driver or Pilot car tender and swamper. Pick up hauling employees or material

Group 2: Flat Bed Truck, single rear axle; Fork Lift, 3,000 lbs. and under; Leverperson loading Trucks at Bunkers; Seeder and Mulcher; Stationary Fuel Operator; Team Driver; Tractor (small rubber tired Pulling trailer or similar equipment); Water Tank Truck, 1,800 gallons

Group 3: Bus Driver or Employeehaul Driver; Flat Bed Truck, dual rear axle; Power Boat hauling employees or material; Tireperson No. 1

Group 4: Buggy Mobile and similar; Bulk Cement Tanker; Oil Tank Driver; Power Operated Sweeper; Straddle Carrier (Ross Hyster and similar); Transit Mixers and Trucks hauling concrete (3 yds. and under); Trucks, side, end, and bottom dump (under 6 yds.); Water Tank Truck, 1,801 - 4,000 gallons

Group 5: Auto Crane, 2,000 lbs. capacity; Bulk Cement Spreader; Dumptor (6 yds. and under); Flat Bed Truck (with hydraulic system); Fork Lift (3,001 - 16,000 lbs.); Rubber-tired Tunnel Jumbo; Scissor Truck; Slurry Truck Driver; Transit Mixers and Trucks, hauling concrete over 3 yd to 6 yd; Wrecker and Tow Trucks; Fuel Truck Driver; Steam Cleaner and Washer; Water tank truck 4,001 to 6,000 gallons

Group 6: Service Greaser; Tireperson No. 2; Truck, side, end, and bottom Dump (over 6 yds. to 12 yds.); Oil Distributor Driver (road, Boot Person, Lever Person, Tender); Burner, cutter, and welder





| DECISION NO. WA85-5038 (Cont'd): | Basic Hourly Rates | Fringe Benefits |
|---|---|---|
| | | |

TRUCK DRIVERS CLASSIFICATIONS (Cont'd)

Group 7: A-Frame; Water Tank Truck, 6,001 to 8,000 gallons

Group 8: Dumptor (over 6 yards); Transit Mixers and Trucks hauling concrete (6 yards to 10 yards); Trucks, side, end, and bottom dump (over 12 yards including 20 yards); Semi Truck and Trailer, LowBoy 50 tons and under

Group 9: Low Boy (over 50 ton); Water Tank Trucks, 8,001 to 10,000 gallons; Tractor with Steer Trailer; Truck mounted Crane with load bearing surface, either mounted or pulled

Group 10: Transit Mixer and Trucks hauling concrete (10 yds. to 15 yds.); Trucks, side, end, and bottom dump (over 20 yds. including 30 yds.); Water Tank Truck (10,001 to 12,000 gallons); Fork Lift, over 16,000 lbs.; Flaherty Spreader Box Driver; Flow Boys; Semi-end Dumps

Group 11: Mechanic, Field

Group 12: Tournarocker, D.W.'s and similar, with 2 or 4 wheel power tractor with trailer, gallonage or yardage scale, whichever is greater; Transit Mixers and Trucks hauling concrete (15 yds. to 20 yds.); Trucks, side, end, and bottom dump (over 30 yds. to 40 yds.); Water Tank Truck, 12,001 to 14,000 gallons

Group 13: Transit Mixers and Trucks hauling concrete (over 20 yds.); Trucks, side, end, and bottom dump (over 40 yds. to 50 yds.)

Group 14: Trucks, side, end, and bottom dumps (over 50 yds. to 100 yds.)

Group 15; Helicopter Pilot hauling employees or material; Trucks, side, end, and bottom dump (over 100 yards)

Truck - Tractor pulling 2 trailers - add $.10 yardage scale for second trailer, 3 trailers - add $.20 for third trailer

Truck pulling farm, tilt, drop, utility and pole trailer (except semi-truck or low boy) - add $.15 yardage scale

Winch Truck - takes classification of Truck on which Winch is mounted



BILLING CODE 4510-27-C

[FR Doc. 85-29966 Filed 12-19-85; 8:45 am]

## Minimum Wages for Federal and Federally Assisted Construction; General Wage Determination Decisions, Notice of New Publication Procedures

**Note.**—This document was originally published on Dec. 6, 1985 at 50 FR 501.16. It is reprinted in this issue at the request of the Department of Labor.

Beginning January 3, 1986, general wage determinations issued under the Davis-Bacon and Related Act will no longer be published in the **Federal Register.** Instead, notices of wage determinations issued will be published in the **Federal Register.** General wages determinations will be published in full in the Government Printing Office (GPO document entitled *"General Wage Determinations Issued Under The Davis-Bacon And Related Acts."* This change is being made to enhance the availability and use of Davis-Bacon wage determinations information while lowering Federal Government costs.

The GPO publication *"General Wage Determinations Issued Under The Davis-Bacon and Related Acts"* is organized into three volumes—East, Central, and West. Subscriptions may be purchased for one, two, or all three volumes (at a cost of $227 per volume) from: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (202) 783–3283.

This publication is to be available for examination at all 80 Regional Government Depository Libraries and many other of the 1,400 Government Depository Libraries across the country. The State covered by each volume are as follows:

**Volume I—East**

Alabama
Connecticut
Delaware
Florida
Georgia
Kentucky
Maine
Maryland
Massachusetts
Mississippi
New Hampshire
New Jersey
New York
North Carolina
Pennsylvania
Rhode Island
South Carolina
Tennessee
Vermont
Virginia
West Virginia
District of Col.
Canal Zone
Puerto Rico
Virgin Islands

**Volume II—Central**

Arkansas
Illinois
Indiana
Iowa
Kansas
Louisiana
Michigan
Minnesota
Missouri
Nebraska
New Mexico
Ohio
Oklahoma
Texas
Wisconsin

**Volume III—West**

Alaska
Arizona
California
Colorado
Hawaii
Idaho
Montana
Nevada
North Dakota
Oregon
South Dakota
Utah
Washington
Wyoming

On or about January 1 of each year, an annual edition will be issued that includes all current general wage determinations for the States covered by each volume. Throughout the remainder of the year, regular weekly updates will be distributed to subscribers and libraries providing any modifications or supersedeas waged determinations issued. Each volume's annual and weekly editions will be printed in looseleaf format, thereby facilitating the orderly and continuous availability of a comprehensive listing of up-to-date general wage determinations.

**Susan R. Meisinger,**

*Deputy Under Secretary for Employment Standards.*

**Herbert J. Cohen,**

*Deputy Administrator, Wage and Hour Division.*

[FR. Doc. 85–29402 Filed 12–5–85; 8:45 a.m.]

BILLING CODE 4510–27–M

federal register

Friday
December 20, 1985

Part IV

# Department of the Interior

Office of the Secretary

43 CFR Part 11

Natural Resource Damage Assessments; Proposed Rule

**DEPARTMENT OF THE INTERIOR**

**Office of the Secretary**

**43 CFR Part 11**

**Natural Resource Damage Assessments**

**AGENCY:** Department of the Interior.

**ACTION:** Proposed rulemaking.

**SUMMARY:** The proposed rule establishes procedures for assessing damages to natural resources from a discharge of oil or a release of a hazardous substance and compensable under either the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601 *et seq.*, or under the Clear Water Act (CWA), 33 U.S.C. 1251 *et seq.* (also known as the Federal Water Pollution Control Act). Responsibility for preparation of this proposed rule was delegated by the President to the Department of the Interior in Executive Order 12316, August 14, 1981, 46 FR 42237.

The proposed rule is for the use of authorized Federal and State officials referred to in CERCLA as "trustees" for natural resources. Federal trustees are those managemnt agencies designated in subpart G of the National Oil and Hazardous Substances Contingency Plan 40 CFR Part 300, and State trustees are authorized representatives of States who may bring claims under sections 107 and 111 of CERCLA. The procedures in the proposed rule will enable authorized officials to perform damage assessments that when performed by Federal officials will be given the weight of a rebuttable presumption pursuant to section 111(h) of CERCLA in court actions or administrative proceedings when seeking compensation for injuries to natural resources. Section 301(c) of CERCLA requires the promulgation of two types of regulations, simplified "type A" procedures and alternative "type B" procedures to be used in individual cases. This proposed rule consists of the alternative methodologies referred to as the "type B" procedures. This proposed rule does not provide guidance for simplified assessments referred to as the "type A" procedures. The "type A" procedures will be proposed in a future Notice of Proposed Rulemaking on or before April 4, 1986.

The proposed rule does not include procedures for the filing of claims for natural resource damages against the Hazardous Substances Response Trust Fund (Superfund). Rules for that purpose have been promulgated by the Environmental Protection Agency (EPA) on November 30, 1985, to be codified at 40 CFR Part 306.

**DATE:** Comments should be submitted by February 3, 1986. Comments received on or before the above date will be considered in the decisionmaking process on the final rulemaking. The short comment period is required because of the court ordered deadline that requires publication of the final rule by April 22, 1986.

**ADDRESS:** Comments should be sent to: Keith Eastin, Associate Solicitor, CERCLA 301 Project Director, Room 4354, Department of the Interior, 1801 "C" St. NW, Washington, DC 20240.

Comments will be available for public review at the above address during regular business hours (7:45 a.m. to 4:15 p.m.), Monday through Friday.

**FOR FURTHER INFORMATION CONTACT:**
Keith Eastin, (202) 343–5757;
Sheryl Katz, (202) 343–1301;
Alison Ling, (202) 343–1301.

**SUPPLEMENTARY INFORMATION:**

## I. Background

### *A. Statutory Background*

Section 301(c) of CERCLA requires the promulgation of rules for the assessment of damages for injury to, destruction of, or loss of natural resources resulting from a discharge of oil or a release of a hazardous substance for the purposes of CERCLA and of section 311(f) (4) and (5) of the CWA. Section 301(c) states:

> (c)(1) The President, acting through Federal officials designated by the National Contingency Plan published under section 105 of this Act, shall study and, not later than two years after the enactment of this Act, shall promulgate regulations for the assessment of damages for injury to, destruction of, or loss of natural resources resulting from a release of oil or a hazardous substance for the purpose of this Act and section 311(f)(4) and (5) of the Federal Water Pollution Control Act.
>
> (2) Such regulations shall specify (A) standard procedures for simplified assessments requiring minimal field observation, including establishing measures of damages based on units of discharge or release or units of affected area, and (b) alternative protocols for conducting assessments in individual cases to determine the type and extent of short-and long-term injury, destruction, or loss. Such regulations shall identify the best available procedures to determine such damages, including both direct and indirect injury, destruction, or loss and shall take into consideration factors including, but not limited to, replacement value, use value, and ability of the ecosystem or resource to recover.
>
> (3) Such regulations shall be reviewed and revised as appropriate every two years.

The proposed rule will be used by Federal and State authorized officials acting as trustees of natural resources to assess damages to natural resources for purposes of sections 107(a) and 111 (a) and (d) of CERCLA and section 311 (f) (4) and (5) of the CWA. when injuries occur to natural resources resulting from a discharge of oil or release of a hazardous substance, the authorized officials of the Federal or State agency acting in its role of trustee may seek damages for those injuries either by legal actions against the parties responsible or, in the case of hazardous substances, by seeking restoration costs from the Hazardous Substance Response Trust Fund.

Section 107 (a) establishes liability for "damages for, injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss resulting from such a release." This language is the basis for seeking damages from responsible parties. Section 107(f) describes the role of a trustee and authorizes Federal and State agencies to assume that role. Sections 111 (a) and (b) permit the payment of claims asserted for injury, destruction, or loss of natural resources, including the cost for damage assessment from the Superfund. Section 311(f)(4) of the CWA establishes responsible party liability for costs incurred by the Federal or State governments in the restoration or replacement of natural resources damaged or destroyed as a result of a discharge of oil or hazardous substances.

Section 301(c) of CERCLA specifies two types of procedures to be developed. The type A procedures are to be standard procedures for simplified assessments requiring minimal field observation. The type B procedures are to include alternative methodologies for conducting assessments in individual cases.

### *B. Regulatory Background*

The proposed rule is being developed under a court imposed deadline. Section 301(c) of CERCLA required tis promulgation by December 11, 1982. By Executive Order 12316, August 14, 1981, 46 FR 42237, responsibility for preparation of the proposed rule was delegated to the Department of the Interior. On January 10, 1983, 48 FR 1084, the Department issued an Advance Notice of Proposed Rulemaking (ANPRM) seeking comment from the public concerning how to approach the development of the regulations. A second Advance Notice of Proposed Rulemaking, 48 FR 34768, appeared on August 1, 1983, summarizing the comments received from the January

notice. In December 1983, the State of Montana filed suit against the Department of the Interior for failure to promulgate the regulations. That suit was voluntarily withdrawn, but was followed by two new cases, one brought by the State of New Jersey and the New Jersey Department of Environmental Protection, and the other brought by the New Mexico Health and Environment Department, the State of Louisiana, Public Citizen, the National Wildlife Federation, and the Environmental Defense Fund. The court ruled on December 12, 1984, in *State of New Jersey et al. v. Ruckelshaus et al.*, Cir. No. 84–1668 (D.C.N.J.), that the Secretary had failed to promulgate the assessment regulations in timely fashion. In a consent order entered on February 5, 1985, the Secretary agreed to undertake action to adopt the assessment regulations as expeditiously as possible. The Secretary agreed to the following:

(1) To publish a notice of proposed rulemaking for the "A regulations" on or before April 4, 1986, and to promulgate final "A regulations" on or before August 7, 1986.

(2) To publish a notice of proposed rulemaking for the "B regulations" on or before December 20, 1985, and to promulgate final "B regulations" on or before April 22, 1986.

In order to complete the proposed rule expeditiously, an intra-Departmental team was assigned the responsibility for organizing the project, coordinating governmental expertise, and drafting the proposed rule. The team was comprised of professionals from the U.S. Fish and Wildlife Service, the Bureau of Land Management, the U.S. Geological Survey, the Office of Policy Analysis, and the Office of the Solicitor. The team was selected and organized in October 1984 and began full-time work on the project in November 1984.

The team was responsible for determining the scope of the regulations and defining the key issues. Experts from within and outside government were contacted to provide additional information and analysis. Outside contractors were used on a limited basis to conduct studies and gather data not otherwise available. Emphasis was placed on the use of existing research, procedures, and methodologies whenever possible.

To seek similar information from the public, the Department published a **Federal Register** notice on January 11, 1985, inviting updated public comment and suggesting meetings between interested members of the public and representatives of the Department involved in the preparation of the regulations. Comments received in response to this notice and the earlier ANPRMs are discussed later in this preamble.

Two groups within the Federal government reviewed a preliminary working draft of the proposed rule. The existing Department of the Interior Superfund Task Force was used for internal Department review and comment. A second group composed of those Federal agencies represented on the National Response Team was also invited to review and comment. Members of the project team then met with the reviewing agencies to discuss their comments on the working draft.

### *C. "Type A" Regulations*

The proposed rule includes only the type B procedures described in section 301(c)(2)(B) of CERCLA. The type A procedures will be included in a Notice of Proposed Rulemaking on or before April 4, 1986. No guidance is provided in this proposed rule for choosing between a type A and a type B assessment; that guidance will be provided in the proposed rule for the type A procedures. Until type A procedures are available, all assessments performed under CERCLA or the CWA will use the type B procedures. It is comptemplated that the initial type A procedures will provide assessment methodologies only for discharges of oil and releases of hazardous substances in coastal environments. The type A procedures require more time to develop than the type B procedures. Developing the concepts applicable generally to damage assessments and developing the basic methodologies are steps that precede development of a simplified procedure. The type A procedures will require data collected on principals similar to the principles used in the type B assessments. This data collection performed as part of a type B assessment will have to be performed as part of the regulatory development for the type A procedure. This process will ensure that the type A procedure will yield results that are compensatory and not be a mere penalty table.

### *D. Concepts Embodied in the Proposed Rule*

#### 1. Rebuttable Presumption

CERCLA provides for the recovery of damages to natural resources, but it does not establish the measure of those damages. Instead, it requires the President, acting through designated Federal officials, to develop regulations for the assessment of damages. Pursuant to CERCLA section 111(h), the dollar figure representing the measure of damages is determined through an assessment performed using the procedures specified in the proposed rule. This figure, when supported by the Report of Assessment and based on an assessment performed by a Federal official, is entitled to a rebuttable presumption in a court action or administrative proceeding to determine the measure of damages recoverable under the statute. Applying traditional rules of civil procedures, the submission of the damage amount and the Report of Assessment to the court should be sufficient to meet the plaintiff's burden of going forward. The burden of going forward is the requirement of the authorized Federal or State official, as plaintiff, to present an affirmative case supported by evidence. The dollar figure determined by a Federal agency through the process in this proposed rule would be presumed to be correct. It could be rebutted by evidence presented by a responsible party, but a court or administrative agency would have to find that the evidence presented by the responsible party was demonstrated by a preponderance of the evidence to be correct.

The rebuttable presumption provides a significant benefit. Accordingly, the methodologies and criteria adopted in the proposed rule have been carefully selected.

State agencies acting as trustees should note that while the rebuttable presumption currently attaches only to assessments performed by Federal officials, all CERCLA reauthorization bills currently before Congress would allow a rebuttable presumption for States as well as Federal agencies conducting assessments under this proposed rule.

#### 2. Compensatory, Not Punitive

The proposed rule takes into consideration existing common law rules for developing a theory of natural resource damages. A fundamental principle of the theory developed in the proposed rule is that natural resource damages will be compensatory, not punitive. CERCLA itself calls for compensatory rather than punitive damages. This principle is consistent with the common law, which disfavors punitive damages. It is basic to the theory underlying the common law of damages, which is that money can be used to provide substitutionary relief. In other words, that which was lost cannot be replaced, but money can be awarded in compensation.

The money awarded as compensation using common law principles represents a rough measure that approximately represents the value of the thing that is

lost. Rules have been developed by the courts for the measurement of damages so that cases can be resolved, and perhaps more importantly, settled in accordance with common law principles. Settlements become possible because the range of outcomes given a particular set of facts is predictable.

The mandate to establish regulations for the assessment of damages to natural resources included a mandate to develop methodologies that are based on the best available procedures. This directive implies that compensatory damages were intended. The expensive and complex process of studying existing injury measurement and economic compensation techniques would have been unnecessary if punitive damages were intended. The procedures for determining punitive damages could have involved the simple publication of penalty fee tables.

Finally, it should be noted that a variety of criminal or other punitive statutes may apply to actions for which natural resource damages may be sought. Through those statutes penalties may be sought where appropriate.

3. Relationship to Response Actions

An action for the recovery of damages to natural resources is part of the larger statutory scheme of CERCLA and the CWA. Under those Acts discharges of oil and releases of hazardous substances are responded to by EPA and the U.S. Coast Guard in accordance with procedures set forth in the National Contingency Plan (NCP). In some cases responses are also made by States or other Federal agencies. The primary purpose of response actions is to protect human health. This rule supplements the procedures in the NCP. It does not replace response actions, but adds an additional means of addressing problems resulting from discharges of oil and releases of hazardous substances. In addition to taking removal and remedial actions, compensation may be sought and resources restored by use of the procedures in this rule.

Injuries to natural resources should also be considered in the planning of a response by the Environmental Protection Agency (EPA) or the U.S. Coast Guard. In particular, natural resource concerns should be included in the planning process for remedial action. However, in many cases, not all natural resource concerns will be resolved by that process alone. In some cases certain restoration actions, such as habitat management or acquisition of an equivalent resource, will be beyond the scope of the response action. This proposed rule provides that natural resource damages are injuries residual to those injuries that may be ameliorated in the response action and includes the loss of use from the time of the discharge or release until such injuries are ameliorated. This concept of natural resource damages as a residual should prevent the development of two separate actions to ameliorate the same situation, encourage the inclusion of natural resource concerns in the development of remedial plans, and preserve the priority order of remedial actions intended by the creation of the National Priorities List.

In some instances it may be necessary to anticipate an eventual remedial action in planning a natural resource damage assessment. Ideally the natural resource damage assessment would be performed concurrently with the remedial investigation/feasibility study (RI/FS). When the statute of limitations will not allow adequate time to complete and coordinate the necessary procedures, the proposed rule does not preclude filing of a natural resource damage claim against a responsible party before completion of the assessment.

4. Involvement of the Public and Potentially Responsible Parties

The proposed rule uses an administrative process as its decisionmaking method. Various methods exist for doing a damage assessment. No single answer can be given for the various questions that arise in the process. Every resource and affected area has distinctive characteristics, and is managed by different agencies for different purposes. Accordingly, the flexibility of an administrative process is desirable and fair, giving the public and responsible parties protection against arbitrary requirements. The proposed rule requires that an Assessment Plan be prepared before an assessment is initiated. After the plan is prepared there is a thirty day period during which the public and any potentially responsible parties are to be given an opportunity to review and comment on the plan. If a Restoration Methodology Plan is prepared, comment and review by the potentially responsible party and the public are also required for thirty days. All comments on both the Assessment Plan and the Restoration Methodology Plan are included in the Report of Assessment which is part of the administrative record. Therefore, the views of the public and any potentially responsible parties on the key elements of the assessment will be available in any subsequent litigation.

Public involvement and participation by the potentially responsible party will aid the authorized official seeking natural resource damages in a number of ways. First, it will ensure that important resource concerns are not omitted from the assessment. Second, it will help ensure that the methodologies are given an independent review and that the appropriate methodologies are chosen for the Assessment Plan. Third, it will help ensure that the costs of assessment are reasonable. Fourth, it will encourage involvement of the potentially responsible party early in the process, thereby minimizing the need for or the complexity of subsequent litigation.

Early involvement of the potentially responsible party is intended to facilitate fair and speedy resolution of damage actions. Just as the NCP process encourages responsible parties to undertake remedial actions and avoid litigation, this process is intended to encourage responsible parties to undertake natural resource damage assessments and restorations. If the responsible party is aware of the proposed assessment efforts, it may be encouraged to take the actions necessary to do the assessment and restoration. However, the Federal or State authorized official is the ultimate decisionmaker regarding the content of the Assessment Plan and the restoration actions. Public participation and responsible party participation should be used for guidance. The public participation requirement parallels the process used by EPA for remedial actions.

5. Cost-Effectiveness and Reasonable Costs

Cost-effectiveness is defined in the proposed rule as achieving an objective with the least expenditure of financial or other resources. Thus, in order to achieve cost-effectiveness, a well-defined objective must be specified. For example, the objective of restoration or replacement is the return to the baseline level of services provided by the resource. Once an objective is defined, cost-effectiveness means that the authorized official must choose the least expensive management actions that achieve the objective.

The Department recognizes that in many instances limited information may be available to prepare an Assessment Plan. This plan should be modified during the assessment as new information is obtained. What may have been cost-effective under the previous set of circumstances may not be cost-effective when new information is obtained. The proposed rule is flexible enough to allow for revision of the

Assessment Plan. In this context the test of cost-effectiveness may require consideration of new management actions as objectives become clearer and more specific.

Section 107(a)(4)(C) of CERCLA states that a responsible party is liable for the "reasonable costs of assessing" injury. The concept of reasonable cost implies cost-effectiveness, but the term reasonable cost is broader in scope. Cost-effectiveness means that whenever the same benefit can be obtained in several ways, the least costly means of obtaining that benefit is selected. The concept of reasonable cost, while incorporating cost-effectiveness, also allows comparisions to be made across choices of procedures involving different levels of benfits. A cost-effectiveness criterion cannot be used as a measure to select between alternatives that provides different levels of benefits at different costs. A reasonable cost criterion should be used for this purpose.

The Department has defined the term "reasonable cost," for the purposes of this proposed rule, to mean: (1) That the Injury, Quantification, and the Damage Determination phases of the Assessment Plan have a well-defined relationship; and (2) that the extra potential benefits obtained by using a more expensive methodology for injury, quantification, or damage determination outweigh the extra potential costs of the more expensive procedure.

In order to achieve the objective of deriving a dollar figure to be used as the amount of damage claimed, a three-phased assessment must be performed to (1) document the occurrence of an injury, (2) quantify the effects of the injury, (3) determine damages. In almost all cases, the achievement of reasonable costs will require that these three phases be planned concurrently. Since these three phases will form the basis of a damage claim, all analyses conducted under this rule should be directed toward the goal of obtaining a dollar value for the injury to the resource. The minimum amount of information required to move from one phase to another should be collected. During an assessment, studies of injury or damage that do not directly contribute to the determination of a dollar value for the injured resource should not be part of the damage claim. However, nothing in this proposed rule precludes agencies from performing general or related studies with their own funds.

6. Emergencies

In accordance with section 111(i) of CERCLA, the proposed rule permits an emergency restoration prior to development of an Assessment Plan where genuine emergency circumstances exist. Some limited situations may require immediate action in order to avoid irreversible loss or to prevent or reduce any continuing danger to natural resources (e.g., where a continuing discharge or release must be abated in order to avoid the complete destruction of a resource or where continuing degradation threatens more and more of the resource). Such emergency actions would typically consist of the erection of non-permanent barriers to prevent or reduce the migration of the oil or hazardous substance onto or into the resource. The authorized official may undertake only those actions necessary to abate the emergency. Any additional actions other than those necessary may be performed only upon following normal assessment procedures.

Emergency actions may only be taken on land over which the authorized official has administrative jurisdiction. This provision is not an authorization to undertake response actions on private lands nor is it meant as a substitute for response actions. For example, if the discharge or the release occurs in an area not under the administrative jurisdiction of a Federal or State agency, emergency restoration actions are limited to those actions that would prevent or reduce the migration of the oil or hazardous substance onto or into the resource.

However, if the discharge or release occurs in an area under the administrative jurisdiction of a Federal or State agency, the authorized official should first consider using existing authority to undertake response actions to abate the emergency. The cost of such response actions would be recoverable under section 107 (a) or (b) of CERCLA, rather than as natural resource damages. The burden of proof, based upon information available at the time, that irreversible harm would have resulted if the emergency restoration were not undertaken and that costs associated with the emergency actions were reasonable and necessary will rest with the Federal or State agency.

## II. Overview of the Proposed Rule

### *A. Introduction*

The proposed rule provides a process for determining proper compensation to the public for injury to natural resources. It stresses the need for a planned approach to natural resource damage assessments with active involvement of the public and potentially responsible parties throughout but with final authority for assessment decisions resting with the authorized official. Finally, it seeks a balance between controlling the potential costs of assessments and the need for flexibility in designing the assessments. The proposed rule also specifies the procedural steps to be taken in a natural resource damage assessment process. It provides objectives and acceptance criteria for selecting methodologies for injury and damage determinations. It does not provide specific procedures for implementing these methodologies. A flexible rule is necessary because of the multitude of resources, ecosystems, and oils and hazardous substances, as well as the need to enable the use of evolving scientific and economic methodologies. An evaluation of currently available techniques applicable to the various phases of a damage assessment are included in accompanying technical information documents currently being prepared. These technical information documents cover:

- Procedures for analyzing injuries to fish and wildlife resources, including testing and sampling methodologies;
- Procedures for modeling transport of oil and hazardous substances via the air pathway;
- Methods for using the U.S. Fish and Wildlife Service's Habitat Evaluation Procedures to estimate the effect of oil and hazardous substances on wildlife habitats;
- Information on determining and quantifying injury to soil; and
- Economic methodologies pertinent to natural resource damage assessments. These technical information documents are being prepared to ensure that the steps and objectives outlined in the proposed rule are feasible and to provide more specific information to those performing assessments, interested members of the public, and potentially responsible parties. They are not being prepared as additional regulatory guidance nor are they required to be followed to obtain the rebuttable presumption. Availability of these information documents will be the subject of a future notice in the **Federal Register.**

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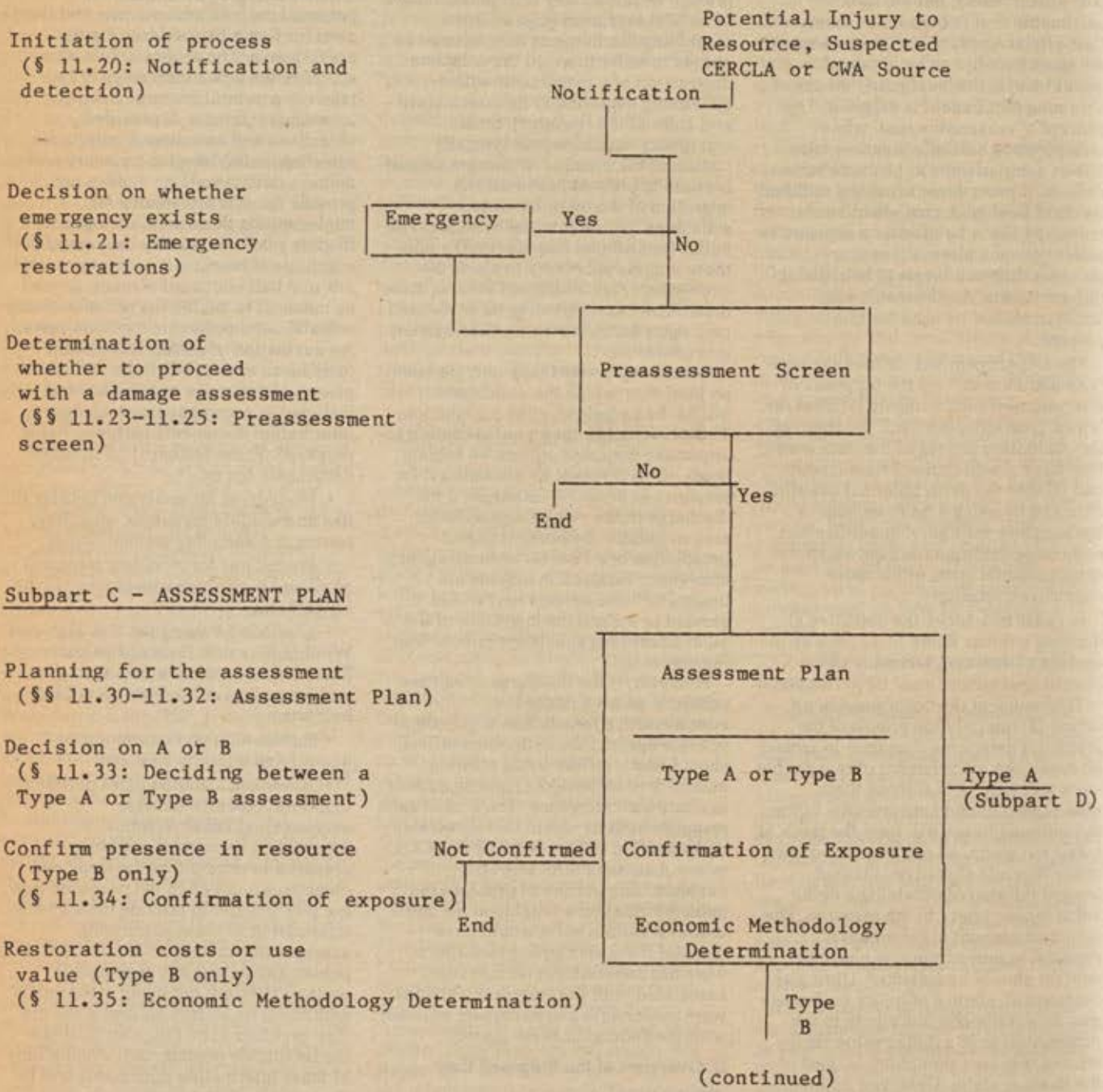
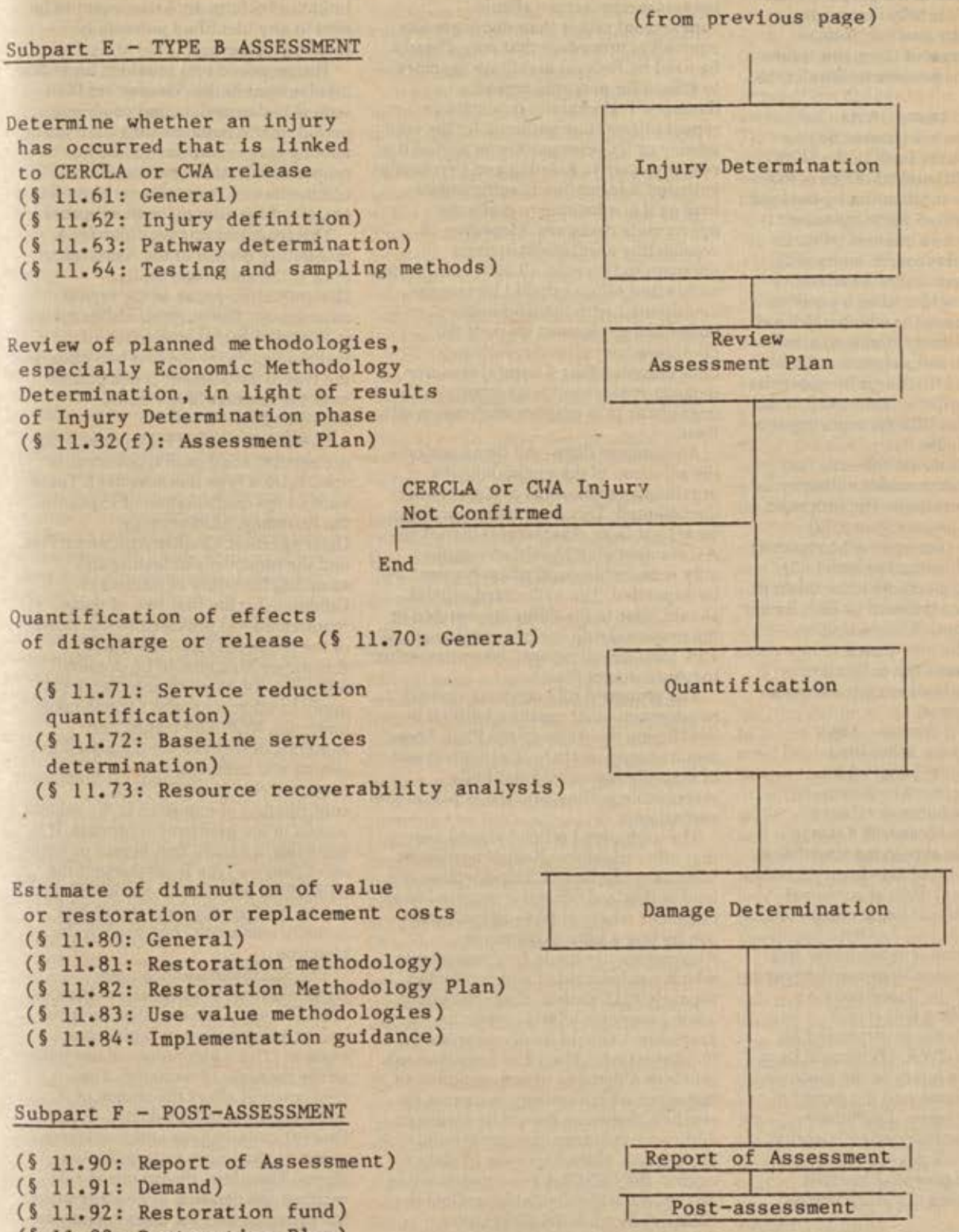
Chart I

Natural Resource Damage Assessment Process




(continued)

Chart I (continued)

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*B. The Natural Resource Damage Assessment Process*

Chart I provides an overview of the natural resource damage assessment process embodied in the proposed rule. This section will briefly discuss the major steps in the process. A more detailed discussion of the major issues pertaining to this process follows in the next section.

*Initiation of Process*—A natural resource damage assessment begins with the process set forth in the NCP. Sections 300.52(d) and 300.62(d) of the NCP provide for notification by the lead agency to Federal or State agencies authorized to act as trustees when a potential natural resource injury may exist. In instances where a Federal or State official first identifies a possible injury to a resource for which a Federal or State agency may act as a trustee under CERCLA, and suspects a CERCLA or CWA covered discharge or release as the source, the official is directed to the procedures in the NCP for reporting the discharge or release.

*Emergency Restorations*—Section 111(i) of CERCLA provides authority for emergency restorations. The proposed rule (1) defines an emergency, (2) requires that the emergency be reported to the National Response Center, (3) allows for certain actions to be taken in the event the Coast Guard or EPA do not take sufficient action, and (4) upon completion of the emergency restoration, returns the authorized official to the natural resource damage assessment process.

*Preassessment Screen*—Any assessment actions, other than emergency actions, begin with a preassessment screen to determine whether the discharge or release justifies a natural resource damage assessment. This screen is viewed as a "desk top" review of existing data with a minimal amount of field work and should be capable of being completed in a matter of days.

A determination is required for this screen. The decision to proceed beyond this screen must be based upon a preliminary finding that (1) the discharge or release was covered by CERCLA or the CWA, (2) it could have resulted in some injury to the resource, and (3) the resource and the extent of potential injury were of sufficient concern to the authorized official that the authorized official has reason to believe that the potential benefits outweigh the costs of performing an assessment.

The preassessment screen proceeds in steps from preliminary identification of the substance discharged or released and its source, to initial estimates of the pathway for purposes of identifying any resources that may be impacted, to identifying important resources that may justify further assessment. This preassessment screen should complement rather than duplicate any equivalent procedure that may already be used by Federal and State agencies to screen for potential resource damages. It should not duplicate or repeat information gathered by the lead agency or by other parties as part of the response action. Existing and previously gathered information is sufficient so long as it is adequate to make the appropriate decisions. Moreover, in conducting assessment activity pursuant to this rule, all activities of the authorized official should be closely coordinated with the lead agency undertaking response work. If the preassessment screen results in a determination that a natural resource damage assessment is appropriate, the next phase is to prepare an Assessment Plan.

*Assessment Plan*—All decisions on the selection of the methodologies provided in subparts D or E must be documented. This documentation must be set out in an Assessment Plan. The Assessment Plan should ensure that only reasonable costs of assessment will be expended. The authorized official should refer to the definitions stated in the proposed rule for "reasonable costs" and "cost-effectiveness" when preparing the Assessment Plan.

The proposed rule contains several requirements that must be fulfilled in developing the Assessment Plan. These requirements relate to the involvement of multiple agencies, potentially responsible parties, and the public in the assessment.

The authorized official should ensure that other possibly affected agencies have been contacted. The selection of a lead authorized official is required in all instances when multiple agencies are conducting a joint assessment. Allowances are made for assessments which can be divided and conducted separately. Divisions of responsibility among agencies jointly conducting an assessment should be documented in the Assessment Plan. The proposed rule provides a division of responsibility in instances where consensus cannot be reached. Agencies should be aware of additional requirements concerning designation of lead trustees in claims against the CERCLA Fund contained in 40 CFR 306.20(b). In claims against the CERCLA Fund, § 306.20(b) states, "Should the trustees fail to agree on a lead trustee, EPA in its sole discretion shall appoint a lead trustee for the purposes of asserting a claim against the Fund on behalf of all trustees."

The potentially responsible parties should be identified at this phase. The proposed rule provides for a Notice of Intent to Perform an Assessment to be sent to any identified potentially responsible parties.

The proposed rule provides for public involvement in the Assessment Plan with a 30-day review and comment period before implementing the Plan or making major modifications. The proposed rule also requires that comments and responses be maintained as part of the administrative process.

The proposed rule provides for a mandatory review of the Assessment Plan at the end of the Injury Determination phase of the type B assessment. The purpose of this review is to ensure that the selection of methodologies for the last two phases of the type B assessment is compatible with the findings of the Injury Determination Phase.

In the Assessment Plan phase, there are several additional requirements specific to a type B assessment. These include the confirmation of exposure, the Economic Methodology Determination, Quality Assurance Plan, and the objectives of testing and sampling for injury or pathways. Guidance for the first two of these requirements is provided in this portion of the proposed rule. The Quality Assurance Plan should be prepared following the same requirements that apply to other response actions taken under the NCP. The testing and sampling objectives are discussed in the testing and sampling section of the proposed rule (§ 11.64). The confirmation of exposure is the second screen in the assessment process. It is intended to ensure that before initiating an expensive type B assessment the authorized official has confirmed that the oil or hazardous substance has actually come into contact with the resource.

The Economic Methodology Determination is where the authorized official must make a choice between using (1) restoration or replacement costs or (2) the diminution of use values as the measure of damages. The decision will affect the choice of methodologies to be selected in the Quantification phase and to a lesser extent in the Injury Determination phase. Therefore, the proposed rule requires the decision at an early stage, but provides that the decision may be deferred or modified after the Injury Determiniation phase is completed. Using "off-the shelf" data, the Economic

Methodology Determination requires an "order of magnitude" estimate of the relative costs and benefits or restoration or replacement versus the diminution of use. The guidance on performing this determination is described within the proposed rule.

The selection of (1) restoration or replacement costs or (2) the diminution of use values only affects the method of damage determination. It does not imply any decisions concerning whether the resources will be restored. In fact, the proposed rule requires that all funds, regardless of whether the basis of calculating the damage was restoration costs or diminution of use, be used for restoration, rehabilitation, replacement, or acquisition of the equivalent.

The proposed rule allows the recovery of the lesser of (1) restoration or replacement costs or (2) the diminution of use values, except in the case of special resources. The proposed rule defines special resources and suggests for those resources that restoration or replacement be the measure of damages, whenever restoration or replacement is technically feasible and whenever the costs of restoration or replacement are not grossly disproportionate to the benefits. In restoration or replacement, the costs include the diminution of use values until the resource is restored or replaced.

*Type B Assessment*—A type B damage assessment involves three major steps: (1) establishing that an injury has occurred and that the injury resulted from the discharge or release; (2) quantifying the effects of the discharge or release on the services provided by the injured resource; and (3) determining the damage.

*Injury Determination*—This phase of the type B assessment acts as the third screen of the natural resource damage assessment. To assert a natural resource damage claim, the authorized official must establish that an injury occurred and must link that injury to the discharge or release.

To perform this phase, injury to one or more natural resources must first be established. The proposed rule provides a general definition of injury as a measurable adverse change in the chemical or physical quality or viability of a natural resource. For example, an organism need not die before that organism is considered to have been injured by the oil or hazardous substance. Conversely, the mere presence of oil or a hazardous substance in the organism may not necessarily constitute an injury. All of the natural resources specified by CERCLA have been placed into one of five groups: surface water, ground water, air, geologic, and biological resources. Specific definitions of injury are provided for each of these resources. These specific definitions focus on inherent physical, chemical, or biological properties of the resource that enable it to provide one or more specific services, such as habitat for aquatic species or a water supply.

In addition to satisfying the injury definition, the pathway of the discharged or released substance from the source to the resource must be demonstrated. Each of the five groups of resources may also act as a component of the pathway through which the oil or hazardous substance may travel. For example, biological resources can carry the substance away from the site by either direct physical contact or by exposing other organisms through the food chain. Oil or hazardous substances contained in ground water resources may move to a lake or stream thereby exposing biological resources. The use of transport and fate modeling in media such as air or water may be useful in many situations. In other situations, sampling may be required.

The proposed rule also provides guidance on selecting testing and sampling methodologies to determine that an injury to the resource has occurred and for pathway determinations.

*Review of the Assessment Plan*—Upon completion of the Injury Determination phase, the authorized official must review the methodologies selected in the Assessment Plan. If an injury, as defined in the proposed rule, cannot be determined or cannot be linked to the discharge or release, further assessment efforts should be terminated and documentation presented on the results of the Injury Determination phase. If an injury determination has been made, methodologies for the next two phases must be selected that are consistent with the findings of the Injury Determination. If the decision was not previously made, the authorized official must decide whether (1) restoration or replacement costs or (2) a diminution of use values will form the basis of the damage determination.

*Quantification*—Having established that the resource was injured by the discharge or release, the next step in the type B procedure is to quantify the effects on the injured resource.

Because the purpose of the natural resource damage assessment is to determine compensation for injuries rather than a decision on the level of cleanup, this phase requires ascertaining the baseline level for the uninjured resource The baseline level is compared to the level existing or anticipated upon the completion of any response actions to determine the residual change resulting from the discharge or release. The baseline level will include consideration of the resource's natural cyclical changes. The proposed rule provides that quantification of the change in the resource be expressed in terms of the change in the level of services that the resource provides. These services include such ecological services as flood and erosion control, habitat, and food chains as well as such human uses as recreation. Therefore, it is at this stage in the assessment that the selection is made of services that in a later phase will be determined to have a restoration or replacement cost or use value. The selection of the services to be assessed may vary based upon the economic methodology selected. For restoration or replacement, the authorized official should select services for which restoration or replacement is necessary. For a diminution of use value, the authorized official should select services for which clear relationships to human uses exist and for which dollar values can be assigned.

*Damage Determination Phase*—The next part of the process is applying the method of estimating the damage, using either the costs of restoration or replacement or the diminution of use values, which was determined in the Assessment Plan.

If restoration or replacement costs are to be the measure of damages, a plan for the restoration or replacement, referred to as the Restoration Methodology Plan, must be developed in the Damage Determination phase. This plan must be in sufficient detail to ensure that all major elements of costs are included and that these costs represent the most cost-effective means of restoring or replacing the services lost. This plan will also serve as the foundation for the final restoration plan that must be developed after the award.

Using the diminution in use values as the method for determining damages will require that the authorized official identify the human uses of the services that were lost as a result of the discharge or release. For an assessment based upon the diminution in use values, the lost uses being valued are the committed uses supplied by the injured resources. Committed uses must be current uses or uses financially, legally, or administratively documented by a body or organization with sufficient authority to do so.

The losses compensable to a Federal or State agency acting as a trustee under CERCLA are for the uses of the resource

by members of the public at large. They do not include any direct losses suffered by private users of public resources. Direct private losses appropriately are not recovered by a public body acting for the public at large.

The proposed rule provides guidance on performing a damage determination using either the restoration or replacement cost method or the diminution of use value method. A final section in this portion of the rule provides guidance, such as selecting a discount rate, that is applicable to either method.

*Report of Assessment*—At the conclusion of either a type A or a type B assessment, the authorized official must document the results of the major steps of the process. This documentation includes the Preassessment Screen Determination and the Assessment Plan, with all comments and responses, for either the type A or type B assessments. The results of the assessment should be included for the type A assessment. For the type B assessment, the Injury Determination, the Quantification Determination, and the Damage Determination, including the Restoration Methodology Plan if appropriate, should be included. The document must be filed as the Report of Assessment with a court or an administrative body should the agency seek a rebuttable presumption.

*Post Assessment*—CERCLA requires that funds recovered for damages as a result of the assessment process provided in the proposed rule must be available for restoration, rehabilitation, replacement, or the acquisition of the equivalent of the injured resource. To accomplish this objective, the proposed rule requires the establishment of a trust fund into which all funds awarded by a court pursuant to Section 107 of CERCLA for compensation for damages must be placed. Reimbursements of assessment, administrative, and litigative cost are not placed in this trust fund. Similarly, monies awarded from the Hazardous Substance Responses Trust Fund as reimbursement for assessment or restoration costs pursuant to the natural resource claims provision of CERCLA need not be placed in a post-assessment trust fund because they are by definition reimbursements of costs incurred. These reimbursements must be returned to the Federal or State general treasury which incurred the costs.

In the event damages are awarded pursuant to section 107(a)(4)(C) of CERCLA, the Federal or State agency acting as trustee shall prepare a Restoration Plan. This plan shall be based upon the decisions made in the Restoration Methodology Plan, if one has been prepared, modified to the extent necessary to accommodate new information, including the amount of the award. Where the measure of damages is determined using a use value methodology, the Restoration Plan shall describe those management actions designed to restore, replace, rehabilitate, or acquire the equivalent resources which can be undertaken consistent with the level of the damage award. The trust fund is to be used to pay for the implementation of this Restoration Plan.

In recognition of the fact that restoration of some injured resources is technically infeasible, replacement and acquisition of the equivalent are defined to include acquisition of resources that provide similar services to the injured resource. However, there is a limitation on use of the fund. Where the Restoration Plan would involve acquisition of land for Federal management, the award must be paid to the general treasury. The appropriations process must be used where private land is being acquired that would expand the total Federal landholdings.

## III. Resource Related Issues

### *A. Injury Determination—General*

The definition of injury adopted in this proposed rule is fundamental to the assessment process. Without injury to one or more natural resources there is no damage to recover. A general definition of injury is provided in § 11.14(v). The proposed rule clearly distinguishes between the concepts of "damage" and "injury." Following the statutory division in use of the words, "damage" is the amount of money sought in compensation for an "injury." Injury is the "injury to," "destruction of," or "lost of" the resource.

The injury definition has two parts. First, there must be a measurable adverse change in the resource. That is, there must be a change, for the worse, in the resource that is detectable by observation or scientific methods. Specific definitions of injury are provided for each resource in § 11.62. The criteria for what constitutes a measurable injury are set fairly strictly. This stringency reflects the advantage gained by the agency from the rebuttable presumption for the assessment results. Scientific evidence may be admitted in court if it is relevant and probative, but not all evidence is of equal value. Since this proposed rule is used for the purpose of giving weight to evidence, not just considering it, the reliability of the evidence is important. By establishing acceptance criteria for the measurement methodologies for the injuries to the resources, the proposed rule requires that the authorized official use only quality evidence in measuring the adverse change in a resource.

Second, the adverse change must be to the chemical or physical quality or in the viability of a resource. Since only biological resources involve the aspect of viability, specific criteria for measuring such injury is based on a measurable biological response of the resource. Water and air, for instance, are commonly evaluated in terms of established water quality or air quality standards. Such standards have not been established for biological resources to determine when exposure to a specific contaminent level has reduced the viability of the different organisms. Further, no standards have been established for biological resources adversely impacted by residues of specific contaminants resulting from such exposure.

Finally, to be compensable under CERCLA or the CWA, the injury must result from a discharge of oil or release of a hazardous substance, or from a product of reactions resulting from the discharge of oil or release of a hazardous substance. This result is established by the demonstration of a link between the discharge or release and the injured resources, called the pathways determination as provided in § 11.63. Consistent with CERCLA generally, the pathways determination does not require a showing of strict causation. It is not necessary to show that company A's release caused the injury, only that company A released the substance and that exposure to the substance could have resulted in the injury.

### *B. Injury Determination for Specific Resources*

#### 1. Surface Water

The presence of oil or hazardous substances in surface waters may adversely affect the quality of the resource, especially its ability to provide essential life-supporting services. The definitions of injury to the surface water resource rely primarily upon established water standards and criteria, recognizing the extensive research performed to develop the standards and criteria. The injury definitions include concentrations of substances adhering to sediments in contact with the surface water, because these sediments provide services to aquatic life much as soils provide on land. The injury definitions do not differentiate between freshwater and seawater, except as may be provided by the specific standards and

criteria used, because the CWA and CERCLA broadly define the "waters of the United States" to include both fresh and marine surface waters.

2. Ground Water

The presence of oil or hazardous substances in ground water may adversely affect the quality of the resource, especially its services to humans. The definitions of injury to the ground water resource therefore rely upon established water standards and criteria. The term "ground water" is defined in both CERCLA and CWA, and the definitions do not include water or other materials in the unsaturated zone. Therefore, measures of adverse change in the ground water resource resulting directly from the occurrence of oil or hazardous substances in the unsaturated zone are not established. This type of injury is in the subsection on geologic resources. Although many of the standards and criteria used are only applicable to fresh ground water, injury to brackish or saline ground water may occur if the resource contains released substances that have caused injury to other resources.

3. Air

Injury to air is defined in two basic ways. The first relies upon air quality standards set by EPA and upon related standards set by individual States. Those standards includs within them ways of determining whether they have been violated, including duration and appropriate testing procedures. As a result, crtieria are not repeated here in the proposed rule. Secondly, the number of substances for which air quality standards have been set is relatively small, so air may also be considered injured if an airborne oil or hazardous substance injuries other resources. (Note that the definition of "oil" is broad and includes gaseous or vaporized oil products and components.)

4. Geologic resources

Geologic resources include that portion of the Earth's crust not otherwise included in ground and surface water, and includes such elements as soil, sediments, rocks, and minerals. The quality of geologic resources is defined by physical and chemical characteristcs that pertain to the major services provided by the resource. Soil quality is frequently measured by its ability to support plants and other organisms. Thus, injury to soil is defined directly by chemical and physical criteria and through its ability to continue to support biological organisms. Development potential is especially important for mineral resources, so if a discharge or release reduces that potential, the minerals are considered injured. The unsaturated zone is included within geologic resources. However, its major effect is on ground water. Therefore, injury to the unsaturated zone also can be based upon its effect on that resource.

Finally, as with all of the other resources, provision is made for considering the geologic resource injured if concentrations sufficient to cause injury to other resources are found. This provision allows for cases where previouly established standards may not anticipate effects of oil or a hazardous substance on these resources.

Additional information helpful for assessing injury to soil will be available in the "Type B Technical Information Document: Approaches to the Assessment of Injury to Soil Arising from Discharges of Hazardous Substances and Oil," which is being prepared in conjunction with the proposed rule.

5. Biological Resources

This section provides criteria for demonstrating when injury has occurred to organisms when their viability is adversely impacted by oil or a hazardous substance, as well as a limited use of established standards for edibility. Because specific criteria have not been developed previously for this purpose, more detail is provided than for other resources. Additional technical information is being developed in the "Type B Technical Information Document: Injury to Fish and Wildlife Specifies," which is being prepared in conjunction with the proposed rule.

In general, injury will have occurred to a biological resource when a biological response, as defied in the proposed rule, has resulted from exposure to the oil or hazards substance. The proposed rule provides acceptance criteria for determining which biological responses may be used in such a demonstration, provideis a list of certain responses in fish and widlife species that have been determined acceptable according to those criteria, and also provides acceptable measures for those identified responses.

Except for the use of edibility action or tolerence levels set by the Food and Drug Administration and by States, the mere presence of a substance in an organism does not constitute injury to the organism. Many organisms, including man, can carry low levels of foreign chemicals in their tissues with few or no known measurable effects from those chemicals. Injury determination in this proposed rule is based on a demonstrable adverse biological response from the oil or hazardous substance. For example, DDT and related chemicals are ubiquitous in small amounts in almost every warm-blooded animal, but this fact alone does not show injury. DDT, however, can cause eggshell thining. This biological response has been an important factor in causing population declines of certain fish-eating and raptoral birds. Demonstration of significant levels of eggshell thinning in the presence of DDT does demonstrate injury. Many similar biological responses are described in the proposed rule.

Acceptance criteria in the proposed rule provide the means for evaluating whether a particular response will demonstrate injury in a specific case. The criteria set are stringent because of the rebuttable presumption given to assessments that follow this rule. On the other hand, many assessments done in the past have relied extensively on body counts of dead organisms as the primary or sole evidence of injury to those organisms. These criteria broaden past practice by allowing use of and compensation for other kinds of biological responses.

The criteria can be summarized as requiring that the response is unlikely to be due to factors other than the exposure to the oil or hazardous substance, that it has been demonstrated in both the laboratory and the field, and that testing for it is practical and reliable. Both laboratory and field demonstrations are required because these two conditions can rarely provide the same information. Laboratory experiments can be carefully controlled to prevent effects from factors other than the substance under test, but may use concentrations, exposure systems, and other conditions unrelated to those found in the field. Controlled laboratory experiments cannot duplicate the variety of foods, activities, potential substance degradation, and othe factors found in the field. Field experiments or observations often rely on correlations, and cause-and-effect can rarely be documented as well as it can be in the laboratory. There are numerous instances where either laboratory or field experiments have failed to confirm conclusions drawn from the other.

Categories of such responses are provided in the proposed rule, and certain responses within these categories have been identified as having met the acceptance criteria. These specific responses are identified based upon a review contained in the type B technical information document cited above, and pertain to fish and

wildlife. The acceptance criteria are intended to be applied to responses in all biological resources, including plants, shellfish, and other organisms. The authorized official may rely upon other responses in addition to the specific responses identified in the proposed rule, so long as the other responses relief upon can meet the acceptance criteria. There has been considerable work on responses in other organisms, especially plants, therefore, other responses should meet the acceptance criteria. On the other hand, if extensive new research work is required to meet the acceptance criteria, the costs of such research would be outside the assessement costs attributable to a particular assessment for purposes of a damage claim.

*C. Pathways*

For injury to have occurred, the oil or hazardous substance must have traveled from the source of the discharge or release to the injured resource. In some cases demonstration of this fact is straightforward, but in others further work must be done. In general, two ways may be used: demonstration of sufficient concentrations in the pathway for it to have carried the substance to the injured resource, or use of modeling that supports that pathway determination. In each case, a given resource may act as a pathway, be injured, or both. Pathways can and often do include more than one resource.

For the physical resources, including water, air, and the geologic resources, the proposed rule identifies important factors and appropriate ways to use standard procedures for those resources that will be appropriate to making a pathway determination.

Biological resources may act as a pathway both by direct physical contact or by assimilation through a food chain. Physical contact usually includes material on the skin, fur, feathers or other surface covering. Food chain transfers may include bioaccumulation and bioconcentration, so that an organism higher on a food chain may contain the highest concentrations of the substances.

Food chains may be analyzed by testing free-ranging organisms or by placing test organisms in situ to discover whether they will take up the substance. The use of appropriate indicator species is recommended. Further discussion of the use of indicator species may be found in the "Field Operations Handbook for Resource Contaminant Assessment—Field Methods and Materials," being developed by the Division of Resource Contaminants Assessment, U.S. Fish and Wildlife Service.

Careful selection of indicator species will consider the potential for that species to have taken up or contacted the discharge or release. Plants often can exclude or selectively screen out non-essential substances present in their environment, especially many organic compounds with large molecules. Other substances, such as small inorganic ions, may be taken up in the plant tissues and passed on to other organisms. Animals, because of their mobility and different physiology, are often more likely to serve as pathways, especially over greater distances.

*D. Testing and Sampling*

This section provides guidance on selecting procedures and techniques to be used by the authorized official in making injury and pathway determinations. For the most part, the guidance refers to techniques that are standard for each discipline, and their identification here primarily provides special considerations that may be needed in using these otherwise standard techniques for damage assessment purposes.

1. Surface Water and Ground Water

Some techniques for testing and sampling of water resources are currently under development and are not described by the reference cited in § 11.64 of the proposed rule. The authorized official may need to apply these methods during an assessment and therefore should be guided by the discussion and procedures given in the follwoing references:

Barcelona, M.J., L.P. Gibb, and R.A. Miller, "A Guide to the Selection of Materials for Monitoring Well Construction and Ground-Water Sampling," Illinois State Water Survey, Champaign, IL, SWS Report No. 327, 1983.

Benson, R.C., R.A. Glaccum, and M.R. Noel, "Geophysical Techniques for Sensing Buried Wastes and Waste Migration," U.S. Environmental Protection Agency Environmental Monitoring Systems Laboratory, Las Vegas, NV, EPA Contract No. 68-03-3050, 1983.

Claassen, H.C., "Guidelines and Techniques for Obtaining Water Samples that Accurately Represent the Water Chemistry of an Aquifer," U.S. Geological Survey, Lakewood, CO, Open-File Report No. 82-1024, 1982.

Gillham, R.W., M.J.L. Robin, J.F. Barker, and J.A. Cherry, "Groundwater Monitoring and Sample Bias," American Petroleum Institute, Washington, DC, API Publication No. 4367, 1983.

U.S. Environmental Protection Agency, "Guidance on Remedial Investigations under CERCLA," Office of Solid Waste and Emergency Response, Washington, DC, EPA/540/G-85/002, 1985.

2. Air

Testing and sampling may include methods or modeling. Modeling should only be performed if testing and sampling methods are inappropriate. Testing and sampling for air may be complex because of the wide range of conditions that may be encountered, including conditions such as: a massive short-term emission, as might occur from a tank car accident; episodic or intermittent releases, as might be created by varying wind conditions that distribute particulates from a tailing pile; and long-term low-level release that may come from an open disposal pond.

The proposed rule lists factors to identify in setting up a sampling plan, including an appropriate sampling schedule. Objectives based upon the requirements of the testing and sampling need to be set, and the sampling plan designed to meet those objectives.

The authorized official may use air testing methods not listed below but that have been accepted following formal review and evaluation by the U.S. Environmental Protection Agency, the National Institute for Occupational Safety and Health, and American Society for Testing and Materials, and the American Public Health Association. Some examples of these are the following documents:

U.S. Environmental Protection Agency, "Annotated Bibliography of Anlytical Methods for CERCLA Hazardous Substances," Volumes 1, 2, and 3, Environmental Monitoring Systems Laboratory, Las Vegas, NV.

U.S. Environmental Protection Agency, "Atmospheric Measurements of Selected Hazardous Organic Chemicals," Washington, DC, EPA-600/53-81-031, 1980.

U.S. Environmental Protection Agency, "Characterization of Hazardous Waste Sites—A Methods Manual: Volume II, Available Sampling Methods, Second Edition," Environmental Monitoring Services Laboratory, Las Vegas, NV, EPA-600/4-84-076, December 1984.

U.S. Environmental Protection Agency, "Characterization of Hazardous Waste Sites—A Methods Manual: Volume III, Available Laboratory Analytical Methods," Environmental Monitoring Systems Laboratory, Las Vegas, NV, prepared by Lockheed Engineering Management Services Company, under EPA contract No. 68-03-3050, n.d.

U.S. Environmental Protection Agency, "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air," Washington, DC, EPA-600/4-84-041, April 1984.

U.S. Environmental Protection Agency, "DIGEST of Ambient Particulate Analysis and Assessment Methods," Washington, DC, EPA 450/3-78-113, September 1978.

U.S. Environmental Protection Agency, "Network Design and Site Exposure Criteria for Selected Noncriteria Air Pollutants," Washington, DC, EPA–450/485–022, September 1984.

For information on air modeling, the "Type B Technical Information Document: Application of Air Models to Natural Resource Injury Assessment" is being prepared in conjunction with the proposed rule. Its availability will be announced in the Federal Register.

3. Geological Resources

Methodologies for testing and sampling for injuries to soil and other geologic resources are provided in the proposed rule. Specific procedures for implementing the soil methodologies, the largest portion of this resource group, are discussed in the "Type B Technical Information Document: Approaches to the Assessment of Injury to Soil Arising from Discharges of Hazardous Substances and Oil."

The first three methodologies for testing and sampling for injury to soil, those involving pH, cation exchange, and salinity, involve standard chemical analyses. Some useful references for performing these chemical analyses are provided in:

U.S. Environmental Protection Agency, "Characterization of Hazardous Waste Site—A Methods Manual: Volume II. Available Sampling Methods, Second Edition," Environmental Monitoring Systems Laboratory, Las Vegas, NV, EPA–600/4–84–076, 1984.

U.S. Environmental Protection Agency, "Soil Sampling Quality Assurance User's Guide," Environmental Monitoring Systems Laboratory, Las Vegas, NV, EPA–600/4–84–043, 1984.

U.S. Environmental Protection Agency, "Guidance on Remedial Investigations Under CERCLA," Office of Solid Waste and Emergency Response, Washington, DC, EPA–540/G–85/002, 1985.

U.S. Environmental Protection Agency, "Preparation of Soil Sampling Protocol: Techniques and Strategies," Environmental Monitoring Systems Laboratory, Las Vegas, NV, EPA–600/4–83–020, 1983.

U.S. Environmental Protection Agency, "Test Methods for Evaluating Solid Waste, Physical and Chemical Methods," Office of Solid Waste and Emergency Response, Washington, DC, SW–846, Available from NTIS, Springfield, VA, PB–82–172–156.

The fourth method of verifying an injury to soil is by changes to soil microbial respiration. Among the available procedures are those found in:

Anderson, J. P. E., "Soil Respiration," in A.L. Page (ed.), *Methods of Soil Analysis, Part 2: Chemical and Microbial Properties, 2nd Edition*, American Society of Agronomy, Madison, WI, 1982.

Tabatabai, M. A., "Soil Enzymes," in A.L. Page (ed.), *Methods of Soil Analysis, Part 2: Chemical and Microbial Properties, 2nd Edition, American Society of Agronomy, Madison, WI, 1982.*

To verify an injury to soil by testing for changes to microbial populations, the procedures provided in the documents listed below may be useful:

Anderson, J. P. E. and K. M. Pousch, "A Physiological Method for the Quantitative Measurement of Microbial Biomass in Soils," *Soil Biology and Biochemistry*, 8:209–213, 1976.

Jenrinson, P. S. and P. S. Powlson, "The Effects of Biocidal Treatments on Metabolism in Soil-V: A Method for Measuring Soil Biomass," *Soil Biology and Biochemistry*, 8:209–213, 1976.

Karnak, R. E. and J. L. Hannelink, "A Standardized Method for Determining the Acute Toxicity of Chemicals to Earthworms," *Ecotoxicology and Environmental Safety*, 6:216–222, 1982.

To test for an injury to soil that resulted from phytotoxicity, the proposed rule requires either seed germination, seedling growth, root elongation, plant uptake, or soil core microcosm tests. Among the procedures currently available are:

U.S. Environmental Protection Agency, "The Seed Germination/Root Elongation Toxicity Test," in *Environmental Effects Test Guidelines*, Section EG12, Office of Pesticides and Toxic Substance, Washington, DC, EPA–560/6–82–002, 1982. Available from NTIS, Springfield, VA, PB–82–232992.

U.S. Environmental Protection Agency, "The Early Seedling Growth Toxicity Test," in *Environmental Effects Test Guidelines*, Section EG13, Office of Pesticides and Toxic Substances, Washington, DC, EPA–560/6–82–002, 1982. Available from NTIS, Springfield, VA PB–82–232992.

U.S. Environmental Protection Agency, "The Plant Uptake and Translocation Test," in *Environmental Effects Test Guideline* Section EG14, Office of Pesticides and Toxic Substances, Washington, DC, EPA 560/6–82–002, 1982. Available from NTIS, Springfield, VA, PB–82–232992.

Van Voris, P., "Experimental Terrestrial Soil-Core Microcosm Test Protocol," Prepared by Pacific Northwest Laboratory for the U.S. Environmental Protection Agency, Corvallis, OR, EPA–600/3–85–047, 1985. Available from NTIS, Springield, VA, PB85–213338.

4. Biological Resources

Appropriate tests for biological resources are largely identified in the injury definition section. These are discussed in more detail in the document cited in that discussion, "Type B Technical Information Document: Injury to Fish and Wildlife Species." Specific methodologies may vary depending upon the organism, type of response being studied, oil or hazardous substance involved, and statistical confidence required. Methodologies may be used that technical literature show are appropriate to the response being tested. In general, for purposes of a damage claim, the authorized officials would only use techniques that have been tested previously for the kind of situation being examined and that have been documented in the technical literature.

*E. Quantification*

1. General

The proposed rule in §§ 11.70–11.73 provides guidance on methods for quantifying the effects of injuries resulting from discharges of oil or releases of hazardous substances. This guidance makes the link between injuries to resources and the methods used to determine compensation for those injuries.

Several steps are necessary to convert natural resource injuries to damages, that is, to assign a dollar amount for the injuries. The Injury Determination phase demonstrated that an injury has in fact occurred as a result of the discharge or release. The Quantification phase must determine how much of the resource has been injured, and how "badly," and also must determine what effect the injury has had on services provided by the resource. Determining the effect on services is critical to coverting physical and biological changes to dollar amounts, and is explained in more detail below.

Throughout the Quantification phase, conditions following the discharge or release are compared to baseline conditions, which are the conditions that would have existed in the absence of the discharge or release. Baseline conditions include physical and biological conditions as well as services.

The final critical dimension in determining "how much" the resouce and associated services have been affected is time, which is referred to here as the "recovery period." Injuries that will recover over a long time period have greater effects on services than those that will recover quickly, especially if that recovery requires little or no intervention ("restoration"). The final section of the Quantification phase, § 11.73, provides guidance on determining recovery periods for various alternatives, including different restoration alternatives and the situation where no actions beyond the removal or remedial actions are carried out.

2. Services Reduction Quantification

In order to quantify services reduction, the authorized official must first determine the extent of the effects

of the injury, or, in other words, how much of the resource has been injured, as provided in § 11.71. In general terms, this reduction might mean the volume of water no longer usable for a specified purpose, the size of a fish population lost, the acres of wildlife habitat changed, or any other physical or biological changes resulting from the discharge or release.

To help make these changes useful for the analyses in the Damage Determination phase they must be converted into "services." Broadly speaking, a service refers to any function that one resource performs for another or for humans. Within the non-human part of an ecosystem, plants provide habitat and food for animals, one animal may provide or serve as food for another, or water may be used by fish for support, respiration, and many other functions. This list could be expanded to describe almost any interaction between species or between physical and biological levels. Amony these services are the uses that humans make of natural resources. These services would include such things as use of water for drinking, agriculture, and industry, the use of fish or wildlife for food, and the use of many components of the environment for recreation.

An important distinction between services and the physical, chemical, or biological conditions existing in a resource is that the services represent interactions between resources, or between resources and humans. Traditionally humans have valued natural resources in monetary terms on the basis of services provided by the resources. This method logically may be extended to valuing damages to an injured resource on the basis of changes in services provided to humans or to other resources. The proposed rule establishes the link between measured adverse changes in the condition of the resource, the injury, and the damages through the measurement of changes in the services provided by the injured resource. This method of determining damages is in accord with traditional measures of the value of natural resources.

Using the proposed rule, damages to an injured pond might be estimated by changes in services the pond provided as fish habitat. The measure of change in services might be numbers of fish, varieties of fish, or the services the fish provide to another resource, such as food for other animals. If the pond had also served as a source of drinking water, the measure of change in services might be the volume of water formerly used for that supply. In either case damages would be estimated on the basis of lost use of the services or of change in the level of more than one service, and changes in all services may be counted when estimating damages.

The methodology to be used in the Damage Determination phase is critical in determining which services to measure in the Quantification phase. Close coordination is required between economists and natural resource specialists in planning and carring out this phase of the assessment. The authorized official must decide whether to determine damages based (1) the diminution of use values or (2) restoration or replacement costs (§ 11.35). These two approaches require different kinds of results from the Quantification phase.

If diminution of use values is chosen, results must be expressed as changes in the uses of the services provided to humans. In this case, the measurements of services not used primarily by humans are useful mainly as intermediate results, although they may be critical in determining changed human use.

On the other hand, if restoration or replacement costs is to be the measure of damages, the non-human services may be equally critical, because the determination of restoration or replacement costs is based on the restoration or replacement of services. In this case, the non-human services may be more important in measuring changes in how well a wildlife habitat or marsh is supporting wildlife, controlling floods, assimilating wastes, and providing any other services that may be important. Human uses may need to be measured for purposes of determining priorities and calculating diminution of use values during the recovery period.

Provision is made in the Quantification phase for directly quantifying the effects of injuries based upon a loss of services dependent on the injured resources, where that provides a better measure of the extent of the effect than first measuring a change in the chemical, physical, or biological parameters. An example could be where a pond or lake contains levels of oil or a hazardous substance sufficient for the water to be considered injured, but one of the most critical services normally supplied by the injured water is provision of habitat for fish that normally would be caught and eaten by man. That service is now disrupted because fish from the lake can no longer be eaten. In this case, the change in services measured could be the loss of availability of a population of edible fish, even though the water is the identified injured resource, and the fish population is viable and eventually may become edible at some time in the future, through either natural processes or restoration activities. Alternatively, the change in services measured could be the loss of available population of edible fish established directly from the presence of concentrations in the fish exceeding FDA tolerance levels.

Detailed guidance is not provided on methods for measuring changes in services, in part because the range of services that can be measured is so broad, and in part because the methods to be used depend greatly on which services are measured. Guidance is provided for certain natural resources, but most methods for measurement of services of those resources will have to be determined by the authorized official. The emphasis in the guidance for specific resources is primarily on how to choose techniques that are scientifically acceptable and that can provide useful data for measuring services.

Quantification of the effects on the physical resources (surface and ground water, air, and geologic resources) focus on determining the area, or in some cases the volume, exposed to the discharge or release. In addition, the services provided by those resources must be determined. Comparison to baseline is critical to this process.

In measurement of biological resources, the choice between habitat and population analysis is required to ensure that common units are being used and that double counting is avoided. There may be circumstances where a mixed analysis may be possible while avoiding double counting, if there is little or no interaction between the resources analysis. For example, a population analysis might be used for a terrestial resource such as deer, but a habitat analysis used for a fish resource affected by the same discharge or release. To some extent, choice of habitat analysis will be more closely related to restoration options, and population analysis to use values, but the relationship is not strict.

The types of biological measurements identified in the proposed rule are those that have generally been used in damage assessments, with the exception of the Habitat Evaluation Procedures (HEP). HEP has been used widely in analyzing impacts of proposed development projects, and considerable documentation is already available. An information document for use with damage assessments, "Type B Technical Information Document: Guidance on Use

of Habitat Evaluation Procedures and Habitat Suitability Index Models for CERCA Application," is being prepared concurrently with the proposed rule. Its availiability will be announced in a notice in the **Federal Register**. Interested parties are encouraged to review this document, which is intended to be made final concurrently with the proposed rule. It is intended to be a supplement to the materials and training already available for HEP from the U.S. Fish and Wildlife Service.

Life table statistics are widely used in other management and research functions, but their use here is restricted. The conditions generally considered necessary for their valid use are expected to occur rarely in damage assessments. The reference in the proposed rule to the American Fisheries Society publication does not address or refer to the dollar values assigned to fish species in that publication, but is restricted to the section in that publication providing guidance on methods for conducting valid counts of dead fish.

3. Baseline Services Determination

The measure of effect in the Quantification phase is a comparison of the conditions found following the discharge or release with a baseline condition both for services and for biological or physical changes. This baseline will most often represent conditions occurring just prior to the discharge or release, although the definition given in the regulation is broader. The broader definition in the regulations allows for longer-term situations where, even in the absence of the specific discharge or release, significant changes would have occurred in the resource or service being measured. For example, an area might have been primarily a farming community when a dump was first established, but land use changed during the period of hazardous waste dumping, and much of the area might have been converted to industrial use. These land use changes need to be considered in establishing baseline; it may be unreasonable to assess damages based in this case upon lost use as wildlife habitat. In addition to human-caused changes, consideration may have to be given to natural changes, such as ecological succession. This method of defining baseline reflects the principle that a natural resource damage claim should be limited to the damages caused by the injury resulting from actions of the party determined responsible.

The issue of from which point the calculation of change should be performed frequently has been erroneously related to the question often faced by EPA in determining what level of "cleanup" is appropriate in response actions under the NCP. The objectives of EPA under the NCP and the damage assessment process differ and, as such, different calculation points are inevitable.

EPA is not always concerned with returning the site to its baseline condition when it determines a cleanup level. Rather, the goal of most response actions is to remove and/or remediate the hazardous substances at a site until they no longer represent an actual or potential threat to public health, welfare, or the environment. The particular cleanup level is driven by the application of applicable or relevant and appropriate environmental standards and other site-specific consideration.

When performing a damage assessment, the objective is to determine the value of the loss. Standards may be used to determine that an injury has occurred, but the extent of effects for which the responsible party may be found liable may differ significantly from the standard. In some instances, the baseline condition was cleaner than the standard where in others the standard was exceeded before the discharge or release. Therefore, in many situations the level of cleanup will be different from the baseline. The proposed rule follows the common law principle that the injured party should be made whole again. Thus, quantification of injury and estimates of damages are based upon the change from baseline, rather than on standards.

The proposed rule also requires that the baseline reflect normal variation in the resource and service. For almost any parameter being measured, variability is expected, whether that parameter is a physical measurement, such as concentration of an ion in ground water, or a biological measure, such as population levels of an animal species. Some of those parameters may be relatively constant, or vary on an annual cycle; others can be expected to vary cyclically and dramatically, such as "four-year cycles" of lemmings or "ten-year cycles" of lynx, where populations may vary from nearly zero to many thousands in a given area over the course of a fairly regular cycle. Other parameters may change gradually in one direction, as do population changes of many species during ecological succession, or show random and unpredictable changes. Included in the last category are extreme changes that might fall outside of "normal" variation, but still be due to natural causes. An example of extreme change is destruction of a coastal marsh by hurricane winds and seas.

A baseline should allow for comparison with the normal range of variation, rather than being constrained to a single measurement. For example, a discharge or release may occur or be studied at a time when a population is normally absent or low, but may affect the ability of the affected area to support the population at times when it would normally be high. A chemical change in air or water may be mitigated by dilution at certain times of year, but the same quantity of material may reach deleterious concentration at other times because of low water flow or different wind conditions. A further constraint is that data for the baseline and for the assessment area should be collected using comparable methods. Unless identical or very similar methodologies are used, different data may simply reflect a difference in the methodologies rather than in the condition being measured.

The preferred method for establishing baseline is to use historical data taken from the assessment area before the discharge or release. In many cases, such historical data for an assessment area may be missing or inadequate, so the proposed rule establishes an alternative means for estimating baseline. In most cases, estimating baseline requires data for similar areas ("control areas") near the assessment area. Preferably, the authorized official will use historical data for the control area if available, after ensuring the control and assessment areas are similar except for the discharge or release. If historical data are unavailable for both the assessment and control areas, then field data must be collected for the control area following the guidance provided.

The same materials used for literature searches in performing research are sources for locating baseline data. These materials include general bibliographic references as well as computer data bases and specialized data bases that contain compilations of resource-specific data from many sources. In addition, many parts of the United States have been studied in Environmental Impact Statements (EIS's) or related documents, for various kinds of projects. these EIS's many contain baseline data (or references to sources) for the subject area. The Digest of Environmental Impact Statements is published by Cambridge Scientific Abstracts, 5161 River Road, Bethesda, MD 20816. It summarizes all EIS's. The company sells microfiche and paper

copies of these documents. A number of State and Federal laws require other planning documents that may be useful. The Federal Government carries out or sponsors research nationwide on natural resources; the National Technical Information Service (NTIS), in Springfield, Virginia, has a computer searchable data base for locating reports on this research, and also can supply microfiche or paper copies. Local information may be available through State agencies (e.g., water resources, air quality control, fish and game, public health, etc.). If the discharge or release occurred on publicly-held land, the agency managing that land may have data available, and private land owners may have similar data. Nearby universities and colleges may have data from studies done by students or faculty members.

If historical data for both assessment and control areas are inadequate, field data must be collected from control areas. Although each resource will require techniques and procedures specific to that resource, and local conditions will require tailoring procedures to the specific location, the proposed rule provides general guidelines that apply to selection and use of control areas. The general guidelines are to be used together with the specific guidelines for each resource, and are designed to balance the needs for flexibility and rigor.

Because of the importance of water as a resource, extensive data on water quality have been collected by many local, State, and Federal agencies. Most of those historical data deal with traditional water quality measures such as inorganic ions and microbial content, and only rarely include tests for man-made organic contaminants. A computerized data base that provides access directly to certain large data collections, such as EPA's STORET water quality data base, or other data bases, is available through the National Water Data Exchange (NAWDEX), headquartered at the U.S. Geological Survey (USGS) in Reston, Virginia, and also available through local assistance centers. In addition, the Survey's own water data are available from the National Water Data Storage and Retrieval System (WATSTORE); inquiries may be sent to Reston or to USGS offices in each State. When determining baseline for ground water, control wells may have to be selected or drilled. Historical data should be available to determine the extent of the aquifers being studied or to determine hydrologic characteristics other than the concentration of oil or hazardous substances. Tests done on the water and matrix from control wells should parallel those done during the Injury Determination phase, as for other baseline procedures.

Establishing baseline for surface water resources includes consideration of effects due to low and high water conditions. At high flow or stage conditions, samples will provide information on material washed from the land surface or tidally-transported while low water conditions will reflect the potentially most concentrated condition of the surface waters. The range of normal concentrations should be determined over the range of water flows or stages, rather than depending strictly on seasonal or annual cycles as might be needed for biological resources. Sediments in the water bodies may represent the major concentration of many contaminants, may provide potential for future releases, and may serve as a potential source of injury for biological resources via food chains. Establishing baseline for marine and estuarine waters may require procedures to account for tidal and current effects on movement of substances.

Concentrations of materials in air can change due to changing wind conditions, diffusion, varying volatility of the materials, and changes in release rates. Thus, establishing baseline conditions for air presents problems for baselines that differ from the other resources. The guideline contained in the proposed rule impose limitations on use of historical data for an air resource baseline. These limitations, in summary, require that pervious testing would have detected the oil or hazardous substance, and that the previous testing indicates that historical levels have been sufficiently predictable to be useful. Detectable concentrations of oil or hazardous substances are normally extremely rare in air, so these requirements are less restrictive than they may seem. Otherwise, monitoring at control sites will have to be conducted by the authorized official with consideration given to siting and to sampling schedules that ensure comparability to the assessment area and conditions and that avoid interference from other potential sources.

Guidelines on baseline data for geologic resources primarily reflect factors important in determining comparability between the assessment and control areas and the need for appropriate sampling from the control areas.

Because quantification of injury to biological resources will involve habitats and populations, the sources of historical information provided emphasize these types of information. Included among the appropriate habitat maps would be the Wetland Inventory maps prepared by the U.S. Fish and Wildlife Service and by individual States showing locations of specific habitats and ecosystems. Many other kinds of habitat and ecosystem maps are available. The U.S. Geological Survey maintains indices to and has available series of aerial photographs for most areas of the country, including not only topographic photography, but also photographs for studying agricultural and other land uses. With professional interpretation, these materials can indicate trends in habitat. Museum collections also provide records of species occurrence that may avoid duplication of collection efforts; specimens often are accompanied by field notes that provide habitat information. Both Federal and State agencies maintain biological data bases that often include distribution and habitat data. Among these are data bases for endangered species, Natural Heritage data bases maintained by many States, systematic data bases often maintained by museums and herbaria, and data bases for numerous fish and game species maintaind by management agencies.

The requirement for species identification is not intended to be a major task. A comprehensive collection of all or most species present is not desirable. The authorized official instead should confirm the identification of species that figure most prominently in the injury assessment and in the selected restoration alternatives. For species that should not be collected for normal taxonomic studies because of low populations or other reasons, modern techniques that require only small blood or other tissue samples from live-trapped animals may be used, as may other techniques that will not create problems for species restoration. These confirmed identities may prove important in subsequent judicial or administrative processes or in later evaluating the success or failure of restoration programs.

4. Resource Recoverability Analysis

Section 301(c)(2)(B) of CERCLA requires consideration of the "ability of the ecosystem or resource to recover." This consideration is provided for in § 11.73 of the proposed rule. To satisfy this requirement, the authorized offical must estimate the time necessary for recovery, both without restoration efforts beyond the removal or remedial

action and with proposed alternative restoration plans. No single formula can be designated for determining the recovery plans. Recovery will be considered complete upon determination that natural resource services have been effectively restored. This determination does not require that the recovered ecosystem or other resource necessarily be identical to the one lost, but merely that all important and measurable functions of the lost resource have been restored. Once that point is reached, restoration or replacement is considered complete. The authorized offical is given the option of using a shorter period because the costs of efforts expended in estimating very long recovery periods may not provide sufficient benefits when subjected to economic analysis.

The major source of information for the authorized official to use in determining recovery times is the experience that has been gained during other recoveries of similar resources. Journals and published symposia on oil and hazardous substance response, as well as references found in these sources, contain numerous case studies that can be used as the basis for calculating recovery times. EPA has summarized some of these data in Appendix D of their "Technical Support Document for Water Quality-Based Toxics Control," Office of Water Enforcement and Permits and Office of Water Regulations and Standards, September 1985. Knowledge of local conditions, including information on ecosystems, organisms, and climate, can be critical in adjusting the results of published studies to particular situations. Modeling may be useful for air, water, and geologic resources, and knowledge of degradation and natural removal processes for the oil or hazardous substance will be central to all time determinations.

## IV. Economic Issues

### *A. Economic Methodology Determination*

The method for determining damages is described in section 301(c)(2) of CERCLA as considering but not limited to, "replacement value, use value and the ability of the ecosystem to recover." Replacement value (costs) and use value are concepts that have a history of application. Accordingly, common law and economics provide considerable guidance on selection of a method or methods to calculate damages. In common law, compensation is often determined by the lesser of the diminution of market value or the cost of restoration or replacement. A simple example is an automobile that has suffered a collision. The owner may recover the cost of repair or the cost of replacement, whichever is less.

In terms of economics, compensation for damages would be the lesser of the diminution of use values or the cost of cost-effective restoration or replacement. That is, if use value is higher than the cost of restoration or replacement, then it would be more rational for society to be compensated for the cost to restore or replace the lost resource than to be compensated for the lost use. Conversely, if restoration or replacement costs are higher than the value of uses foregone, it is rational for society to compensate individuals for their lost uses rather than the cost to restore or replace the injured natural resource. Thus, economics and common law agree on a principle of compensation. This proposed rule has adopted an approach parallel to the general common law and economic rules for compensation for damages. Damages are the lesser of (1) restoration or replacement costs or (2) the diminution of use values.

The only exception to this aforementioned rule occurs when special resources are involved. Congress and State legislatures have determined that certain natural resources are worthy of protection even if their use values are relatively low. If agencies were held to the strict rule of the lesser of a diminution of use values or restoration or replacement costs, some of these resources could be left unrestored or unreplaced, thereby being contrary to Congressional or a State legislature's intent. For this reason, a limited exception has been created.

The term special resources is defined in § 11.14(pp). A special resource is a resource that has been set aside and committed to a specific use by law before the discharge or release was detected. The term includes resources that were set aside primarily for the preservation of wildlife habitat or other sensitive environments. A special resource is not necessarily a "unique or important resource" as that term is used by EPA in its proposed claims regulations. Special resources are distinguished from multiple use resources that are managed for a variety of purposes. Examples of multiple use resources include public lands, National Forests, and military lands. The use of these resources is not limited to a primary purpose and these resources are kept in Federal ownership for a number of reasons other than resource preservation.

Also not included within the category of special resources are threatened and endangered species and critical habitat. These are included on administratively determined lists, and are protected by consultation requirements with the U.S. Fish and Wildlife Service or the National Oceanic and Atmospheric Administration (NOAA), which must be carried out before development can occur, and by specific civil and criminal penalties for harming the species. Since the special resources exception is a substantial departure from the common law and the underlying theory of this proposed rule, it can only be applied where the resource to be restored is, itself, set aside by a legislative body. The inclusion or exclusion of a resource from the special resource category has no implication concerning the decision to restore or replace that resource. It simply addresses the issue of the extent a responsible party should be held liable for an amount in excess of society's value for the resource. The proposed rule draws the line at decisions consciously and clearly made by elected representatives. If the injured resource is a special resource, the analysis required by § 11.35 for the Economic Methodology Determination is to be used as a guide although not a restriction on determining whether diminution of use values or restoration or replacement costs will be the measure of damages. In the case of a special resource, restoration or replacement costs may provide the basis for the analysis to be performed in the Damage Determination phase of the damage assessment even if costs outweigh benefits. The decision should be based upon (1) the statutory responsibility to manage or protect the injured resource; (2) the demonstration that the costs of restoration will not be grossly disproportionate to the benefits gained by restoration; and (3) the technical feasibility of the restoration.

When the injured resource is not a special resource, the measure of damages should be the lesser of (1) restoration or replacement costs, or (2) the diminution of use values. No matter which measure is chosen, the monies collected from the settlement or award must be used for restoration or replacement. In addition, Federal or State agencies are not precluded from supplementing damage funds with other monies to restore, replace, or enhance the injured natural resource.

Regardless of the category of the resource, the analysis required in the Economic Methodology Determination, § 11.35, may be only a rough approximation of the values derived

after the conclusion of the Damage Determination phase. Original research projects should not be conducted at this early phase of the assessment. Existing studies to approximate use values foregone resulting from the injury to the natural resource should be relied upon. Sources of data include journal articles, government publications, such as the documents produced by the Forest Service to implement the Resource Planning Act, and work in progress at many universities. Restoration or replacement costs should be approximated through the use of unit values for past management practices or resource acquisitions. If sufficient information is not readily available at the time of the development of the Assessment Plan, the determination of an economic methodology can be postponed until after the Injury Determination phase of the assessment.

One crucial issue in any quantitative damage assessment is the selection of a discount rate. The discount rate is used to translate monetary amounts of costs and benefits occurring in different time periods into a common present value amount. The discount rate used in this proposed rule is given by OMB's "Circular A-94 Revised." The current discount rate listed in this circular is a real rate of 10%.

*B. Restoration or Replacement Methodology*

The restoration methodology is described in § 11.81. In the Quantification phase, the authorized official quantifies the effects of the injury in terms of lost or disrupted services. In the Damage Determination phase, the authorized official determines management actions, that is, actions to restore, rehabilitate, replace, or acquire the equivalent, that will return the lost or disrupted services. Management actions are those types of activities which either physically modify the resource or administratively change the species of human use of the resources designed to achieve a specific goal normally reflected in the agency's planning documents. Examples of management actions include such resource related actions as seeding, stocking, supplying water, or hazing to discourage wildlife use of specific habitats. When performing this methodology, the authorized official should look to restore or replace the lost services in a cost-effective manner. Any specific methodology that accomplishes this is acceptable. However, the method chosen must be the result of an evaluation performed in the Restoration Methodology Plan discussed later. An example of a restoration methodology is the Habitat Evaluation Procedures (HEP). For example, the U.S. Fish and Wildlife Service has examined how the presence of oil or hazardous substances can be incorporated into HEP. This information can be found in "Type B Technical Information Document: Guidance on the Use of Habitat Evaluation Procedures and Habitat Suitability Index Models for CERCLA Applications," forthcoming from the U.S. Fish and Wildlife Service.

The U.S. Fish and Wildlife Service has also produced guidance on incorporating cost-effectiveness into HEP. This guidance can be found in "Designing Cost-Effective Habitat Management Plans Using Optimization Methods," by Adrian H. Farmer and Scott C. Matulich, forthcoming from the U.S. Fish and Wildlife Service. In addition, the U.S. Fish and Wildlife Service is preparing a microcomputer program called the "Habitat Management Evaluation Model" (HMEM). This model will provide a means of rapidly designing cost-effective management actions for use with restoration or replacement alternatives. The model is based upon the concepts in the guidance document. These procedures should be reviewed to determine if they can be of assistance in structuring cost-effective restorations or replacements.

If restoration or replacement will form the basis of compensation in the Damage Determination phase of the assessment, the Federal or State agency acting as trustee may also claim damages for the dimunition of use values over the time required to perform the restoration. The authorized official should estimate this diminution of use values in accordance with the guidance in §§ 11.83 and 11.84.

*C. Restoration Methodology Plan*

The selection of the cost-effective restoration or replacement measures for the Damage Determination is made in the Restoration Methodology Plan. The guidance provided in the section of the rule concerning the restoration methodology is to be followed in developing the Restoration Methodology Plan and in selecting the cost-effective alternative.

The Restoration Methodology Plan is intended to encompass the requirements of a good environmental analysis. Fundamental to the plan are the requirements for an analysis of alternative means of restoring or replacing the lost services and public review and input to the decision. An interdisciplinary analysis of both direct and indirect impacts of the alternatives also is called for in the proposed rule. Finally, in accordance with accepted procedures for environmental analysis, the Restoration Methodology Plan is required to form the basis from which the post-award Restoration Plan will be tiered.

The purpose of the Restoration Methodology Plan is to compute damages. Therefore, the plan is not viewed as being of sufficient detail to carry out a restoration, rather the level of detail is driven by the needs of the damage determination. The later post-award Restoration Plan, when the level of funding is known, is expected to focus on the selected alternative and, therefore, provide more detail on the actual restoration.

The authorized official is encouraged to combine the requirements for the Restoration Methodology Plan with other planning or analytical requirements that may apply to a specific restoration or replacement decision. Some examples of other such requirements include a restoration plan required under section 111(i) of CERCLA for claims against the Fund, Remedial Investigation/Feasibility Studies (RI/FS) required under the National Contingency Plan, analyses required under the National Environmental Policy Act of 1969 (NEPA), or land use planning documents required under the various land management statutes. The Restoration Methodology Plan is designed, in particular, to satisfy the requirements of NEPA without additional analysis at this stage.

*D. Use Value Methodologies*

Section 11.83 is divided into two parts—one for resources that are traded in markets and the other for resources that are not traded in markets. If the injured resource is traded in a market, the diminution of the market price should be the measure of lost use value. The diminution of the market price will not always coincide with the change in the loss in social value, but this amount is widely recognized by courts as the measure of damages when a commodity is injured.

When the injured resource is traded in the market, the authorized official must determine whether the market is "reasonably competitive" in order to use this methodology. While not defined in the proposed rulemaking, reasonably competitive means that the assumptions underlying a competitive market are fulfilled to a reasonable degree. This determination may be made on a case-by-case basis.

If the injured resource is not traded in a market, but similar or like resources are traded in a market, the authorized official should use an appraisal

technique to determine damages. To the extent possible, all appraisals should be in conformance with the "Uniform Standards for Federal Land Acquisitions" (Uniform Standards). In those instances when State statutes may be at variance with these standards, a State official should follow the applicable State's guidance on performing appraisals for damage assessments performed by a State.

The Uniform Standards cover three general appraisal approaches: (1) The cost approach; (2) the income method; and (3) the comparable sales approach. The cost approach is inappropriate in implementing the appraisal method since the restoration methodology (described in § 11.81) explains how restoration costs are to be determined. The income method in the Uniform Standards should be performed in accordance with the "Factor Income" method given in the proposed rule.

The diminution of market price and the appraisal method jointly comprise the marketed resource methodology in the proposed rule. Only when the injured resource is not traded in a market, or when that market is not reasonably competitive, and no comparable sales are available for use in an appraisal, may the authorized official use any of the nonmarketed resource methodologies listed, or any that meet the acceptance criteria.

CERCLA provides that a Federal or State agency is acting as a trustee when seeking recovery for a loss to a resource. According, it is damage to the public that may be recovered. The use values that can be claimed by a Federal or State agency are those associated with the loss to the public in general because of the discharge or release. These include: (1) Losses in recreation and other public uses; (2) fees and other payments made to the agency for the private use of the public resource and; (3) the economic rent, that is, the excess of total earnings of a producer of a good or service over the payment required to induce that producer to supply the same quantity currently being supplied, accruing to private individuals because the agency does not charge the producer a price or fee for the private use of the public resource.

Under this proposed rule, the Federal or State agency acting as trustee cannot collect for: (1) Taxes forgone, because these are transfer payments from individuals to the government; (2) wages and other income lost by private individuals, except for that portion of income that represents economic rent, because these values do not accrue to the agency and may be the subject of law suits brought by the individuals suffering the loss; or (3) any speculative losses. The costs incurred by private individuals may be considered in performing the nonmarketed resource methodologies listed in the proposed regulation, but the purpose of this use is to enable the authorized official to assign a value to the resource, not to collect that private cost.

The Federal or State agency acting as trustee can claim all the income lost, not just the economic rent, from a commercial venture when the agency is the sole or majority owner of the venture that is affected by the discharge or release. For example, if the Federal or State agency sells water and that water supply is injured, that agency can claim the change in income as damages. This procedure allows the agency to file one claim to obtain all damages associated with the discharge or release, rather than two.

Nonmarketed resource methodologies may be used to measure a diminution of use values. The methodologies listed in § 11.83 are examples of those that are permitted under this proposed rule. Discussions of these methodologies can be found in many natural resource or environmental economics textbooks. Examples include: M. Freeman III, "The Benefits or Environmental Improvement: Theory and Practice," Resources for the Future, Inc., (Baltimore, MD: Johns Hopkins University Press, 1979); and O.C. Herfindal and A.V. Kneese, "Economic Theory of Natural Resources," Resources for the Future, Inc., (Columbus, OH: Charles E. Merrill Publishing Company, 1974.)

Several of the Non-Marketed Resource Methodologies listed in § 11.84 are also listed in the "Procedures for Evaluation of National Economic Developemnt (NED) Benefits and Costs in Water Resources Planning (Level C)," (Procedures), (in *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*, Chapter II, Section VII, Appendices 1–3, U.S. Department of the Interior, Water Resources Council, Washington, DC 1984 DOI/WRC/84/01, available from NTIS, Springfield, VA). To the extent practicable and applicable, the authorized official should follow the guidance in this document. The discussion of Unit Day Values in the Procedures should be supplemented with other sources of existing estimates of use values, such as that in the forthcoming Final Environmental Impact Statement, "1983–2030 Resources Planning Act Program," (Appendix F, U.S. Forest Service, Department of Agriculture, Washington, DC).

Other studies may also provide the authorized official with more background. One supplemental source is W.H. Desvousages, V.K. Smith, and M.P. McGivney, "A Comparison of Alternative Approaches for Estimating Recreation and Related Benefits of Water Quality Improvement," (U.S. Environmental Protection Agency, Office of Policy Analysis, Washington, DC, EPA–230/05–83–001, March 1983). In addition, further information on the use of these nonmarketed resource methodologies is being prepared entitled "Type B Technical Information Document: Techniques to Measure Damages to Natural Resources."

The list of nonmarketed resource methodologies cannot be comprehensive. The acceptance criteria in § 11.84 were designed to insure that methodologies consistent with economic theory, yet not specifically listed in the proposed rule, are available for use in estimating damages. These acceptance criteria are that the methodology measure either willingness to pay or willingness to accept in a cost-effective manner.

Most economic techniques address willingness to pay; however, in the case of an injury to a natural resource, willingness to accept compensation may be the more technically correct measure of damages. In theory, willingness to accept can be larger than willingness to pay, and in most empirical studies this difference has been evident. However, there is no universally accepted procedure to adjust for this difference. Because of this lack of a universally accepted procedure, the authorized official is given the flexibility to choose either criterion. These concepts are discussed in greater detail in the technical information document discussed above.

## V. Glossary

The following terms are defined using generally accepted definitions. These definitions were not modified in any way during the development of the proposed rule and, therefore, are not included as regulatory language. They are provided here simply for clarification.

(a) "Assimilate" means to absorb a substance into an organism's body, tissues, or cellular structure and does not refer to substances in the digestive tract or respiratory system that have not otherwise been absorbed across membranes or epithelia.

(b) "Behavioral abnormalities" means alteration of overt activities by an animal including locomotor,

reproductive, care of young, food gathering, or avoidance of predation.

(c) "Bioaccumulate" means the process whereby chemical substances enter aquatic or terrestrial organisms through both bioconcentration and uptake of chemical residues from dietary sources.

(d) "Bioconcentrate" means the process whereby either chemical substances enter aquatic organisms through gills or epithelial tissue directly from water, or chemical substances enter terrestrial organisms through respiratory or epithelial tissues directly from air; and the concentration of the chemical substances in the tissue fluids of the organism exceeds that of the air or water.

(e) "Biomagnify" means the process by which tissue concentrations of bioaccumulated chemical substances increase as they pass up the food chain through two or more trophic levels.

(f) "Cancer" means both malignant and benign neoplasia.

(g) "Constant dollar" means inflation adjusted dollars at a specified base year.

(h) "Controlled experiment" means any laboratory, pen, or field test in which an investigator regulates the exposure of the biological resource to the oil or hazardous substances and which includes comparison to organisms treated similarly except for such exposure.

(i) "Disease" means an impairment of biological resource's ability to resist or recover from an infections agent.

(j) "Existence value" means the dollar amount of the willingness to pay or willingness to accept of individuals who do not plan to utilize a resource now or in the future, but are willing to pay to know that the resource would continue to exist in a certain state of being.

(k) "Expected present value" means the dollar amount derived by the period-by-period summation of the various levels of benefits or costs associated with alternative assumptions on paramenter values, where each level is weighted by the probability of the occurrrence of the parameter value, and discounted by period, using the discount rate as determined in § 11.83 of this part.

(l) "Free-ranging" means biological resources in their natural habitat, in contrast to biological resources maintained in captivity.

(m) "Genetic mutations" means a detectable chromosomal aberration that can be correlated with a detrimental effect on the survival or reproductive success of the biological resource.

(n) "Neoplasm" means an abnormal mass of tissue, the growth of which exceeds and is uncoordinated with that of the normal tissue and persists in an excessive manner after cessation of the stimuli that evoked the change.

(o) "Net expected present value" means that costs are subtracted from benefits in the definition of expected present value.

(p) "Option value means the dollar amount of the willingness to pay or willingness to accept of individuals who are not currently using a resource, but wish to preserve their option to use that resource in a certain state of being in the future.

(q) "Physicial deformation" means cogenital or acquired alterations in shape, size, and structure of an organism or any part of an organism, including malformations.

(r) "Physiological malfunction" means alterations in biochemical and physiological processes necessary for maintenance of homeostasis and reproduction, including such processes as fluid transport, digestion, emtabolism, excretion, respiration, locomotion, and nervous and endocrine integration.

(s) "Willingness to accept" means the amount of money an individual must be given to be as well off as he was prior to the occurrence of an event.

(t) "Willingness to pay" means the amount of money an individual would be willing to pay to have avoided the occurrence of an event.

## VI. Summary and Analysis of Major Issues Included in the Comments Received From the Advance Notices of Proposed Rulemaking

### *A. Introduction*

Three Advance Notices of Proposed Rulemaking (ANPRM's) were issued by the Department during the course of the development of the proposed rule. The first of these, published on Janaury 10, 1983, contained questions and discussion points designed to solicit advice on the policies and procedures to be used both in the rulemaking and in the rule itself. Technical input and information on existing methods of assessment were also requested. The second ANPRM, dated August 1, 1983, was issued primarily to inform the public of the results of the first Notice and of the proposed Departmental response. In this second ANPRM, all comments received up to this point were summarized and addressed briefly. A large part of these comments was suggestions on ways to facilitate the rulemaking. The definition of damage to be adopted in the rule was identified as the most serious substantive issue. Other comments on the content of the rule included numerous suggestions on how the rule could best cover widely varying types of natural resources, discharges, and releases.

The Departmental response to these comments, as announced in the second ANPRM, was a proposed series of meetings with other Federal agencies, and planned visits to selected States. These meetings and visits were intended to assist the Department in its decision on the method to be used in the rulemaking. Workshops, surveys, meetings with experts, and the formation of interagency working groups were all envisioned as possible components of the process of generating the rule. Subsequent events and the imposition of a court-ordered deadline for the completion of the rule made full enactment of this proposed outreach plan inadvisable. The intent of the plan was fulfilled, however, by the use of an intra-Departmental team of specialists to complete the rulemaking, as well as by the extensive use of literature searches, consultation with outside experts, and surveys.

A third ANPRM was issued on January 11, 1985, to allow interested parties further opportunity to supply useful information or express their views. This comment period was extended through July 1, 1985.

A total of ninety-five comments was received from the three ANPRMs: eighty-four from the first two ANPRMs, and eleven from the third. Of the ninety-five, there were ten from industrial firms; fifteen from trade or industrial associations; forty-two from State governments and agencies; seven from Federal agencies; twelve from individuals, firms, companies, or institutions generally interested in the rule; five from groups interested in doing contract work for the Department; and two from law firms representing Native American tribes.

Many of the comments consisted solely of general experssions of interest and offers of assistance. A large number of studies and other documents were included with the comments. This information and assistance was used during the course of the rulemaking.

A number of somments were oriented to the development of the "type A" simplified assessments. These issues will be addressed with guidance for type A procedures is proposed.

Roughly half of the total comments contained discussions of the substantive issues covered in the remainder of this section. The comments recieved on the methods to be used in the rulemaking process were extensively responded to in the second ANPRM and are not included here.

The issues raised in the comments on the contents of the rule can be grouped into three broad categories. The first covers the role of natural resource damage assessments within the wider context of CERCLA, and the degree and nature of the involvement in the assessment process by potentially responsible parties and governmental entities. The second centers around the format that the rule should take to best address the wide variety of natural resources, discharges, and releases covered by the CWA and CERCLA. The third and most intensely addressed group of issues includes the selection of the measures of injury and damages to be used in assessments as well as related questions on restoration or replacement of affected resources.

*B. Comments on the Role of Assessments in the Context of CERCLA, and on the Role in Assessments of Potentially Responsible Parties and Governmental Entities*

A number of comments pointed out that response to inactive sites is the primary purpose of CERCLA, and that assessments should complement existing Federal response programs rather than complicate them. Some comments went on to note that natural resource damages are the residual damages remaining after cleanup; that in many cases response actions will fully address natural resource issues, rendering assessments unnecessary; or that assessments should only take place during the later stages of response actions or after response actions are complete. A few comments added that CERCLA was intended by Congress to be focused primarily on public health rather than natural resource concerns, and that the Department should adopt the Environmental Protection Agency's approach to the question of "how clean is clean?," as determined on a case by case basis.

The proposed rule incorporates the idea that the primary purpose of CERCLA is response to hazardous sites. It does this by defining natural resource damages as compensation for residual injuries to natural resources after accounting for the results of response actions. The proposed rule also supports the current Federal response program by stressing cooperation and coordination with the existing NCP process. Although completed or anticipated response activities must be included in the determination of damage, no set timing for assessments is specified in the proposed rule. The wide differences between sites and the statute of limitations for natural resource damages dictate that this matter be left flexible. The relationship of the response standards set by the Environmental Protection Agency to this proposed rule is discussed in part I(D)(3) of this preamble.

A large set of comments contained opinions on who should initiate and conduct an assessment. Some suggested that the On-Scene Coordinator should do a preliminary survey for all discharges or releases and decide whether an assessment is warranted. Several stated that the potentially responsible party should be able either to participate in or have total control over assessment costs and activities. Others stressed that Federal and State agencies acting as trustees are solely responsible for assessments and should be given maximum discretion and flexibility in all aspects of assessments. The relationship between Federal and State agencies acting as trustees and the need for clearly delineated lines of authority where multiple agencies are involved was emphasized. Some comments included recommendations on the proper agencies within States for doing assessments, or on ways that jurisdictional conflicts over resources between States or between the Federal Government and States might be resolved.

Federal agencies and States are designated as trustees of natural resources in CERCLA and in the NCP, and as such are responsible for initiating and conducting any assessments that are necessary. The On-Scene Coordinator and other National Response Team members are involved in notification and coordination capacities. Participation, but not control, is allowed to potentiatly responsible parties by the proposed rule. In cases of multiple agencies, the rule recommends that a lead authorized official be chosen. As a few of the comments noted, this proposed rule is not the proper vehicle to define the relationship between Federal and State agencies, or to dictate the internal division of assessment authority within States.

A small number of comments requested that funding or other types of Federal assistance be made available to States or tribes to support their assessment activities.

Section 301(c) of CERCLA grants no independent funding authority. As other comments pointed out, this proposed rule can only address the nature and scope of compensation for damages to natural resources. The disbursement of the Hazardous Substances Response Trust Fund and of other monies designated for response activities are handled under their authorities.

*C. Comments on the Format of the Proposed Rule*

Many comments discussed ways of handling the disparate natural resources included under CERCLA and the CWA. Some stated that certain resources, such as ground water, marinas and beaches, or anadromous fish, either had special needs that deserved separate treatment or special importance that needed priority treatment. One view held that biological resources should be dealt with primarily in terms of "important species," while another judged ecosystem, habitat, and food chain effects to be essential. The placement of generic resource types into categories, the recognition of regional differences, and the use of a matrix approach were all recommended.

The proposed rule adopts the definition of resources given in CERCLA and treats all resources with equal priorty with the limited exception of the special resources. The overall process gives the flexibility necessary to adequately address the special circumstances connected with each resource at any specific assessment site. Elements of both a single species approach and an ecosystem approach are incorporated into the Injury Determination and Quantification phases of the proposed rule. By focusing on services, damage determination can be accomplished using similar procedures for all resource types, as appropriate to each situation.

A number of comments requested different regulations for discharges of oil and for releases of hazardous substances. This request was based on the different characteristics of these two categories of materials, and on the fact that much more information is available on discharges of oil than on releases of hazardous substances.

The proposed rule is sufficiently flexible to accommodate differences in toxicity and other characteristics among the many types of oil and hazardous substances. The use of two separate rules for type B assessments would be repetitive and unnecessary.

Many comments addressed directly the form that the rule should take and what elements should be included in it. It was repeatedly stressed that a basic requirement of assessment regulations is the flexibility necessary for addresssing diverse resource impacts in widely varying geographical settings. Simplicity, elimination of excess paperwork choices in methods and techniques, and ease of application were mentioned as desirable characteristics of an assessment process. Cost-

effectiveness and efficiency were major concerns. Specific elements suggested for the assessment process included: preliminary screening and establishing priorities; guidance documents; provisions for mitigating irreparable damage; required use of teams of specialists; the encouragement of a sequential decision process; recommendation of only technically feasible techniques; mandated use of only low cost procedures in initial activities; permitted use of complex procedures only if necessary; limitation of assessment activities to those essential to the immediate assessment; and required correlation between the degree of damage, the depth of an assessment, and the amount of information to be gained from varying levels of efforts.

The proposed rule recognizes the importance of all of the above suggestions and incorporates most of them into the various phases of the assessment process. Cost-effectiveness, reasonable cost, and elimination of unjustified expenditures are primary factors in every phase of the proposed rule, which requires an inexpensive preassessment screen and explicit plans before major asssessment activities are undertaken. Since the type B assessment for which this proposed rule is intended are meant to address damages on a case-by-case basis, a certain amount of the simplicity obtained in a uniform approach is impossible to achieve. Nevertheless, the process delineated in the proposed rule retains a flexibility that allows its application in situations ranging from the straightforward to the complex.

Clear guidance is given on the standards to which methods and procedures used in the assessment must adhere, but choice is allowed between comparable methods. Provision is made for the use of new and emerging technologies and procedures with the inclusion in the proposed rule of acceptance criteria for selecting alternate methodologies.

*D. Comment on Injury, Damages, Restoration, and Related Issues*

1. Injury

Many comments on injury definition stressed that a causal link between the discharge or release and any suspected injury must be clearly established and measured by reasonably available and consistent scientific evidence. One set of responses stated that the discharge or release must be the proximate cause of injury, while another emphasized that indirect effects must not be overlooked. A few comments maintained that the effects of injuries caused by improper or negligent response activities not performed by the responsible party should not be included in damages assessed against the responsible party. Suggestions on possible indicators of injury included mortality, area lost, behavioral changes, tainting of fish, and reduced fecundity. Suggestions on methods to measure injury included multispectral and other monitoring systems, and "the painstaking collection of biological data."

The proposed rule recognizes that a discharge or release may have both direct and indirect effects on resources. Solid scientific evidence is required in both cases to establish a link between an injury and oil or a hazardous substance. Any injuries to natural resources resulting from response activities done in accordance with the NCP can be included in a damage determination, since the response activities would have been unnecessary without the discharge or release. Procedures for determining injury and methods of measuring the extent of injury provided for in the proposed rule vary as appropriate to each resource and situation, but all procedures and methods are required to meet specified standards of acceptability.

A number of comments called for the setting of *de minimus* levels for discharges or releases, with the corollary that amounts below these levels would automatically be excluded form any assessment activity. Other comments emphasized that every spill should be investigated and treated as potentially significant until it is determined that injury is minor.

The proposed rule neither sets *de minimus* levels nor requires that every discharge or release be investigated for natural resource damages. The authorized official decides whether to pursue damages on a case-by-case basis. However, the preassessment screen and the early determination of economic methodology in the Assessment Plan phase should discourage cases of minimal injury where assessment costs far outweigh the damage. Because the Federal or State agency can only obtain compensation where actual damages can be determined, and can only recoup reasonable assessment costs, it is unlikely that unnecessary assessments will be done.

2. Damage and Restoration

Comments on the proper definition of damage and on appropriate methods for determining damage were extensive. A large number of responses centered around the theme that damages should be based on actual and quantifiable economic losses rather than on losses of speculative uses or on esoteric and unmeasurable changes in resources. Opinions on what was esoteric an unmeasurable varied widely. These comments repeatedly stressed that damages should be solely compensatory rather than punitive. An opposing group of comments emphasized the theme that compensation should be as full, fair and efficient as possible, should not have cost/benefit analysis as its primary determinant, and should include consideration of all recreational, commercial, aesthetic, educational, and intrinsic values. One of the comments suggested that punitive damages might be appropriate in some cases.

There were also different interpretations of the role that restoration costs, replacement costs, and use values should take in the determination of damages. Some comments conceptualized damages as amounts to be paid in addition to restoration and replacement costs. Some indicated that restoration or replacement costs should always be awarded, in addition to an amount compensating for lost use value during the period of restoration. Other comments held that the diminution of the market value of a resource was the only fair measure of damage, unless the cost of restoration or replacement was less than this. A few comments suggested the partitioning of resources into prioritized categories for the purpose of determining levels of compensation. Various economic methodologies for establishing the value of resources were either recommended as appropriate or rejected as unsound and inappropriate. Criteria were offered for making the decision between restoration, rehabilitation, replacement, and acquiring the equivalent.

The comments went on to emphasize that CERCLA requires that natural recovery be taken into account in the determination of damages. The concern was expressed that assessments under CERCLA not duplicate awards for damages covered under other statutes or under common law. It was stated that the purpose of the rule should not be to codify private damages. A number of comments stated that compensation should be based on comparisons with pre-spill or pre-release rather than pristine conditions. Some comments advocated the use of data from control situations when no quantitative data is available for pre-damage conditions. One comment called for restoration to an "acceptable" condition, not necessarily the pre-release condition.

with consideration of the actual use of the resource, the potential for future migration of the discharge or release, and the sensitivity of the ecosystem. Resolution of the definition of damage to be used in this proposed rule is of such importance that it has already been discussed at length in the pertinent sections of this preamble. The concerns expressed in these summarized comments are incorporated, as appropriate, into the proposed rule, in an effort to delineate a compensation procedure that is fair, based on solid principles of law and economics, and in accordance with CERCLA and the CWA.

In general, the idea that just compensation should be for the lesser of restoration or forgone use value is accepted in the proposed rule, but an exception to this is made for certain categories of special resources. In accordance with CERCLA, compensatory rather than punitive damages are allowed, and the effects of natural recovery are taken into account. Compensation for lost use values during restoration is permitted. Consideration of pre-release or baseline rather than either pristine or "acceptable" conditions is required. Economic methodologies for calculating use values are provided in a hierarchy of preference, with the simplest and most widely accepted procedures always used first if they are appropriate to the situation. The choice between restoration or replacement is left to the authorized official, but reasonable cost considerations are required. The use of a number of different methodologies for different resources within the same assessment is permitted in order to promote the most feasible and efficient valuation process possible. The principle of non-compensation for private losses and the prohibition against double counting of services guards against the award of duplicate damages, as does the principle of considering natural resource damages as residual to the cost of response actions.

Several comments expressed the opinion that money received in awards should always be used for restoration or replacement. Some went on to state that no restoration should take place until a restoration plan is adopted. Others maintained that restoration should be solely at the discretion of the Federal or State agency acting as trustee, and that CERCLA 301(c) regulations were not meant to address restoration plans. Still other comments assumed that restoration plans would be discussed in full within this rule and gave suggestions on what elements a restoration plan should contain.

A Restoration Methodology Plan is required by the proposed rule when restoration or replacement costs are used in the measurement of damages. In addition, a Restoration Plan is required after the award. A general outline of what should be included in these plans is given. The use of all awards for restoration or replacement purposes after the adoption of the Restoration Plan is also required, in keeping with the emphasis in CERCLA and the CWA on restoration.

3. Related Issues

A small but appreciable number of comments expressed concern about the difficulty that companies would have in acquiring insurance if approaches using esoteric valuation methods differing from accepted common law practices were adopted in the assessment procedure. Reference was made to the possibilities for unlimited liability, and to other ambiguities and inconsistencies under CERCLA.

To the extent possible, the approach to compensation taken in the proposed rule follows common law principles and is designed to avoid excessive and unwarranted damage claims.

A final series of comments pointed out that certain elements of CERCLA need to be included in the rule, such as limitations of liability for releases that occurred wholly before CERCLA was enacted, and the exclusion from compensation for effects resulting from: federally permitted releases, previously identified and approved irretrievable commitments of natural resources, registered pesticide applications, or long-term exposure to multiple and diffuse sources of air pollution. A number of comments concerned the two-year review process stipulated in CERCLA 301(c)(3).

The proposed rule recognizes and reiterates the statutory limitations to liability as they are stated in CERCLA. Provisions for the required two-year review process are made in § 11.12 of the proposed rule.

The primary authors of this proposed rulemaking, all with the Department of the Interior, are Keith Eastin, Alison Ling, and Sheryl Katz, Office of the Solicitor, David Rosenberger and Peter Escherich, U.S. Fish and Wildlife Service, Rich Aiken and Stan Coloff, Bureau of Land Management, Willie Taylor, Office of Policy Analysis, and Craig Sprinkle, U.S. Geological Survey.

The Department of the Interior has determined that this rulemaking does not constitute a major Federal action significantly affecting the quality of the human environment and, therefore, no further analysis pursuant to section 102(2)(C) of the National Environmental Policy Act of 1969 (43 U.S.C. 4332(2)(C)) has been prepared.

The Department of the Interior has determined that this document is not a major rule under Executive Order 12291 and certifies that this document will not have significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*).

The proposed rule provides technical and procedural guidance for the assessment of damages to natural resources. Therefore, the proposed rule does not directly impose any additional cost. In addition, estimates of per unit assessment costs times the potential numbers of assessment total well below $100 million annually.

The proposed rule applies to Federal and State agencies acting as trustees for natural resources and is thus not expected to have an effect on a substantial number of small entities.

*Paperwork Reduction Act*

The information collection requirements contained in 43 CFR Part 11 do not require approval by the Office of Management and Budget under 44 U.S.C. 3507, because there are fewer than 10 respondents annually.

**List of Subjects in 43 CFR Part 11**

Continental shelf, Endangered species, Environmental protection, Fish, Forests and forest products, Grazing land, Indian lands, Mineral resources, National forest, National parks, National wild and Scenic rivers System, Oil pollution, Public lands, Wildlife, Wildlife refuges.

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Title 43, Subtitle A, is proposed to be amended by adding a new Part 11 as set forth below.

Dated: December 10, 1985.

**Marian Blank Horn,**

*Principal Deputy Solicitor.*

**Authority**

These regulations are issued under the authority of section 301(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9651(c).

## PART 11—NATURAL RESOURCE DAMAGE ASSESSMENTS


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**Appendix I—Methods for Estimating the Areas of Ground Water and Surface Water Exposure During the Preassessment Screen**


**Authority:** 42 U.S.C. 9651(c).

### Subpart A—Introduction

#### § 11.10 Scope and applicability.

The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601–9657, and the Clean Water Act (CWA), 33 U.S.C. 1251–1376, provide that Federal and State agencies who are authorized to act as trustees of natural resources may assess damages to natural resources resulting from a discharge of oil or a release of a hazardous substance covered under CERCLA or the CWA and may seek to recover those damages. This Part supplements the procedures established under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR 300, for the identification, investigation, study and response to a discharge of oil or release of a hazardous substance, and it provides a procedure by which a Federal or State agency acting as trustee can determine compensation for injuries to natural resources that have not beren nor are expected to be addressed by response actions conducted pursuant to the NCP. This Part applies to assessments initiated after the effective date of this rule.

#### § 11.11 Purpose.

The purpose of this part is to provide standardized and cost-effective procedures for assessing natural resource damages. The results of assessments performed by a Federal official according to these procedures shall be accorded the evidentiary status of a rebuttable presumption as provideed in section 111(h) CERCLA.

#### § 11.12

#### Biennial review of regulations.

The regulations and procedures included within this Part shall be reviewed and, as appropriate, revised 2 years from the effective date of these rules and every second anniversary thereafter.

#### § 11.13 Overview.

(a) *Purpose.* The process established by this Part uses a planned and phased approach to the assessment of natural resource damages. This approach is designed to ensure that all procedures used in an assessment are appropriate, necessary, and sufficient to accomplish the purposes of the assessment.

(b) *Preassesment phase.* Subpart B of this Part, the preassessment phase, provides for notification, coordination, and emergency activities if necessary and includes the preassessment screen. The preassessment screen is meant to be a rapid review of readily available information that allows the authorized official to make an early decision on whether a natural resource damage assessment can and should be performed.

(c) *Assessment Plan, phase.* If the authorized official decides to perform an assessment, and Assessment Plan, as described in Subpart C of this Part, is prepared. The Assessment Plan ensures that the assessment is performed in a planned and systematic manner and that the methodologies chosen demonstrate reasonable cost.

(d) *Type A assessments.* The simplified assessments provided for in section 301(c)(2)(A) of CERCLA are performed using the standard procedures specified in Subpart D of this Part.

(e) *Type B asessments.* Subpart E of this part covers the assessments provided for in section 301(c)(2)(B) of CERCLA. The process for implementing type B assessments has been divided into the following three phases.

(1) *Injury Determination phase.* The purpose of this phase is to establish that one or more natural resources have been injured as a result of the discharge of oil or release of a hazardous substance. The sections of Subpart E comprising the Injury Determination phase include definitions of injury, guidance on determining pathways, and testing and sampling methods. These methods are to be used to determine both the pathways through which resources have been exposed to oil or a hazardous substance and the nature of the injury.

(2) *Quantification phase.* The purpose of this phase is to establish the extent of the injury to the resource in terms of the loss of services that the injured resource would have provided had the discharge or release not occurred. The sections of Subpart E comprising the Qualification phase include methods for establishing baseline conditions, estimating recovery periods, and measuring the degree of service reduction from the injured resource.

(3) *Damage Determination phase.* The purpose of this phase is to establish the appropriate compensation expressed as a dollar amount for the injuries established in the Injury Determination phase and measured in the Quantification phase. The sections of Subpart E comprising the Damage Determination phase include guidance

on acceptable economic methodologies for estimating compensation based or (i) the costs of restoration or replacement of (ii) a diminution of use value.

(f) *Post-assessment phase.* Subpart F of this part includes requirements to be met after the assessment is complete. The Report of Assessment contains the results of the assessment, and documents that the assessment has been carried out according to this rule. Other post-assessment requirements delineate the manner in which the demand for a sum certain shall be presented to a responsible party and the steps to be taken when sums are awarded as damages.

**§ 11.14 Definitions.**

Terms not defined in this section have the meaning given by CERCLA or the CWA. As used in this part, the phrase:

(a) "Acquisition of the equivalent" or "replacement" means the substitution for an injured resource with a resource that provides the same, similar, or related services, when such substitutions are in addition to any substitutions made or anticipated as part of response actions and when such substitutions exceed the level of response actions determined appropriate to the site pursuant to § 300.65 and § 300.68 or the NCP.

(b) "Air" or "air resources" means those naturally occurring constituents of the atmosphere, including those gases essential for human, plant, and animal life.

(c) "Assessment area" means the area or areas affected directly or indirectly by the discharge of oil or release of a hazardous substance and that serves as the geographic basis for the injury assessment.

(d) "Authorized official" means the person to whom is delegated the authority to act on behalf of the Federal or State agency acting as trustee to perform a natural resource damage assessment. As used in this part, authorized official means the phrase "authorized official or lead authorized official," as appropriate.

(e) "Baseline" means the condition or conditions that would have existed at the assessment area had the discharge of oil or release of a hazardous substance not occurred.

(f) "Biological resources" means those natural resources referred to in section 101(16) of CERCLA as fish and wildlife and other biota. Fish and wildlife include marine and freshwater aquatic and terrestrial species; game, nongame, and commercial species; and threatened, endangered, and State sensitive species. Other biota encompass shellfish, terrestrial and aquatic plants, and other living organisms not otherwise listed in this definition.

(g) "CERCLA" means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601–9657.

(h) "Committed use" means either a current use, or a planned use of a natural resource for which the Federal or State agency acting as trustee or another party has made a documented legal, administrative, budgetary, or a financial commitment before the discharge of oil or release of a hazardous substance is detected.

(i) "Control area" or "control resource" means an area or resource unaffected by the discharge of oil or release of a hazardous substance. A control area or resource is selected for its comparability to the assessment area or resource and may be used for establishing the baseline condition and for comparison to injured resources.

(j) "Cost-effective" or "cost-effectiveness" means that when two or more activities provide the same level of benefits, the least costly activity providing that level of benefits will be selected.

(k) "CWA" means the Clean Water Act, as amended, 33 U.S.C. 1251–1376, also referred to as the Federal Water Pollution Control Act.

(l) "Damages" means the amount of money sought by the Federal or State agency acting as trustee as compensation for injury, destruction, or loss of natural resources as set forth in section 107(a) or 111(b) of CERCLA.

(m) "Destruction" means the total and irreversible loss of a natural resource.

(n) "Discharge" means a discharge of oil as defined in section 311(a)(2) of the CWA, as amended, and includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping of oil.

(o) "Drinking water supply" means any raw or finished water source that is or may be used by a public water system, as defined in the SDWA, or as drinking water by one or more individuals.

(p) "EPA" means the United States Environmental Protection Agency.

(q) "Exposed to" or "exposure of" means that all or part of a natural resource is, or has been, in physical contact with oil or a hazardous substance, or with media containing oil or a hazardous substance.

(r) "Fund" means the Hazardous Substance Response Trust Fund established under section 221 of CERCLA.

(s) "Geologic resources" means those elements of the Earth's crust such as soils, sediments, rocks, and minerals, including petroleum and natural gas, that are not included in the definitions of ground and surface waters.

(t) "Ground water resources" means water in a saturated zone or stratum beneath the surface of land or water and the rocks or sediments through which ground water moves. It includes ground water resources that meet the definition of drinking water supplies.

(u) "Hazardous substance" means a hazardous substance as defined in section 101(14) of CERCLA.

(v) "Injury" means a measurable adverse change, either long- or short-term, in the chemical or physical quality or the viability of a natural resource resulting either directly or indirectly from exposure to a discharge of oil or release of a hazardous substance, or exposure to a product of reactions resulting from the discharge of oil or release of a hazardous substance. As used in this Part, injury encompasses the phrases "injury," "destruction," and "loss." Injury definitions applicable to specific resources are provided in § 11.62 of this part.

(w) "Lead authorized official" means an official authorized to act on behalf of all affected Federal or State agencies acting as trustees where there are multiple agencies affected because of coexisting or contiguous natural resources or concurrent jurisdiction.

(x) "Loss" means a measurable adverse reduction of a chemical or physical quality or viability of a natural resource.

(y) "National Contingency Plan" or "NCP" means the revisions to the National Oil and Hazardous Substances Contingency Plan promulgated by EPA in 1985, pursuant to section 105 of CERCLA and codified in 40 CFR Part 300.

(z) "Natural resources" means land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States (including the resources of the fishery conservation zone established by the Magnuson Fishery Conservation and Management Act of 1976), any State or local government, or any foreign government.

(aa) "Natural resource damage assessment" or "assessment" means the process of collecting, compiling, and analyzing information, statistics, or data through prescribed methodologies to determine damages for injuries to natural resources as set forth in this Part.

(bb) "Oil" means oil as defined in section 311(a)(1) of the CWA, as

amended, of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

(cc) "On-Scene Coordinator" or "OSC" means the On-Scene Coordinator as defined in § 300.6 of the NCP.

(dd) "Pathway" mean the route or medium through which oil or a hazardous substance is or was transported from the source of the discharge or release to the injured resource.

(ee) "Reasonable cost" means the amount that may be recovered for the cost of performing a damage assessment. Costs are reasonable when (1) the injury, quantification, and damage determination phases have a well-defined relationship to one another and are coordinated; and (2) the increment of extra benefits obtained by using a more costly injury, quantification, or damage determination methodology are greater than the costs of that methodology.

(ff) "Rebuttable presumption" means the procedural device provided by section 111(h) of CERCLA describing the evidentiary weight that a court, or EPA in a claim against the Fund, is required to give a damage assessment performed by a Federal agency acting as trustee in accordance with the regulations provided in this Part.

(gg) "Recovery period" means either the longest length of time required to return the services of the injured resource to their baseline conditions, or a lesser period of time selected by the authorized official in the Assessment Plan.

(hh) "Release" means a release of a hazardous substance as defined in section 101(22) of CERCLA.

(ii) "Replacement" or "acquisition of the equivalent" means the substitution for an injured resource with a resource that provides the same, similar, or related services, when such substitutions are in addition to any substitutions made or anticipated as part of response actions and when such substitutions exceed the level of response action determined appropriate to the site pursuant to § 300.65 and § 300.68 of the NCP.

(jj) "Response" means remove, removal, remedy, or remedial actions as those phrases are defined in sections 101(23) and 101(24) of CERCLA.

(kk) "Responsible party or parties" and "potentially responsible party or parties" means a person or persons described in or potentially described in one or more of the categories set forth in section 107(a) of CERCLA.

(ll) "Restoration" or "rehabilitation" means actions undertaken to return an injured resource to its baseline condition, as measured in terms of the injured resource's physical properties or the services it previously provided, when such actions are in addition to response actions completed or anticipated, and when such actions exceed the level of response actions determined appropriate to the site pursuant to § 300.65 and § 300.68 of the NCP.

(mm) "SDWA" means the Safe Drinking Water Act, 42 U.S.C. 300f–300j–10.

(nn) "Services" means the physical and biological functions performed by the resource including the human uses of those functions. These services are the result of the physical, chemical, or biological quality of the resource.

(oo) "Site" means an area or location, for purposes of response actions under the NCP, at which oil or hazardous substances have been stored, treated, released, disposed, placed, or otherwise came to be located.

(pp) "Special resources" means those natural resources that have been set aside and committed to a specific use by law before the discharge of oil or release of a hazardous substance was detected. The term includes resources that were set aside primarily to preserve wildlife habitat or other unique and sensitive environments. It does not include resources that have been set aside but are committed to multiple-use management, nor does it include resources listed on administratively determined lists for special protection, or resources protected by regulatory statutes.

(qq) "Surface water resources" means the waters of the United States, including the sediments suspended in water or lying on the bank, bed, or shoreline and sediments in or transported through coastal and marine areas. This term does not include ground water or water or sediments in ponds, lakes, or reservoirs designed for waste treatment under the Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. 6901–6987 or the CWA, and applicable regulations.

(rr) "Technical feasibility" or "technically feasible" means that the technology and management skills necessary to implement an Assessment Plan or Restoration Methodology Plan are well known and that each element of the plan has a reasonable chance of successful completion in an acceptable period of time, as determined by the authorized official.

(ss) "Trustee" means any Federal natural resources management agency designated in Subpart G of the NCP and any State agency that may prosecute claims for damages under section 107(f) or 111(b) of CERCLA.

(tt) "Type A assessment" means standard procedures for simplified assessments requiring minimal field observation to determine damages as specified in section 301(c)(2)(A) of CERCLA.

(uu) "Type B assessment" means alternative methodologies for conducting assessments in individual cases to determine the type and extent of short- and long-term injury and damages, as specified in section 301(c)(2)(B) of CERCLA.

### § 11.15 Actions against the responsible party for damages.

(a) In an action filed pursuant to section 107(f) of CERCLA, a Federal or State agency acting as a trustee may recover:

(1) Damages as determined in accordance with:

(i) Subpart D; or

(ii) As determined in accordance with §§ 11.80 through 11.84 of this part and calculated based on injuries occurring from the onset of the discharge or release through the recovery period, less any mitigation of those injuries by response actions taken or anticipated, plus any increase in injuries that are reasonably unavoidable as a result of response actions taken or anticipated;

(2) The costs of emergency restoration efforts under § 11.21 of this part; and

(3) The reasonable and necessary costs of the assessment, to include:

(i) The reasonable and necessary costs of the assessment, to include:

(i) The cost of performing the Preassessment Plan phases and the methodologies provided in Subparts D and E of this part; and

(ii) Administrative costs and expenses reasonably necessary for, and incidental to, the assessment, assessment and restoration planning, and any restoration or replacement undertaken.

(b) In a claim filed pursuant to section 311(f) (4) and (5) of the CWA, a Federal or State agency acting as trustee may only claim damages for restoration or replacement.

(c) The determination of the damage amount shall consider any applicable limitations provided for in section 107(c) of CERCLA.

### § 11.16 Claims against the Hazardous Substance Response Trust Fund.

Claims against the Fund shall be filed in accordance with the Natural Resource Claims Procedures, promulgated by EPA at 40 CFR Part 306.

**§ 11.17 Compliance with applicable laws and standards.**

(a) *Worker health and safety.* All worker health and safety considerations specified in the NCP, 40 CFR 400.38, shall be observed, except that requirements applying to response actions shall be taken to apply to the assessment process.

(b) *Resource protection.* Before taking any actions under this Part, particularly before taking samples or making determinations of restoration or replacement, compliance is required with any applicable statutory consultation or review requirements, such as the Endangered Species Act; the Migratory Bird Treaty Act; the Marine Protection, Research, and Sanctuaries Act; and the Marine Mammal Protection Act, that may govern the taking of samples or in other ways restrict alternative management actions.

## Subpart B—Preassessment Phase

**§ 11.20 Notification and detection.**

(a) *NCP responses.* Sections 300.52(d) and 300.64(d) of the NCP provide for the OSC or lead agency to notify the Federal or State agency acting as trustee when natural resources have been or are likely to be injured by a discharge of oil or a release of a hazardous substance being investigated under the NCP.

(b) *Previously unreported discharges or releases.* If a Federal or State agency acting as trustee identifies or is informed of apparent injuries to natural resources that appear to be a result of an unknown or previously unreported discharge of oil or release of a hazardous substance, he should first make reasonable efforts to determine whether a discharge or release has taken place. In the case of a discharge or release not yet reported or being investigated under the NCP, the Federal or State agency acting as the trustee shall report that discharge or release to the appropriate authority as designated in the NCP, 40 CFR 300.51(b) and 300.63(b).

(c) *Identification of co-trustees.* The Federal or State agency acting as trustee should assist the OSC or lead agency, as needed, in identifying other Federal or State agencies whose resources may be affected as a result of shared responsibility for the resources and who should be notified.

**§ 11.21 Emergency restorations.**

(a) *Reporting requirements and definition.* (1) In the event of a natural resource emergency, the Federal or State agency acting as trustee shall contact the National Response Center (800/424-8802) to report the actual or threatened discharge or release and to request that an immediate response action be taken.

(2) An emergency is any situation related to a discharge or release requiring immediate action to avoid an irreversible loss of natural resources or to prevent or reduce any continuing danger to natural resources, or a situation in which there is a similar need for emergency action.

(b) *Emergency actions.* If no immediate response actions are taken at the site of the discharge or release by the EPA or the U.S. Coast Guard within the time that the Federal or State agency acting as trustee determines is reasonably necessary, or if such actions are insufficient, the Federal or State agency acting as trustee should exercise any existing authority it may have to take on-site response actions. If no on-site response actions are taken, the Federal or State agency acting as trustee may undertake limited off-site restoration action to the extent necessary to prevent or reduce the immediate migration of the oil or hazardous substance onto or into the resource under the jurisdiction of the Federal or State agency acting as trustee.

(c) *Limitations on emergency actions.* The Federal or State agency acting as trustee may undertake only those actions necessary to abate the emergency situation. The normal procedures provided in this Part must be followed before any additional restoration actions other than those necessary to abate the emergency situation are undertaken. The burden of proving that emergency restoration was required and that restoration costs were reasonable and necessary based on information available at the time, rests with the Federal or State agency acting as trustee.

**§ 11.22 Sampling of potentially injured natural resources.**

(a) *General limitations.* Until the authorized official has made the determination required in § 11.23 of this Part to proceed with an assessment, field sampling of natural resources should be limited to the conditions identified in this section. All sampling and field work shall be subject to the provisions of § 11.17 of this Part concerning safety and applicability of resource protection statutes.

(b) *Early sampling and data collection.* Field samples may be collected or site visits may be made before completing the preassessment screen to preserve data and materials that are likely to be lost if not collected at that time and that will be necessary to the natural resource damage assessment. Field sampling and data collection at this stage should be coordinated with the lead agency under the NCP to minimize duplication of sampling and data collection efforts. Such field sampling and data collection should be limited to:

(1) Samples necessary to preserve perishable materials considered likely to have been affected by, and contain evidence of, the oil or hazardous substance. These samples generally will be biological materials that are either dead or visibly injured and that evidence suggests have been injured by oil or a hazardous substance;

(2) Samples of other ephemeral conditions or material, such as surface water or soil containing or likely to contain oil or a hazardous substance, where those samples may be necessary for identification and for measurement of concentrations, and where necessary samples may be lost because of factors such as dilution, movement, decomposition, or leaching if not taken immediately; and

(3) Counts of dead or visibly injured organisms, which may not be possible to take if delayed because of factors such as decomposition, scavengers, or water movement. Such counts shall be subject to the provisions of § 11.71(1)(5)(iii) of this part.

**§ 11.23 Preassessment screen—general.**

(a) *Requirement.* Before beginning any assessment efforts under this part, except as provided for under the emergency restoration provisions of § 11.21 of this part, the authorized official shall complete a preassessment screen and make a determination as to whether an assessment under this part shall be carried out.

(b) *Purpose.* The purpose of the preassessment screen is to provide a rapid review of readily available information that focuses on resources under the jurisdiction of the Federal or State agency acting as trustee. This review should ensure that there is a reasonable probability of making a successful claim before funds and efforts are expended in carrying out an assessment.

(c) *Determination.* When the authorized official has decided to proceed with an assessment under this part, the authorized official shall document the decision in terms of the criteria provided in paragraph (e) of this section in a Preassessment Screen Determination. This Preassessment Screen Determination shall be included in the Report of Assessment described in § 11.90 of this part.

(d) *Content.* The preassessment screen shall be conducted in accordance with the guidance provided in this section and in § 11.24—Preassessment screen—information on the site and § 11.25—Preassessment screen—preliminary identification of resources potentially at risk, of this part.

(e) *Criteria.* Based on information gathered pursuant to the preassessment screen and on information gathered pursuant to the NCP, the authorized official shall make a preliminary determination that all of the following criteria are met before proceeding with an assessment:

(1) A discharge of oil or a release of a hazardous substance has occurred;

(2) Natural resources under the jurisdiction of the Federal or State agency acting as trustee have been or are likely to have been adversely affected by the discharge or release;

(3) The quantity and concentration of the discharged oil or released hazardous substance is sufficient to potentially cause injury, as that term is used in this part, to those natural resources;

(4) Data sufficient to pursue an assessment are readily available or can be obtained at reasonable cost; and

(5) Response actions, if any, carried out or planned do not or will not sufficiently remedy the injury to natural resources without further action.

(f) *Coordination.* (1) In a situation where response activity is planned or underway at a particular site, assessment activity shall be coordinated with the lead agency consistent with § 300.33(b) of the NCP.

(2) Whenever, as part of a response action under the NCP, a preliminary assessment, 40 CFR 300.52 and 40 CFR 300.64, or an OSC Report, 40 CFR 300.40, is to be, or has been, prepared for the site, the authorized official should consult with the lead agency under the NCP, as necessary, and to the extent possible, use information or materials gathered for the preliminary assessment or OSC Report, unless doing so would unnecessarily delay the preassessment screen.

(3) Where a preliminary assessment or an OSC Report does not exist or does not contain the information described in this section, that additional information may be gathered.

(4) If the Federal or State agency acting as trustee already has a process similar to the preassessment screen, and the requirements of the preassessment screen can be satisfied by that process, the processes may be combined to avoid duplication.

**§ 11.24 Preassessment screen—information on the site.**

(a) *Information on the site and on the discharge or release.* The authorized official shall obtain and review readily available information concerning:

(1) The time, quantity, duration, and frequency of the discharge or release;

(2) The name of the hazardous substance, as provided for in table 302.4, "List of Hazardous Substances and Reportable Quantities," 50 FR 13456–13522 (1958);

(3) The history of the current and past use of the site identified as the source of the discharge of oil or release of a hazardous substance;

(4) Relevant operations occurring at or near the site;

(5) Additional oil or hazardous substances potentially discharged or released from the site; and

(6) Potentially responsible parties.

(b) *Damages excluded from liability under CERCLA.* (1) The authorized official shall determine whether the discharge or release:

(i) Was specifically identified as an irreversible and irretrievable commitment of natural resources in an environmental impact statement or other comparable environmental analysis, that the decision to grant the permit or license authorizes such commitment of natural resources, and that the facility or project was otherwise operating within the terms of its permit or license; or

(ii) Resulted from the application of a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. 135–135k; or

(iii) Resulted from any other federally permitted release.

(2) An assessment under this part shall not be continued for potential injuries meeting one or more of the criteria described in paragraph (b)(1) of this section, which are exceptions to liability provided in sections 107 (f), (i), and (j) of CERCLA.

**§ 11.25 Preassessment screen—preliminary identification of resources potentially at risk.**

(a) *Preliminary identification of pathways.* (1) The authorized official shall make a preliminary identification of potential exposure pathways to facilitate identification of resources at risk.

(2) Factors to be considered in this determination should include, as appropriate, the circumstances of the discharge or release, the characteristics of the terrain or body of water involved, weather conditions, and the known physical, chemical, and toxicological properties of the oil or hazardous substance.

(3) Pathways to be considered shall include, as appropriate, direct contact, surface water, ground water, air, food chains, and particulate movement.

(b) *Exposed areas.* An estimate of areas where exposure or effects may have occurred or are likely to occur shall be made. This estimate shall identify:

(1) Areas where it has been or can be observed that the oil or hazardous substance has spread;

(2) Areas to which the oil or hazardous substance has likely spread through pathways; and

(3) Areas of indirect effect, where no oil or hazardous substance has spread, but where biological populations may have been affected as a result of animals moving into or through the site.

(c) *Exposed water estimates.* The area of ground water or surface water that may be or has been exposed may be estimated by using the methods described in Appendix I of this part.

(d) *Estimates of concentrations.* An estimate of the concentrations of oil or a hazardous substance in those areas of potential exposure shall be developed.

(e) *Potentially affected resources.* (1) Based upon the estimate of the areas of potential exposure, and the estimate of concentrations in those areas, the authorized official shall identify natural resources under his jurisdiction that are potentially affected by the discharge or release. This preliminary identification should be used to direct further investigations, but it is not intended to preclude consideration of other resources later found to be affected.

(2) Natural resources potentially at risk that are special resources, as that phrase is used in this part, shall be identified.

(3) A preliminary estimate, based on information readily available from resource managers, of the services and human uses of the resources identified as potentially affected shall be made. This estimate will be used in determining which resources to consider if further assessment efforts are justified.

## Subpart C—Assessment Plan Phase

**§ 11.30 Assessment Plan—general.**

(a) *Assessment Plan requirement.* Before initiating any assessment methodologies provided in Subpart D for a type A assessment or in Subpart E for a type B assessments, the authorized official shall develop a plan for the assessment of natural resource damages. The Assessment Plan shall be

developed in accordance with the requirements and procedures provided in this Subpart.

(b) *Purpose.* The purpose of the Assessment Plan is to ensure that the assessment is performed in a planned and systematic manner and that methodologies selected from Subpart D for a type A assessment or from Subpart E for a type B assessment, including the Injury Determination, Quantification, and Damage Determination phases, can be conducted at a reasonable cost, as that phrase is used in this Part.

**§ 11.31 Assessment Plan—content.**

(a) *General content and level of detail.* (1) The Assessment Plan shall identify all of the scientific and economic methodologies that will be performed during the Injury Determination, Quantification, and Damage Determination phases of the type B assessment, or the specific type A procedure that will be performed.

(2) The Assessment Plan shall be of sufficient detail to serve as a means of evaluating whether the approach used for assessing the damage is cost-effective, as that phrase is used in this Part. The Assessment Plan shall include descriptions of the natural resources and the geographical areas involved. In addition, for type B assessment, the Assessment Plan shall include the sampling locations within those geographical areas, sample and survey design, numbers and types of samples to be collected, analyses to be performed, preliminary determination of the recovery period, and other such information required to perform the selected methodologies.

(b) *Decision on type A or type B assessment.* The Assessment Plan shall include documentation of the authorized official's decision as to whether to proceed with a type A or a type B assessment. This determination shall be based upon the guidance provided in § 11.33 of this Part.

(c) *Specific requirements for type B assessments.* When the Assessment Plan includes type B methodologies, the Plan shall incorporate the following, in addition to the material identified in § 11.31(a):

(1) The results of the confirmation of exposure performed in accordance with the requirements of § 11.34 of this part;

(2) The Economic Methodology Determination performed in accordance with the guidance provided in § 11.35 of this part;

(3) A Quality Assurance Plan that satisfies the requirements listed in § 300.68(k) of the NCP and applicable EPA guidance for quality control and quality assurance plans; and

(4) The objectives, as required in § 11.64(a)(2) of this part, of any testing and sampling for injury or pathway determination.

**§ 11.32 Assessment Plan—development.**

(a) *Pre-development requirements.* The authorized official shall fulfill the following requirements before developing an Assessment Plan.

(1) *Coordination.* (i) If the authorized official's responsibility is shared with other Federal or State agencies acting as trustees as a result of coexisting or contiguous natural resources or concurrent jurisdiction, the authorized official shall ensure that all other known affected Federal and State agencies are notified that an Assessment Plan is being developed. This notification shall include the results of the Preassessment Screen Determination.

(ii) Authorized officials from different agencies are encouraged to cooperate and coordinate any assessments that involve coexisting or contiguous natural resources or concurrent jurisdiction. They may arrange to divide responsibility for implementing the assessment in any manner that is agreed to by all of the affected Federal and State agencies acting as trustees with the following conditions:

(A) A lead authorized official shall be designated to administer the assessment. The lead authorized official shall act as coordinator and contact regarding all aspects of the assessment and shall act as final arbitrator of disputes if consensus among the authorized officials cannot be reached regarding the development, implementation, or any other aspect of the Assessment Plan. The lead authorized official shall be designated by mutual agreement of all the Federal or State agencies acting as trustees. If consensus cannot be reached as to the designation of the lead authorized official, the lead authorized official shall be designated in accordance with paragraphs (a)(1)(ii) (B), (C), or (D) of this section.

(B) When the natural resources being assessed are located on land or water subject to the administrative jurisdiction of a Federal agency acting as trustee, the Federal agency shall act as the lead authorized official.

(C) When the natural resources being assessed are located on land or water subject to the administrative jurisdiction of a State agency acting as trustee, the State shall act as the lead authorized official.

(D) When there is a natural resource claim against the Fund pursuant to section 1111(c)(3) of CERCLA, the lead authorized official will be designated in accordance with the natural resource claims procedures, 40 CFR Part 306.20(b).

(iii) If there is a reasonable basis for dividing the assessment, the Federal or State agencies acting as trustees may act independently and pursue separate assessments, actions, or claims. In these instances, the agencies shall coordinate their efforts, particularly those concerning the sharing of data and the development of the Assessment Plans.

(2) *Identification and involvement of the potentially responsible party.* (i) If the lead agency under the NCP for response actions at the site has not identified potentially responsible parties, the authorized official shall make reasonable efforts to identify any potentially responsible parties.

(ii) In the event the number of potentially responsible parties is large or if some of the potentially responsible parties cannot be located, the authorized official may proceed against any one or more of the parties identified.

(iii)(A) The authorized official shall send a Notice of Intent to Perform an Assessment to all identified potentially responsible parties. The Notice shall invite the participation of the potentially responsible party or, if several parties are involved, a representative of the parties, in the development of the type and scope of the assessment and in the performance of the assessment. The Notice shall briefly describe, to the extent known, the site, vessel, or facility involved, the discharge of oil or release of hazardous substance of concern to the authorized official, and the resources potentially at risk, including identification of any special resources considered at risk.

(B) The authorized official shall allow 30 calendar days for the potentially responsible party or parties notified to respond to the Notice before proceeding with the development of the Assessment Plan or any other assessment actions.

(b) *Plan approval.* The authorized official shall have final approval as to the appropriate methodologies to include in the Assessment Plan and of any modifications to the Assessment Plan.

(c) *Public involvement in the Assessment Plan.* (1) The Assessment Plan shall be made available for review by any identified potentially responsible parties, other Federal or State agencies acting as trustees, other affected Federal or State agencies, and any other interested members of the public for a period of at least 30 calendar days before the performance of any methodologies contained therein.

(2) Any comments concerning the Assessment Plan received from identified potentially responsible parties, other Federal or State agencies acting as trustees, other affected Federal or State agencies, and any other interested members of the public, together with any responses to those comments that may be developed, shall be maintained as part of the Report of Assessment, described in § 11.90 of this part.

(d) *Plan implementation.* At the option of any potentially responsible party, or of potentially responsible parties acting jointly, and with the concurrence of the authorized official, the potentially responsible party under the direction and guidance of the authorized official may implement all or any part of the Assessment Plan finally approved by the authorized official.

(e) *Plan modification.* (1) The Assessment Plan may be modified at any stage of the assessment as new information becomes available.

(2)(i) Any modification to the Assessment Plan that, in the judgment of the authorized official is significant, shall be made available for review by any identified potentially responsible party, any other affected Federal or State agencies acting as trustees, and any other interested members of the public for a period of at least 30 calendar days before tasks called for in the modified plan are begun.

(ii) Any modification to the Assessment Plan that the judgment of the authorized official is not significant shall be made available for review by any identified potentially responsible party, any other affected Federal or State agencies acting as trustees, and any other interested members of the public, but the implementation of such modification need not be delayed as a result of such review.

(f) *Plan review.* (1) After the Injury Determination phase is completed and before the Quantification phase is begun, the authorized official shall review the decisions incorporated in the Assessment Plan.

(2) The purpose of this review is to provide an opportunity to confirm the decisions made in the Economic Methodology Determination, or to make such determination if the determination was not completed in the plan development stage, and to ensure that the selection of methodologies for the Quantification and Damage Determination phases is consistent with the results of the Injury Determination phase.

**§ 11.33 Assessment Plan—deciding between a type A or type B assessment. [Reserved]**

**§ 11.34 Assessment Plan—confirmation of exposure.**

(a) *Requirement.* (1) In accordance with the requirements provided in this section, the authorized official shall confirm that at least one of the natural resources identified as potentially injured in the preassessment screen has in fact been exposed to the oil or hazardous substance.

(2) Type B assessment methodologies shall be included in the Assessment Plan only upon meeting the requirements of this section.

(b) *Procedures.* (1) Whenever possible, exposure shall be confirmed by using existing data, such as those collected for response actions by the OSC, or other available studies or surveys of the assessment area.

(2) Where sampling has been done before the completion of the preassessment screen, chemical analyses of such samples may be performed to confirm that exposure has occurred. Such analyses shall be limited to the number and type required for confirmation of exposure.

(3) Where existing data are unavailable or insufficient to confirm exposure, one or more of the analytical methodologies provided in the Injury Determination phase may be used. The collection and analysis of new data shall be limited to that necessary to confirm exposure and shall not include testing for baseline levels or for injury, as those phrases are used in this Part.

**§ 11.35 Assessment Plan—Economic Methodology Determination.**

(a) *Requirements.* Based upon the guidance provided in this section, the authorized official shall determine whether (1) restoration or replacement costs or (2) a diminution of use values will form the basis of the measure of damages. This determination, referred to as the Economic Methodology Determination, shall be used in developing the Assessment Plan for a type B assessment.

(b) *Determination.* (1) The Economic Methodology Determination shall be used to ascertain whether (i) restoration or replacement costs or (ii) a diminution of use values will form the basis of further economic analysis in the Damage Determination phase.

(2) Unless the injured resource is a special resource the authorized official shall select the lesser of (i) restoration or replacement costs or (ii) diminution of use values as the measure of damages.

(3) When restoration or replacement of the injured resource is not technically feasible, the diminution in use values, as determined by using the methodologies listed in § 11.83 of this Part, or other methodologies that meet the acceptance criteria in § 11.83 of this Part, shall constitute the measure of damages.

(c) *Cost and benefits.* (1) The Economic Methodology Determination shall estimate and document the costs of restoration or replacement and the benefits gained by restoration or replacement, of the resource or the resource services.

(2) The costs of restoration or replacement, as determined in paragraph (e) of this section, shall be measured by the anticipated management actions and resource acquisitions required to return the resource services lost as a result to the injury. In determining the costs of restoration or replacement, the costs of acquiring land for Federal management should be used only if this acquisition would represent the sole viable method of obtaining the lost service.

(3) The benefits of restoration or replacement, as determined in paragraph (e) of this section, shall be the restored uses associated with the anticipated management actions and resource acquisitions as determined in paragraph (c)(2) of this section.

(d) *Special resources.* (1) When the injured resource qualifies as a special resource, the authorized official may elect to seek damages based upon restoration or replacement costs.

(2) To assert a special resource restoration or replacement, the authorized official must show:

(i) The statutory obligation of the Federal or State agency acting as trustee to protect the resource;

(ii) Through the Economic Methodology Determination that restoration or replacement costs will not be grossly disproportionate to the benefits gained; and

(iii) The technical feasibility of the restoration or replacement.

(e) *Content.* (1) In performing the Economic Methodology Determination, existing data and studies should be relied upon. Significant new data collection or modeling efforts should not be performed at this stage of the assessment process to complete this determination.

(2) If existing data are insufficient to perform the Economic Methodology Determination, this analysis may be postponed until the Assessment Plan review stage at the completion of the Injury Determination phase of the assessment.

(3) Each Economic Methodology Determination should estimate the following benefits and costs:

(i) The expected present value, if possible, of anticipated restoration or replacement costs, expressed in constant dollars, and separated into capital, operating, and maintenance costs, and including the timing of the costs;

(ii) The expected present value, if possible, of anticipated use values gained through restoration or replacement, expressed in constant dollars, specified for the same base year as the cost estimate, and separated into recurring or nonrecurring benefits, including the timing of the benefit.

(4) Any estimates of costs and benefits shall make explicit all assumptions pertaining to costs and benefits and shall specify all sources of information. Any effects that cannot be expressed in monetary terms should be listed.

(5) The discount rate to be used in developing estimates of the expected present value of benefits and costs shall be that determined in accordance with the guidance in § 11.84(e) of this part.

## Subpart D—Type A Assessments [Reserved]

## Subpart E—Type B Assessments

### § 11.60 Type B Assessments—general.

(a) *Purpose.* The purpose of the type B assessment is to provide alternative methodologies for conducting natural resource damage assessments in individual cases.

(b) *Steps in the type B assessment.* The type B assessment consists of three phases: § 11.61—Injury Determination; § 11.70—Quantification; and § 11.80—Damage Determination, of this Part.

(c) *Completion of type B assessment.* After completion of the type B assessment, a Report of Assessment, as described in § 11.90, of this Part shall be prepared. The Report of Assessment shall include the determinations made in each phase.

### § 11.61 Injury Determination phase—general.

(a) *Requirement.* (1) The authorized official shall, in accordance with the procedures provided in the Injury Determination phase of this Part, determine 1) whether an injury to one or more of the natural resources has occurred, and 2) that the injury resulted from the discharge of oil or release of a hazardous substance based upon the exposure pathway and the nature of the injury.

(2) The Injury Determination phase consists of § 11.61—general; § 11.62—injury definition; § 11.63—pathway determination; and § 11.64—testing and sampling methods, of this Part.

(b) *Purpose.* The purpose of the Injury Determination phase is to ensure that only assessments involving well documented injuries resulting from the discharge of oil or release of hazardous substance proceed through the type B assessment.

(c) *Injury Determination phase steps.* (1) The authorized official shall determine whether the potentially injured resource constitutes a surface water, group water, air, geologic, or biological resource as defined in § 11.14 of this Part. The authorized official shall then proceed in accordance with the guidance provided in the injury definition section, § 11.62 of this Part, to determine if the resource is injured.

(2) The authorized official shall follow the guidance provided in the testing and sampling methods section, § 11.64 of this part, in selecting the methodology for determining injury. The authorized official shall select from available testing and sampling procedures one or more procledures that meet the requirements of the selected methodologies.

(3) The authorized official shall follow the guidance provided in the pathway section, § 11.63 of this part, to determine the route through which the oil or hazardous substance is or was transported from the source of the discharge or release to the injured resource.

(4) If more than one resource has potentially been injured, an injury determination for each resource shall be made in accordance with the guidance provided in each section of the Injury Determination phase.

(d) *Selection of methodologies.* (1) One of the methodologies provided in § 11.64 of this Part for the potentially injured resource, or one that meets the acceptance criteria provided for that resource, shall be used.

(2) Selection of the methodologies for the Injury Determination phase shall be based upon cost-effectiveness as that phrase is used in this part.

(e) *Completion of Injury Determination phase.* (1) Upon completion of the Injury Determination phase, the Assessment Plan shall be reviewed in accordance with the requirements of § 11.32(f) of this part.

(2) When the authorized official has determined that one or more of the natural resources has been injured as a result of the discharge or release, the authorized official may proceed to the Quantification and the Damage Determination phases.

(3) When the authorized official has determined that an injury has not occurred to at least one of the natural resources or that an injury has occurred but that the injury cannot be linked to the discharge or release, the authorized official shall not pursue further assessment under this part.

### § 11.62 Injury Determination phase—injury definition.

(a) The authorized official shall determine that an injury has occurred to natural resources based upon the definitions provided in this section for surface water, ground water, air, geologic, and biological resources. The authorized official shall test for injury using the methodologies and guidance provided in § 11.64 of this part. The test results of the methodologies must meet the acceptance criteria provided in this section to make a determination of injury.

(b) *Surface water resources.* (1) An injury to a surface water resource has resulted from the discharge of oil or release of a hazardous substance if one or more of the following changes in the physical or chemical quality of the resource is measured:

(i) Concentrations and duration of substances in excess of drinking water standards as established by sections 1411–1416 of SDWA, or by other Federal or State laws or regulations that establish such standards for drinking water, in surface water that was potable before the discharge or release;

(ii) Concentrations and duration of substances in excess of water quality criteria established by section 1401(1)(D) of SDWA, or by other Federal or State laws or regulations that establish such criteria for public water supplies, in surface water that before the discharge or release met the criteria and was used or is committed to use, as the phrase is used in this Part, as a public water supply;

(iii) Concentrations and duration of substances in excess of applicable water quality criteria established by section 304(a)(1) of the CWA or by other Federal or State laws or regulations that establish such criteria, in surface water that before the discharge release met the criteria and was used or is a committed use, as that phrase is used in this Part, as a habitat for aquatic lite, water supply, or recreation. This most stringent criterion shall apply when surface water is used or is committed to use for more than one of these purposes;

(iv) Concentrations and duration of substances on bed, bank, or shoreline

sediments sufficient to cause the sediment to exhibit characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act, 42 U.S.C. 6921; or

(v) Concentrations and duration of substances sufficient to have caused injury as defined in paragraph (d), (e), or (f) of this section to air, geologic, or biological resources, when exposed to surface water, suspended sediments, or bed, bank, or shoreline sediments.

(2)(i) The acceptance criterion for injury to the surface water resource is the measurement of concentrations of oil or a hazardous substance in two samples from the resource. The samples must be one of the following types:

(A) Two water samples from different locations, separated by a straight-line distance of not less than 100 feet; or

(B) Two bed, bank, or shoreline sediment samples from different locations separated by a straight-line distance of not less than 100 feet; or

(C) One water sample and one bed, bank, or shoreline sediment sample; or

(D) Two water samples from the same location collected at different times.

(ii) In those instances when injury is determined and no oil or hazardous substances are detected in samples from the surface water resource, it must be demonstrated that the substance causing injury occurs or has occurred in the surface water resource as a result of physical, chemical, or biological reactions initiated by the discharge of oil or release of a hazardous substance.

(c) *Ground water resources.* (1) Any injury to the ground water resource has resulted from the discharge of oil or release of a hazardous substance if one or more of the following changes in the physical or chemical quality of the resource is measured:

(i) Concentrations of substances in excess of drinking water standards, established by section 1411–1416 of the SDWA, or by other Federal or State laws or regulations that establish such standards for drinking water, in ground water that was potable before the discharge or release;

(ii) Concentrations of substances in excess of water quality criteria, established by section 1401(1)(d) of the SDWA, or by other Federal or State laws or regulations that establish such criteria for public water supplies, in ground water that before the discharge or release met the criteria and was used or is committed to use, as the phrase is used in this Part, as a public water supply;

(iii) Concentrations of substances in excess of applicable water quality criteria, established by section 304(a)(1) of the CWA or by other Federal or State laws or regulations that establish such criteria for domestic water supplies, in ground water that before the discharge or release met the criteria and was used or is committed to use as the phrase is used in this Part, as a domestic water supply; or

(iv) Concentrations of substances sufficient to have caused injury as defined in paragraph (b), (d), (e), or (f) of this section to surface water, air, geologic, or biological resources, when exposed to ground water.

(2) The acceptance criterion for injury to ground water resources is the measurement of concentrations of oil or a hazardous substance in two ground water samples. The water samples must be from the same geohydrologic unit and must be obtained from one of the following pairs of sources:

(i) Two properly constructed wells separated by a straight-line distance of not less than 100 feet; or

(ii) A properly constructed well and a natural spring or seep, separated by a straight-line distance of not less than 100 feet; or

(iii) Two natural springs or seeps, separated by a straight-line distance of not less than 100 feet.

(3) In those instances when injury is determined and no oil or hazardous substance is detected in samples from the ground water resource, it must be demonstrated that the substance causing injury occurs or has occurred in the ground water resource as a result of physical, chemical, or biological reactions initiated by the discharge of oil or release of hazardous substances.

(d) *Air resources.* An injury to the air resource has resulted from the discharge of oil or release of a hazardous substance if one or more of the following changes in the physical or chemical quality of the resource is measured:

(1) Concentrations of emissions in excess of standards for hazardous air pollutants established by section 112 of the Clean Air Act, 42 U.S.C. 7412, or by other Federal or State air standards established for the protection of public welfare or natural resources; or

(2) Concentrations and duration of emissions sufficient to have caused injury as defined in paragraphs (b), (c), (e), or (f) of this section to surface water, ground water, geologic, or biological resources when exposed to the emissions.

(e) *Geologic resources.* An injury to the geologic resource has resulted from the discharge of oil or release of a hazardous substance if one or more of the following changes in the physical or chemical quality of the resource is measured:

(1) Concentrations of substances sufficient for the materials in the geologic resource to exhibit characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act, 42 U.S.C. 6921;

(2) Concentrations of substances sufficient to cause or contribute to a loss of geologic resources throug erosion by wind or surface water;

(3) Concentrations of substances sufficient to raise the negative logarithm of the hydrogen ion concentration of the soil (pH) to above 8.5 (above 7.5 in humid areas) or to reduce it below 4.0;

(4) Concentrations of substances sufficient to yield a salt saturation value greater than 2 micromhos per centimeter in the soil or an exchangeable sodium percentage greater than 15 percent;

(5) Concentrations of substances sufficient to decrease the water holding capacity such that plant, microbial, or invertebrate populations are affected;

(6) Concentrations of substances sufficient to impede soil microbial respiration to an extent that plant and microbial growth have been inhibited;

(7) Concentrations in the soil of substances sufficient to inhibit carbon mineralization resulting from a reduction in soil microbial populations;

(8) Concentrations of substances sufficient to restrict the ability to access, develop, or use mineral resources within or beneath the geologic resource exposed to the oil or hazardous substance;

(9) Concentrations of substances sufficient to have caused injury to ground water, as defined in paragraph (c) of this section, from physical or chemical changes in gases or water from the unsaturated zone;

(10) Concentrations in the soil of substances sufficient to cause a toxic response to soil invertebrates;

(11) Concentrations in the soil substances sufficient to cause a phytotoxic response such as retardation of plant growth; or

(12) Concentrations of substances sufficient to have cause injury as defined in paragraphs (b), (c), (d), or (f) of this section of surface water, ground water, air, or biological resources when exposed to the substances.

(f) *Biological resources.* (1) An injury to a biological resource has resulted from the discharge of oil or release of a hazardous substance if concentration of the substance is sufficient to:

(i) Cause the biological resource or its offspring to have undergone at least one of the following adverse changes in viability: death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions

(including malfunctions in reproduction), or physical deformations; or

(ii) Exceed action or tolerance levels established under section 402 of the Food, Drug and Cosmetic Act, 21 U.S.C. 342 in edible portions of organisms; or

(iii) Exceed levels for which an appropriate State health agency has issued directives to limit or ban consumption of such organism.

(2) The method for determining injury to a biological resource, as defined in paragraph (f)(1)(i) of this section, shall be chosen based upon the capability of the method to demonstrate a measurable biological response. An injury can be demonstrated if the authorized official determines that the biological response under consideration can satisfy all of the following acceptance criteria:

(i) The biological response is often the result of exposure to oil or hazardous substances. This criterion excludes biological responses that are caused predominately by other environmental factors such as disturbance, nutrition, trauma, or weather. The biological response must be a commonly documented response resulting from exposure to oil or hazardous substances.

(ii) Exposure to oil or hazardous substances is known to cause this biological response in free-ranging organisms. This criterion identifies biological response that have been documented to occur in a natural ecosystem as a result of exposure to oil or hazardous substances. The documentation must include the correlation of the degree of the biological response to the observed exposure concentration of the oil or hazardous substances.

(iii) Exposure to oil or hazardous substances is known to cause this biological response in controlled experiments. This criterion provides a quantitative confirmation of a biological response that may be linked to oil or hazardous substance exposure that has been observed in a natural ecosystem. Biological responses that have been documented only in controlled experimental conditions are insufficient to establish correlation with exposure occurring in a natural ecosystem.

(iv) The biological response measurement is practical to perform and produces scientifically valid results. The biological response measurement must be sufficiently routine such that it is practical to perform the biological response measurement and to obtain scientifically valid results. To meet this criterion, the biological response measurement must be adequately documented in scientific literature, must produce reproducible and verifiable results, and must have well defined and accepted statistical criteria for interpreting as well as rejecting results.

(3) Unless otherwise provided for in this section, the injury determination, must be based upon the establishment of a statistically significant difference in the biological response between samples from populations in the assessment area and in the control area. The determination as to what constitutes a statistically significant difference must be consistent with the quality assurance provisions of the Assessment Plan. The selection of the control area shall be consistent with the guidance provided in § 11.72 of this part.

(4) The biological responses listed in this paragraph have been evaluated and found to satisfy the acceptance criteria provided in (f)(2) of this section. The authorized offical may, when appropriate, select from this list to determine injury to fish and wildlife resources. The biological responses are listed by the categories of injury for which they may be applied.

(i) *Category of injury—death.* Four biological responses for determining when death is a result of exposure to the discharge of oil or release of a hazardous substance have met the acceptance criteria.

(A) *Brain cholinesterase (ChE) enzyme activity.* Injury has occurred when brain ChE activity in a sample from the population has been inhibited by at least 50 percent compared to the mean for normal brain ChE activity of the wildlife species. These enzymes are in the nervous system of vertebrate organisms and the rate of ChE activity is associated with the regulation of nerve impulse transmission. This biological response may be used when anti-ChE substances, such as organophosphorus and carbamate pesticides, are suspected to have resulted in death to bird and mammal species.

(b) *Fish kill investigations.* Injury has occurred when a significant increase in the frequency or numbers of dead or dying fish can be measured in accordance with procedures contained in Part II of "Monetary Values of Freshwater Fish and Fish-Kill Counting Guidelines," (American Fisheries Society Special Publication Number 13, 1982; available from the American Fisheries Society, 5410 Grosvenor Lane, Suite 110, Bethesda, MD 20814).

(C) *In situ bioassay.* Injury has occurred when a statistically significant difference can be measured in the total mortality and/or mortality rates between population samples exposed in situ to a his charge of oil or a release of hazardous substance and those in a control site. In situ caged or confined bioassay may be used when oil or hazardous substances are suspected to have caused death to fish species.

(D) *Laboratory toxicity testing.* Injury has occurred when a statistically significant difference can be measured in the total mortality and/or mortality rates between population samples of the test organisms placed in exposure chambers containing concentrations of oil or hazardous substances and those in a control chamber. Published standardized laboratory fish toxicity testing methodologies for acute flow-through, acute static, partial-chronic (early life stage), and chronic (life cycle) toxicity tests may be used. The oil or hazardous substance used in the test must be reasonably comparable to that suspected to have caused death to the natural population of fish.

(ii) *Category of injury—disease.* One biological response for determining when disease is a result of exposure to the discharge of oil or release of a hazardous substance has met the acceptance criteria.

(A) *Fin erosion.* Injury has occurred when a statistically significant difference can be measured in the frequency of occurrence of fin erosion (also referred to as fin rot) in a population sample from the assessment area as compared to a sample from the control area. Fin erosion shall be confirmed by appropriate histological procedures. Fin erosion may be used when oil or hazardous substances are suspected to have caused the disease.

(iii) *Category of injury—behavioral abnormalities.* Two biological responses for determining when behavioral abnormalities are a result of the exposure to the discharge of oil or release of a hazardous substance have met the acceptance criteria.

(A) *Clinical behavioral signs of toxicity.* Injury has occurred when two or more wildlife organisms present in the assessment area exhibit similar clinical behavioral signs that have been documented in pubished literature. If similar behavioral signs are observed at a comparable control area, then injury has occurred when a statistically significant difference can be measured in the frequency of such behavioral signs observed in population samples from the two areas. Clinical behavioral signs of toxicity are characteristic behavioral symptoms expressed by an organism in response to exposure to an oil or hazardous substance.

(B) *Avoidance.* Injury has occurred when a statistically significant difference can be measured in the frequency of avoidance behavior in population samples of fish placed in

testing chambers with equal access to water containing oil or a hazardous substance and the control water. The oil or hazardous substance used in the test must be reasonably comparable to that suspected to have caused avoidance to the natural populations of fish.

(iv) *Category of injury—cancer.* One biological response for determining when cancer is a result of exposure to the discharge of oil or release of a hazardous substance has met the acceptanace criteria.

(A) *Fish neoplasm.* Injury has occurred when a statistically significant difference can be measured in the frequency of occurrence of the fish neoplasia when comparing population samples from the assessment area and a control area. Neoplasms are characterized by relatively autonomous growth of abnormal cells that by proliferation infiltrate, press upon, or invade healthy tissue thereby causing destruction of cells, interference with physiological functions, or death of the organism. The following type of fish neoplasia may be used to determine injury: liver neoplasia and skin neoplasia. The neoplasms shall be confirmed by histological procedures and such confirmation procedures may also include special staining techniques for specific tissue components, ultra-structural examination using electron microscopy to identify cell origin, and to rule out or confirm viral, protozoan, or other causal agents. Fish neoplasm may be used to determine injury when oil or hazardous substances are suspected to have been the causal agent.

(v) *Category of injury—physiological malfunctions.* Five biological responses for determining when physiological malfunctions are a result of exposure to a discharge of oil or release of a hazardous substance have met the acceptance criteria.

(A) *Eggshell thinning.* Injury has occurred when eggshell thicknesses for samples for a population of a given species at the assessment area are thinner than those for samples from a control population at an uncontaminated area, or are at least 15 percent thinner than eggshells collected before 1946 from the same geographic area and stored in a museum. This biological response is a measure of avian eggshell thickness resulting from the adult bird having assimilated the oil or hazardous substance. This biological response may be used when the organochlorine pesticide DDT or its metabolites are suspected to have caused such physiological malfunction injury.

(B) *Reduced avian reproduction.* Injury has occurred when a statistically significant difference can be measured in the mean number of young fledged per active nest when comparing samples from populations in the assessment area and a control area. The fledging success (the number of healthy young leaving the nest) shall be used as the measurement of injury. Factors that may contribute to this measurement include egg fertility, hatching success, and survival of young. This biological response may be used when oil or hazardous substances are suspected to have reduced the nesting success of avian species.

(C) *Cholinesterase (ChE) enzyme inhibition.* Injury has occurred when brain ChE activity in a sample from the population at the assessment area shows a statistically significant inhibition when compared to the mean activity level in samples from populations in a control area. These enzymes are in the nervous system of vertebrate organisms and the rate of ChE activity is associated with the regulation of nerve impulse transmission. This biological response may be used as a demonstration of physiological malfunction injury to birds, mammals, and reptiles when anti-ChE substances, such as organophosphorus and carbamate pesticides, have been discharged or released.

(D) *Delta-aminolevulinic acid dehydratase (ALAD) inhibition.* Injury has occurred when the activity level of whole blood ALAD in a sample from the population of a given species at an assessment area is significantly less than mean values for a population at a control area, and ALAD depression of at least 50 percent can be measured. The ALAD enzyme is associated with the formation of hemoglobin in blood and in chemical detoxification processes in the liver. This biological response is a measure of the rate of ALAD activity. This biological response may be used to determine injury to bird and mammal species that have been exposed to lead.

(E) *Reduced fish reproduction.* Injury has occurred when a statistically significant difference in reproduction success between the control organisms and the test organisms can be measured based on the use of published standardized laboratory toxicity testing methodologies. This biological response may be used when the oil or hazardous substance is suspected to have caused a reduction in the reproductive success of fish species. Laboratory partial-chronic and laboratory chronic toxicity tests may be used. The oil or hazardous substance used in the test must be reasonably comparable to that suspected to have caused reduced reproductive success in the natural population of fish.

(vi) *Category of injury—physical deformation.* Four biological responses for determining when physical deformations are a result of exposure to the discharge of oil or release of a hazardous substance have met the injury acceptance criteria.

(A) *Overt external malformations.* Injury has occurred when a statistically significant difference can be measured in the frequency of overt external malformation, such as small or missing eyes, when comparing samples from populations of wildlife species from the assessment area and a control area. This biological response may be used as a demonstration of injury when such physical deformations are observed in wildlife species exposed to oil or hazardous substances.

(B) *Skeletal deformities.* Injury has occurred when a statistically significant difference can be measured in the frequency of skeletal deformities, such as defects in the growth of bones, when comparing samples from populations of wildlife species from the assessment area and a control area. This biological response may be used as a demonstration of injury when such physical deformations are observed in wildlife species exposed to oil or hazardous substances.

(C) *Internal whole organ and soft tissue malformation.* Injury has occurred when a statistically significant difference can be measured in the frequency of malformations to brain, heart, liver, kidney, and other organs, as well as soft tissues of the gastrointestinal tract and vascular system, when comparing samples from populations of wildlife species in the assessment area and a control area. This biological response may be used as a demonstration of injury when such physical deformations are observed in wildlife species exposed to oil or hazardous substances.

(D) *Histopathological lesions.* Injury has occurred when a statistically significant difference can be measured in the frequency of tissue or cellular lesions when comparing samples from populations of wildlife species from the assessment area and a control area. This biological response may be used as a demonstration of injury when such physical deformations are observed in wildlife species exposed to oil or hazardous substances.

**§ 11.63 Injury Determination phase—pathway determination.**

(a) *General.* (1) To determine the exposure pathways of the oil or

hazardous substance, the following shall be considered:

(i) The chemical and physical characteristics of the discharged oil or released hazardous substance when transported by natural processes or while present in natural media;

(ii) The rate or mechanism of transport by natural processes of the discharged oil or released hazardous substance; and

(iii) Combinations of pathways that, when viewed together, may transport the discharged oil or released hazardous substance to the resource.

(2) The pathway may be determined by either demonstrating the presence of the oil or hazardous substance in sufficient concentrations in the pathway resource or by using a model that demonstrates that the conditions existed in the route and in the oil or hazardous substance such that the route could have served as the pathway.

(3) To the extent that the information needed to make this determination is not available, tests shall be conducted and necessary data shall be collected to meet the requirements of this section. Methods that may be used to conduct these additional tests and collect new information are described in § 11.64 of this part.

(b) *Surface water pathway.* (1) When the surface water resource is suspected as the pathway or a component of the pathway, the authorized official shall determine, using guidance provided in this paragraph, whether the surface water resource, either solely or in combination with other media, served as the exposure pathway for injury to the resource.

(2)(i) Using available information and such additional tests as necessary, it should be determined whether the surface water resource downstream of the source of discharge or release has been exposed to oil or hazardous substance.

(ii) When the source of discharge or release is on an open water body such as a marsh, pond, lake, reservoir, bay, estuary, gulf, and sound, it should be determined, using available information and such additional tests as necessary, whether the surface water resource in the vicinity of the source of discharge or release has been exposed to oil to or hazardous substance.

(3)(i) If a surface water resource is or likely has been exposed, the areal extent of the exposed surface water resource should be estimated, including delineation of:

(A) Channels and reaches;

(B) Seasonal boundaries of open water bodies; and

(C) Depth of exposed bed, bank, or shoreline sediments.

(ii) As appropriate to the exposed resource, the following should be determined:

(A) Hydraulic parameters and streamflow characteristics of channels and reaches;

(B) Bed sediment and suspended sediment characteristics, including grain size, grain mineralogy, and chemistry of grain surfaces;

(C) Volume, inflow-outflow rates, degree of stratification, bathymetry, and bottom sediment characteristics of surface water bodies;

(D) Suspended sediment concentrations and loads and bed forms and loads of streams and tidally affected water; and

(E) Tidal flux, current direction, and current rate in coastal and marine waters.

(4)(i) Using avialable information and data from additional tests as necessary, the mobility of the oil or hazardous substance in the exposed surface water resource should be estimated. This estimate should consider such physical and chemical characteristics of the oil or hazardous substance as aqueous solubility, aqueous miscibility, density, volatility, potential for chemical degradation, chemical precipitation, biological degradation, biological uptake, and adsorption.

(ii) Previous studies of the characteristics discussed in paragraph (b)(4)(i) of this section should be relied upon if hydraulic, physical, and chemical conditions in the exposed surface water resource are similar to experimental conditions of the previous studies. In the absence of this information, those field and laboratory studies necessary to estimate the mobility of the oil or hazardous substance in surface water flow may be performed.

(5)(i) The rate of transport of the oil or hazardous substance in surface water should be estimated using available information and with consideration of the hydraulic properties of the exposed resource and the physical and chemical characteristics of the oil or hazardous substance.

(ii) Transport rates may be estimated using:

(A) The results of previous time-of-travel and dispersion studies made in the exposed surface water resource before the discharge or release;

(B) The results of previous studies, conducted with the same or similar chemical substances to those discharged or released under experimental conditions similar to the hydraulic, chemical, and biological conditions in the exposed surface water resource;

(C) The results of field measurements of time-of-travel and dispersion made in the exposed or comparable surface water resource, using natural or artificial substances with transport characteristics that reasonably approximate those of the oil or hazardous substance; and

(D) The results of simulation studies using the results of appropriate time-of-travel and dispersion studies in the exposed or comparable surface water resource.

(c) *Ground water pathway.* (1) When ground water resources are suspected as the pathway or a component of the pathway, the authorized official shall determine, using guidance provided in this paragraph, whether ground water resources, either solely or in combination with other media, served as the exposure pathway for injury to the resource.

(2) Using available information and such additional tests as necessary, it should be determined whether the unsaturated zone, the ground water, or the geologic materials beneath or downgradient of the source of discharge or release have been exposed to the oil or hazardous substance.

(3) If a ground water resource is or likely has been exposed, available information and such additional tests should be used as necessary to determine the characteristics of the unsaturated zone, as well as any aquifers and confining units containing the exposed ground water, in the vicinity of the source of discharge or release.

The characteristics of concern include:

(i) Local geographical extent of aquifers and confining units;

(ii) Seasonal depth to saturated zone beneath the site;

(iii) Direction of ground water flow in aquifers;

(iv) Local variation in direction of ground water flow resulting from seasonal or pumpage effects;

(v) Elevation of top and bottom of aquifer and confining units;

(vi) Lithology, mineralogy, and porosity of rocks or sediments comprising the unsaturated zone, aquifers, and confining units;

(vii) Transmissivity and hydraulic conductivity of aquifers and confining units; and

(viii) Nature and amount of hydraulic connection between ground water and local surface water resources.

(4)(i) Using available information and such additional tests as necessary, the

mobility of the oil or hazardous substance within the unsaturated zone and in the exposed ground water resources should be estimated. This estimate should consider such physical and chemical characteristics of the oil or hazardous substance as aqueous solubility, aqueous miscibility, density, volatility, potential for chemical degradation, chemical precipitation, biological degradation, biological uptake, and adsorption onto solid phases in the unsaturated zone, aquifers, and confining units.

(ii) Previous studies of the characteristics discussed in paragraph (c)(4)(i) of this section should be relied upon if geohydrologic, physical, and chemical conditions in the exposed ground water resource are similar to experimental conditions of the previous studies. In the absence of this information, field and laboratory studies may be performed as necessary to estimate the mobility of the oil or hazardous substance within the unsaturated zone and in ground water flows.

(5)(i) The rate of transport of the oil or hazardous substance in ground water should be estimated using available information and with consideration of the geohydrologic properties of the exposed resource and the physical and chemical characteristics of the oil or hazardous substance.

(ii) Transport rates may be estimated using:

(A) Results of previous studies conducted with the same or similar chemical substance, under experimental geohydrological, physical, and chemical conditions similar to the ground water resource exposed to the oil or hazardous substance;

(B) Results of field measurements that allow computation of arrival times of the discharged or released substance at downgradient wells, so that an empirical transport rate may be derived; or

(C) Results of simulation studies, including analog or numerical modeling of the ground water system.

(d) *Air pathway.* (1) When air resources are suspected as the pathway or a component of the pathway, the authorized official shall determine, using guidance provided in this paragraph, whether the air resources either solely or in combination with other media, served as the exposure pathway for injury to the resource.

(2) Using available information, air modeling, and additional field sampling and analysis, it should be determined whether air resources have been exposed to the discharge of oil or release of a hazardous substance.

(3)(i) If an air resource is or has likely been exposed, available information and such additional tests as necessary should be used to estimate the areal extent of exposure and the duration and frequency of exposure of such areas to emissions from the discharge of oil or release of a hazardous substance.

(ii) The areal extent of exposure is defined as the geographical surface area or space where emissions from the source of discharge or release are found or otherwise determined to be present for such duration and frequency as to potentially result in injury to resources present within the area or space.

(4) Previous studies of the characteristics discussed in paragraph (d)(3)(i) of this section should be relied upon if the conditions in the exposed air resource are similar to experimental conditions of the previous studies. In the absence of this information, air sampling and analysis methods identified in § 11.64(d) of this part, air modeling methods, or a combination of these methods may be used in identifying the air exposure pathway and in estimating the areal extent of exposure and duration and frequency of exposure.

(5) For estimating the areal extent, duration, and frequency of exposure from the discharge or release, the following factors shall be considered as may be appropriate for each emissions event:

(i) The manner and nature in which the discharge or release occurs, including the duration of the emissions, amount of the discharge or release, and emergency or other time critical factors;

(ii) The configuration of the emitting source, including sources such as ponds, lagoons, pools, puddles, land and water surface spills, and venting from containers and vessels;

(iii) Physical and chemical properties of substances discharged or released, including volatility, toxicity, solubility, and physical state;

(iv) The deposition from the air and re-emission to the air of gaseous and paticulate emissions that provide periodic transport of the emissions; and

(v) Air transport and dispersion factors, including wind speed and direction, and atmospheric stability and temperature.

(e) *Geologic pathway.* (1) When geologic resources are suspected as the pathway or a component of the pathway, the authorized offical shall determine, using guidance provided in this paragraph, whether geologic resources, either solely or in combination with other media, served as the exposure pathway for injury to the resource.

(2)(i) Using available information and the methods listed in § 11.64(e) of this part, it should be determined whether any element of the geologic resource has been exposed to the oil or hazardous substance. If a geologic resource is or has likely been exposed, the areal extent of the exposed geologic resource, including the lateral and vertical extent of the dispersion, should be estimated.

(ii) To determine whether the unsaturated zone served as a pathway, the guidance provided in paragraph (c) of this section should be followed.

(f) *Biological pathway.* (1) When biological resources are suspected as the pathway or a component of the pathway, the authorized official shall determine, using the guidance provided in this paragraph, whether biological resources, either solely or in combination with other media, served as the exposure pathway for injury to the resource.

(2) Biological pathways that resulted from either direct or indirect exposure to the oil or hazardous substance, or from exposure to products of chemical or biological reactions initiated by the discharge or release shall be identified. Direct exposure can result from direct physical contact with the discharged oil or released hazardous substance. Indirect exposure can result from food chain processes.

(3) If the oil or hazardous substance adhered to, bound to, or otherwise covered surface tissue, or was ingested, or inhaled but not assimilated, the area of dispersion may be determined based upon chemical analysis of the appropriate tissues or ograns (such as leaves, lumgs, stomach, intestine, or their contents) that were directly exposed to the oil or hazardous substance.

(4) If the oil or hazardous substance was assimilated, the areal dispersion may be determined based upon one or more the following alternative procedures;

(i) If direct exposure to the biological resource has occurred, chemical analysis of the organisms that have been exposed may be performed.

(ii) If indirect exposure to the biological resource has occurred, either chemical analysis of free-ranging biological resources using one or more indicator species as appropriate, or laboratory analysis of one or more in situ placed indicator species as appropriate, may be performed.

(A) "Indicator species," as used in this section, means a species of organism selected consistent with the following factors to represent a trophic level of a food chain:

(1) General availability of resident organisms in the assessment area;

(2) Potential for exposure to the oil or hazardous substance through ingestion, assimilation, or inhalation;

(3) Occurrence of the substance in a chemical form that can be assimilated by the organism;

(4) Capacity of the organism to assimilate, bioconcentrate, bioaccumulate, and/or biomagnify the substance;

(5) Capacity of the organism to metabolize the substance to a form that cannot be detected through available chemical analytical procedures; and

(6) Extent to which the organism is representative of the food chain of concern.

(B) Collection of the indicator species should be limited to the number necessary to define the areal dispersion and to provide sufficient sample volume for chemical analysis.

(C) When in situ procedures are used, indicator species that behave comparably to organisms existing under free-ranging conditions shall be collected. The indicator species used in this procedure must be obtained from a control area selected consistent with provisions of § 11.72 of this part, and appropriate chemical analysis shall be performed on a representative subsample of the indicator species before in situ placement.

(iii) In situ placement procedures shall be used where the collection of samples would be inconsistent with the provisions of § 11.17(b) of this part.

(5) Sampling sites and the number of replicate samples to be collected at the sampling sites shall be consistent with the quality assurance provisions of the Assessment Plan.

(6) Chemical analysis of biological resource samples collected for the purpose of this section shall be conducted in accordance with the quality assurance provisions of the Assessment Plan.

**§ 11.64 Injury Determination phase—testing and sampling methods.**

(a) *General.* (1) The guidance provided in this section shall be followed for selecting methodologies for the Injury Determination phase.

(2) Before selecting methodologies, the objectives to be achieved by testing and sampling shall be defined. These objectives shall be listed in the Asssessment Plan. In developing these objectives, the availability of information from response actions relating to the discharge or release, the resource exposed, the characteristics of the oil or hazardous substance, potential physical, chemical, or biological reactions initiated by the discharge or release, the potential injury, the pathway of exposure, and the potential for injury resulting from that pathway should be considered.

(3) When selecting testing and sampling methods, only those methodologies shall be selected:

(i) For which performance under conditions similar to those anticipated at the assessment area has been demonstrated;

(ii) That ensure testing and sampling performance will be cost-effective;

(iii) That will produce data that were previously unavailable and that are needed to make the determinations; and

(iv) That will provide data consistent with the data requirements of the Quantification phase.

(4) Specific factors that should be considered when selecting testing and sampling methodologies to meet the requirements in paragraph (a)(3) of this section include:

(i) Physical state of the discharged or released substance;

(ii) The duration, frequency, season, and time of the discharge or release;

(iii) The range of concentrations of chemical compounds to be analyzed in different media;

(iv) Detection limits, accuracy, precision, interferences, and time required to perform alternative methods;

(v) Potential safety hazards to obtain and test samples;

(vi) Costs of alternative methods; and

(vii) Specific guidance provided in paragraphs (b), (c), (d), (e), an (f) of this section.

(b) *Surface water resources.* (1) Testing and sampling for injury to surface water resources shall be performed using methodologies described in this paragraph.

(2) All chemical analyses performed to meet the requirements of the Injury Determination phase for surface water resources shall be conducted in accordance with one or more of the following methodologies:

(i) "Standard Methods for the Examination of Water and Wastewater" 16th edition, jointly published by the American Public Health Association, the American Water Works Association and the Water Pollution Control Federation, Washington, DC, 1985; available from the American Public Health Associaiton, Attn: Publications Sales, 1015 15th Street, NW., Washington, DC 20005;

(ii) "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," 2nd edition, July 1982, as amended by April 1984, Update 1, and April 1985, Update 2, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, DC, SW–846; available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402: Stock No. 55–002–81001–2;

(iii) "Guideline Establishing Test Procedures for the Analysis of Pollutants," 40 CFR Part 136;

(iv) "National Handbook of Recommended Methods for Water-Data Acquisition," U.S. Geological Survey, Office of Water Data Coordination, 1977, with updates; avaialble from the U.S. Geological Service, Office of Water Data Coordination, MS–417 National Center, Reston VA 22092;

(v) "Methods of Seawater Analysis," 2nd edition, Grasshoff, K., M. Ehrhardt, and K. Kremling, (eds.) Verlag Chemie, Weinheim, Federal Republic of Germany, 1983; available from VSH Scientific Publishers Inc., 303 N.W. 12th Ave., Deerfield, FL 33222–1705: ISN No. 089573–070–7; or

(vi) "A Practical Handbook of Seawater Analysis," 2nd ed., Strickland, J.D.H., and T.R. Parsons, jointly published by the Fisheries Research Board of Canada and Supply and Services Canada, Otawa, Canada, 1984; available from Unipub, 205 E. 42nd Street, New York, NY 10017: No. SSC70;

(3) The term "water sample" shall denote an unfiltered volume of water collected and preserved by methods in references cited in paragraph (b)(2) of this section to represent the bulk water and any dissolved or suspended materials or microorganisms occurring in the surface water resource.

(4) Sampling of water and sediments from surface water resources shall be conducted according to the methods in references cited in paragraph (b)(2) of this section, as appropriate.

(5) Measurement of the hydrologic properties of the resource shall be conducted according to methods in the reference cited in paragraph (b)(2)(iv) of this section.

(6) (i) Interpretation of surface-water flow or estimation of transport of oil or hazardous substance in surface water through the use of models shall be based on hydrologic literature and current practice.

(ii) The applicability of models used during the assessment should be demonstrated, including citation or description of the following:

(A) Physical, chemical, and biological processes simulated by the model;

(B) Mathematical or statistical methods used in the model; and

(C) Model computer code (if any), test cases proving the code works, and any alteration of previously documented

code made to adapt the model to the assessment area.

(iii) The validity of models used during the assessment should be established, including a description of the following:

(A) Hydraulic geometry, physiographic features, and flow characteristics of modeled reaches or areas;

(B) Sources of hydrological, chemical, biological, and meterological data used in the model;

(C) List of maps of data used to describe initial conditions;

(D) Time increments or time periods model;

(E) Comparison of predicted fluxes of water and solutes with measured fluxes;

(F) Calibration-verification procedures and results; and

(G) Types and results of sensitivity analyses made.

(c) *Ground water resources.* (1) Testing and sampling for injury to ground water resources shall be performed using methodologies described in this paragraph.

(2) All chemical analyses performed to meet the requirements of the Injury Determination phase for ground water resources shall be conducted in accordance with one or more of the following methodologies:

(i) "Standard Methods for the Examination of Water and Wastewater," 16th edition, jointly published by the American Public Health Association, the American Water Works Association and the Water Pollution Control Federation, Washington, DC, 1985; available from the American Public Health Association, Attn: Publications Sales, 1015 15th Street, NW., Washington, DC 20005;

(ii) "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," 2nd Edition, July 1982, as amended by April 1984, Update 1, and April 1985, Update 2, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, DC, SW-846; available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402: Stock No. 55-002-81001-2;

(iii) "Guidelines Establishing Test Procedures for Analysis of Pollutants," 40 CFR Part 136; or

(iv) "National Handbook of Recommended Methods for Water-Data Acquisition," U.S. Geological Survey, Office of Water Data Coordination, 1977, with updates; available from the U.S. Geological Service, Office of Water Data Coordination, MS-417 National Center, Reston, VA 22092;

(3)(i) The term "water sample" shall denote an unfiltered volume of water collected and preserved by methods described in references cited in paragraph (c)(2) of this section to represent the bulk water and any dissolved or suspended materials or microorganisms occurring in the ground water resource.

(ii) The source of ground water samples may be from natural springs, in seeps, or from wells constructed according to methods described in:

(A) "Ground Water and Wells," Johnson Division, St. Paul, MN, 1985; available from Johnson Divison, P.O. Box 64118, St. Paul, MN 55164; and

(B) "Manual of Individual Water Supply Systems," U.S. Environmental Protection Agency, Office of Drinking Water, EPA-570/9-82-004, 1982; available from U.S. Environmental Protection Agency, Office of Drinking Water, WH-550, 401 M Street, SW., Washington DC 20460;

(4) Sampling of ground water or of geologic materials through which the ground water migrates shall be conducted according to the methods in references cited in paragraph (c)(2) of this section, as appropriate.

(5) Measurement of the geohydrologic properties of the resource shall be conducted according to methods in the reference cited in paragraph (c)(2)(iv) of this section.

(6) Description of lithologies, minerals, cements, or other sedimentary characteristics of the ground water resource should follow methods described in "Sample Examination Manual," R.G. Swanson, Methods and Exploration Series No. 1, American Association of Petroleum Geologists, 1981; available from the American Assocation of Petroleum Geologists, P.O. Box 979, Tulsa, OK 74101;

(7) Interpretation of the geohydrological setting, including identifying geologic layers comprising aquifers and any confining units, shall be based on geohydrologic and geologic literature and generally accepted practice.

(8)(i) Interpretation of ground-water flow systems or estimation of transport of oil or hazardous substances in ground water through the use of models shall be based on geohydrologic literature and current practice.

(ii) The applicability of models used during the assessment should be demonstrated, including citation or description of the following:

(A) Physical, chemical, and biological processes simulated by the model;

(B) Mathematical or statistical methods used in the model; and

(C) Model computer code (if any), test cases proving the code works, and any alteration of previously documented code made to adapt the model to the assessment area.

(iii) The validity of models used during the assessment should be established, including a description of the following:

(A) Model boundary conditions and stresses simulated;

(B) How the model approximates the geohydrological framework of the assessment area;

(C) Grid size and geometry;

(D) Sources of geohydrological, chemical, and biological data used in the model;

(E) Lists of maps of data used to describe initial conditions;

(F) Time increments or time periods modeled;

(G) Comparison of predicted fluxes of water and solutes with measured fluxes;

(H) Calibration-verification procedures and results; and

(I) Type and results of sensitivity analyses made.

(d) *Air resources.* (1) Testing and sampling for injury to air resources shall be performed using methodologies that meet the selection and documentation requirements in this paragraph. Methods identified in this section and methods meeting the selection requirements identified in this section shall be used to detect, identify, and determine the presence and source of emissions of oil or a hazardous substance, and the duration frequency, period of exposure (day, night, seasonal, etc.), and levels of exposure.

(2) The sampling and analysis methods identified in this paragraph are the primary methods to be used for determining injury to the air resource. Air modeling methods may be used for injury determination only when air sampling and analysis methods are not available or the discharge or release occurred with no opportunity to monitor or sample the emissions.

(3)(i) Methods developed, evaluated, approved, and published by the U.S. Environmental Protection Agency may be used for sampling and analysis to determine injury to the air resource.

(ii) Methods selected for air sampling and analysis may include those methods that have been formally reviewed, evaluated, and published by the following government and professional organizations: the National Institute for Occupational Safety and Health, the American Society for Testing and Materials, and the American Public Health Association.

(iii) Methods selected for air sampling and analysis shall be methods that are documented for each of the following:

(A) The range of field conditions for which the methods are applicable;

(B) Quality assurance and quality control requirements necessary to achieve the data quality the methods are capable of producing;

(C) Operational costs of conducting the methods; and

(D) Time required to conduct the methods.

(iv) The determination of concentrations in excess of emission standards for hazardous air pollutants established under section 112 of the Clean Air Act, 42 U.S.C. 7412, shall be conducted in accordance with the primary methods or alternative methods as required in "National Emission Standards for Hazardous Air Pollutants: Source Test and Analytical Methods," 40 CFR 61.14, and as may applicable to the determination of injury to air resources.

(4) In selecting methods for testing and sampling for injury to air resources, the following performance factors of the sampling and analysis methods and the influencing characteristics of the assessment area and the general vicinity shall be considered:

(i) Method detection limits, accuracy, precision, specificity, interferences, and analysis of time and cost;

(ii) Sampling area locations and frequency, duration of sampling, and chemical stability of emissions; and

(iii) Meteorological parameters that influence the transport of emissions and the spatial and temporal variation in concentration.

(e) *Geologic resources.* (1) Testing and sampling for injury to geologic resources shall be performed using methodologies described in this paragraph.

(2) Testing pH level in soils shall be performed using standard pH measurement techniques, taking into account the nature and type of organic and inorganic constituents that contribute to soil acidity; the soil/solution ratio; salt or electrolytic content; the carbon dioxide content; and errors associated with equipment standardization and liquid junction potentials.

(3) Salinity shall be tested by measuring the electrical conductivity of the saturation extraction of the soil.

(4) Soil microbial respiration shall be tested by measuring uptake of oxygen or release of carbon dioxide by bacterial, fungal, algal, and protozoan cells in the soil. These tests may be made in the laboratory or in situ.

(5) Microbial populations shall be tested using microscopic counting, soil fumigation, glucose response, or adenylate energy charge.

(6) Phytotoxicity shall be tested by conducting tests of seed germination, seedling growth, root elongation, plant uptake, or soil-core microcosms.

(7) Injury to mineral resources shall be determined by describing restrictions on access, development, or use of the resource as a result of the soil or hazardous substance. Any appropriate health and safety considerations that led to the restrictions should be documented.

(f) *Biological resources.* (1) Testing and sampling for injury to biological resources shall be performed using methodologies provided for in this paragraph.

(2)(i) Testing may be performed for biological responses that have satisfied the acceptance criteria of § 11.62(f)(2) of this part.

(ii) Testing methodologies that have been documented and are applicable to the biological response being tested may be used.

(3) Injury to biological resources, as such injury is defined in § 11.62(f)(1)(ii) of this part, may be determined by using methods acceptable to or used by the Food and Drug Administration or the appropriate State health agency in determining the levels defined in that paragraph.

### § 11.70 Quantification phase—general.

(a) *Requirement.* (1) Upon completing the Injury Determination phase, the authorized official shall quantify for each resource determined to be injured the effect of the discharge or release in terms of the reduction from the baseline condition in the quantity of services, as that phase is used in this Part, provided by the injured resource using the guidance provided in the Quantification phase of this Part.

(2) The Quantification phase consists of § 11.70—general; § 11.71—service reduction quantification; § 11.72—baseline service determination; and § 11.73—resource recoverability analysis, of this Part.

(b) *Purpose.* The purpose of the Quantification phase is to quantify the effects of the discharge or release on the resource for use in determining the appropriate amount of compensation.

(c) *Steps in the Quantification phase.* In the Quantification phase, the extent of the injury shall be measured, the baseline condition of the injured resource shall be estimated, the baseline sevices shall be identified, the recoverability of the injured resource shall be determined, and the reduction in services that resulted from the discharge or release shall be estimated.

(d) *Completion of Quantification phase.* Upon completing the Quantification phase, the authorized official shall make a determination as to the reduction in services that resulted from the discharge or release. This Quantification Determination shall be used in the Damage Determination phase and shall be maintained as part of the Report of Assessment described in § 11.90 of this part.

### § 11.71 Quantification phase—service reduction quantification.

(a) *Requirements.* (1) The authorized official shall quantify the effects of a discharge of oil or release of a hazardous substance by determining the extent to which natural resource services have been reduced as a result of the injuries determined in the Injury Determination phase of the assessment.

(2) This determination of the reduction in services will be used in the Damage Determination phase of the assessment, and must be consistent with the needs of the economic methodology selected in the determination required in § 11.35 of this part.

(3) Quantification will be done only for resources for which damages will be sought.

(b) *Steps.* Except as provided in § 11.71(f) of this part, the following steps are necessary to quantify the effects:

(1) Measure the extent to which the injury demonstrated in the Injury Determination phase has occurred in the assessment area;

(2) Measure the extent to which the injured resource differs from baseline conditions, as described in § 11.72 of this part, to determine the change attributable to the discharge or release;

(3) Determine the services normally produced by the injured resource, which are considered the baseline services or the without-a-discharge-or-release condition as described in § 11.72 of this part;

(4) Identify interdependent services to avoid double counting in the Damage Determination phase and to discover significant secondary services that may have been disrupted by the injury; and

(5) Measure the disruption of services resulting from the discharge or release, which is considered the change in services or the with-a-discharge-or-release condition.

(c) *Contents of the Quantification.* The following factors should be included in the quantification of the effects of the discharge or release on the injured resource:

(1) Total area, volume, or numbers affected of the resource in question;

(2) Degree to which the resource is affected, including consideration of subunits or subareas of the resource, as appropriate;

(3) Ability of the resource to recover, expressed as the time required for restoration of baseline services as described in § 11.73 of this part;

(4) Proportion of the available resource affected in the area;

(5) Services normally provided by the resource that have been reduced as a result of the discharge or release; and

(6) Factors identified in the specific guidance in paragraphs (h), (i), (j), (k), and (l) of this section dealing with the different kinds of natural resources.

(d) *Selection of resources, services, and methodologies.* Specific resources or services to quantify and the methodology for doing so should be selected based upon the following factors:

(1) Degree to which a particular resource or service is affected by the discharge or release;

(2) Importance or significance of a specific resource or service;

(3) Degree to which a given resource or service can be used to represent a broad range of related resources or services;

(4) Consistency of the measurement with the requirements of the economic methodology to be used;

(5) Technical feasibility of quantifying changes in a given resource or service at reasonable cost; and

(6) Preliminary estimates of services at the assessment area and control area based on resource inventory techniques.

(e) *Services.* In quantifying changes in natural resource services, the functions provided in the cases of both with- and without-a-discharge-or-release shall be compared. For the purposes of this Part, services include provision of habitat, food and other needs of biological resources, recreation, other products or services used by humans, flood control, ground water recharge, waste assimilation, and other such functions that may be provided by natural resources.

(f) *Direct quantification of services.* The effects of a discharge or release on a resource may be quantified by directly measuring changes in services provided by that resource, instead of quantifying the changes in the resource itself, when it is determined that all of the following conditions are met:

(1) The change in the services from baseline can be demonstrated to have resulted from the injury to the natural resource;

(2) The extent of change in the services resulting from the injury can be measured without also calculating the extent of change in the resource; and

(3) The services to be measured are anticipated to provide a better indication of damages caused by the injury than would direct quantification of the injury itself.

(g) *Statutory exclusions.* In quantifying the effects of the injury, the following statutory exclusions shall be considered, as provided in CERCLA sections 107(f), (i), and (j), that exclude compensation for damages to natural resources that were a result of:

(1) An irreversible and irretrievable commitment of natural resources identified in an environmental impact statement or other comparable environmental analysis, and the decision to grant the permit or license authorizes such a commitment, and the facility was otherwise operating within the terms of its permit or license;

(2) The application of a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. 135–135k; or

(3) Any other federally permitted release.

(h) *Surface water resources.* (1) The area where the injured surface water resource differs from baseline shall be determined by determining the areal extent of oil or hazardous substances in the water or on the sediments.

(2)(i) Areal variation in concentrations of the discharged or released substances dissolved in or floating on water, adhering to suspended sediments, or adhering to bed, bank, or shoreline sediments from exposed areas should be determined in sufficient detail to approximately map the boundary separating areas with concentrations above baseline from areas with concentrations equal to or less than baseline.

(ii) The size, shape, and location of the plume may be estimated using time of travel and dispersion data obtained under § 11.63 of this Part, since plumes of dissolved or floating substances may be rapidly transported and dispersed in surface water.

(3) Water and sediment samples may be collected and chemically analyzed and stage, water discharge, or tidal flux measurements made, as appropriate, to collect new data required by this section.

(4)(i) Within the area determined in paragraph (h)(2) of this section to be above baseline, the services provided by the surface water or sediments that are affected should be determined. This determination may include computation of volumes of water or sediments affected, total areas of water or sediment affected, volume of water used from the affected surface water resource, or other appropriate measures.

(ii) The services should be determined with consideration of potential effects on downstream resources during the recovery period, as determined in § 11.73 of this part, resulting from transport of dissolved substances and of substances adhering to sediments.

(i) *Ground water resources.* (1) The area where the injured ground water resource differs from baseline should be determined by determining the areal extent of oil or hazardous substances in water or geologic materials in the unsaturated zone and identified geohydrological units, which are aquifers or confining layers, within the assessment area.

(2)(i) The lateral and vertical extent of discharged or released substances in the unsaturated zone, if it is known to be exposed, should be determined.

(ii) The lateral and vertical extent of plumes within geohydrologic units known to be exposed should be determined. Concentrations of substances within and adjacent to each plume should be determined in sufficient detail to approximately locate the boundary separating areas with concentrations above baseline from areas with concentrations equal to or less than baseline.

(3) Water or geologic materials may be sampled and chemically analyzed, or surface-geophysical techniques may be used for collecting new data required by this section. General verification of the plume boundaries by chemical analysis of selected water samples should be done if boundary locations are initially determined by surface-geophysical measurements.

(4)(i) Within the area determined in paragraph (i)(2)(ii) of this section to be above baseline, the services provided by the ground water that is affected should be determined. This determination may include computation of the volume of water affected, volume of affected ground water pumped from wells, volume of affected ground water discharged to streams or lakes, or other appropriate measures.

(ii) The services should be determined with consideration of potential enlargement of the plume during the recovery period, as determined in § 11.73 of this part, resulting from ground water transport of the substances.

(iii) The effects on the ground water resource during the recovery period resulting from potential remobilization of discharged or released substances that may be adhering, coating, or

otherwise bonding to geologic materials should be considered.

(j) *Air resources.* The area where the injured air resource differs from baseline should be determined by determining the geographical area affected, the degree of impairment of services, and the period of time impairment occurred.

(k) *Geologic resources.* The area where the injured geologic resource differs from baseline should be determined by determining:

(1) The surface area of soil with reduced ability to sustain the growth of vegetation from the baseline level;

(2) The surface area or volume of soil with reduced suitability as habitat for biota from the baseline level;

(3) The volume of geologic resources that may act as a source of toxic leachate;

(4) The volume of geologic resources eroded by water or wind as a result of the discharge or release; or

(5) The tonnage of mineral resources whose access, development, or use is restricted as a result of the discharge or release.

(l) *Biological resources.* (1) The extent to which the injured biological resource differs from baseline should be determined by analysis of the population or the habitat or ecosystem levels. Although it may be necessary to measure populations to determine changes in the habitats or ecosystems, and vice versa, the final result should be expressed as either a population change or a habitat or ecosystem change in order to prevent double counting in the economic analysis. This separation may be ignored only for resources that do not interact significantly and where it can be demonstrated that double counting is being avoided.

(2) Analyses of population changes or habitat or ecosystem changes should be based upon species, habitats, or ecosystems that have been selected from one or more of the following categories:

(i) Species or habitats that can represent broad components of the ecosystem, either as representatives of a particular ecological type, of a particular food chain, or of a particular service;

(ii) Habitats or ecosystems that are special resources, as defined in this Part;

(iii) Species, habitats, or ecosystems that are especially sensitive to the oil or hazardous substance and the recovery of which will provide a useful indicator of successful restoration; or

(iv) Species, habitats, or ecosystems that provide especially significant services, even though they may not be designated as special resources.

(3) Analysis of populations, habitats, or ecosystems shall be limited to those populations, habitats, or ecosystems for which injury has been determined in the Injury Determination phase or those that can be linked directly through services to resources for which injury has been so determined. Documentation of the service link to the injured resource must be provided in the latter case.

(4) Population, habitat, or ecosystem measurement methods that provide data that can be interpreted in terms of services must be selected. To meet this requirement, a method should:

(i) Provide numerical data that will allow comparison between the assessment area data and the control area or baseline data;

(ii) Provide data that will be useful in planning restoration or replacement efforts and in later measuring the success of those efforts, or that will allow calculation of use values; and

(iii) Allow correction, as applicable, for factors such as dispersal of organisms in or out of the assessment area, differential susceptibility of different age classes of organisms to the analysis methods and other potential systematic biases in the data collection.

(5) When estimating population differences of animals, standard and widely accepted techniques, such as census, mark-recapture, density and index methods, and other estimation techniques appropriate to the species and habitat shall be used. Frequencies of injury observed in the population shall be measured as applicable.

(i) In general, methods used for estimates of wildlife populations should follow recommendations provided in the "Wildlife Management Techniques Manual," (4th edition, Wildlife Society, 1980, available from the Wildlife Society, 5410 Grosvenor Lane, Bethesda, MD 20814), including references cited and recommended in that manual. The specific technique used need not be cited in that manual, but should meet its recommendations for producing reliable estimates or indices.

(ii) Measurement of age structures, life table statistics, or age structure models generally will not provide satisfactory measurement of changes due to a discharge of oil or release of a hazardous substance unless there is clear evidence that the oil or hazardous substance has differentially affected different age classes and there are reliable baseline age structure data available for the population being assessed.

(iii) Mortality from single incidents may be used to estimate changes in populations only when there are available baseline population data for the area, so that the proportion lost can be estimated, and when corrections can be made for potential sampling biases, such as natural mortality and factors influencing distribution of carcasses and ability of investigators to find them. Specific techniques for measuring mortality include the following:

(A) Fish mortality in freshwater areas may be estimated from counts of carcasses, using methods and guidelines contained in Part II of the "Monetary Values of Freshwater Fish and Fish-Kill Counting Guidelines," (American Fisheries Society Special Publication Number 13, 1982; available from the American Fisheries Society, 5410 Grosvenor Lane, Suite 110, Bethesda, MD 20814), including use of appropriate random sampling methods and tagged carcasses.

(B) Adaptation of the techniques discussed in paragraph (5)(iii)(A) of this section for counting dead aquatic birds or for counting marine or estuarine fish or birds will require the authorized official to document the methods used to avoid sampling biases.

(C) Fish mortality may also be estimated by use of an in situ bioassay technique that is similar to that identified in § 11.62(f)(4)(i)(C) of this part, if the oil or hazardous substance is still present at levels that resulted in injury and if appropriate instream controls can be maintained at control areas.

(6) Plant populations may be measured using standard techniques, such as population density, species composition, diversity, dispersion, and cover.

(7) Forest and range resources may be estimated by standard forestry and range management evaluation techniques.

(8) Habitat quality should be measured using techniques such as the Habitat Evaluation Procedures developed and used by the U.S. Fish and Wildlife Service and following guidance and training material developed by the U.S. Fish and Wildlife Service, Western Energy and Land Use Team, 2726 Redwing Rd., Fort Collins, CO 80526–2899.

**§ 11.72 Quantification phase—baseline services determination.**

(a) *Requirements.* The authorized official shall determine the physical, chemical, and biological baseline conditions and the associated baseline services for injured resources at the assessment area to compare that baseline with conditions found in § 11.71 of this part.

(b) *General guidelines.* Baseline data shall be selected according to the following general guidelines:

(1) Baseline data should reflect conditions that would have been expected at the assessment area had the discharge of oil or release of hazardous substances not occurred, taking into account both natural processes and those that are the result of human activities.

(2) Baseline data should include the normal range of physical, chemical, or biological conditions for the assessment area or injured resource, as appropriate for use in the analysis in § 11.71 of this part, with statistical descriptions of that variability. Causes of extreme or unusual values in baseline data should be identified and described.

(3) Baseline data should be as accurate, precise, complete, and representative of the resource as the data used or obtained in § 11.71 of this part. Data used for both the baseline and services reduction determinations must be collected by comparable methods. When the same method is not used, comparability of the data collection methods must be demonstrated.

(4) Baseline data collection shall be restricted to those data necessary for a reasonable cost assessment. In particular, data collected should focus on parameters that are directly related to the injury quantified in § 11.71 of this part and to potential restoration or replacement of the injured resource.

(c) *Historical data.* If available and applicable, historical data for the assessment area or injured resource should be used to establish the baseline. If a significant length of time has elapsed since the discharge or release first occurred, adjustments should be made to historical data to account for changes that have occurred as a result of causes other than the discharge or release. In addition to specialized sources identified in paragraphs (g) through (k) of this section, one or more of the following general sources of historical baseline data may be used:

(1) Environmental Impact Statements or Environmental Assessments previously prepared for purposes of the National Environmental Policy Act (NEPA), 42 U.S.C. 4321–4361, similar documents prepared under other Federal and State laws, and background studies done for any of these documents;

(2) Standard scientific and management literature sources appropriate to the resource;

(3) Computerized data bases for the resource in question;

(4) Public or private landholders in the assessment area or in neighboring areas;

(5) Studies conducted or sponsored by Federal or State agencies acting as trustees for the resource in question;

(6) Federally sponsored research identified by the National Technical Information Service;

(7) Studies carried out by educational institutions; and

(8) Other similar sources of data.

(d) *Control areas.* Where historical data are not available for the assessment area or injured resource, or do not meet the requirements of this section, baseline data should be collected from control areas. Historical data for a control area should be used if available and if they meet the guidelines of this secton. Otherwise, the baseline shall be defined by field data from the control area. Control areas shall be selected according to the following guidelines, and both field and historical data for those areas should also conform to these guidelines:

(1) One or more control areas shall be selected based upon their similarity to the assessment area and lack of exposure to the discharge or release;

(2) Where the discharge or release occurs in a medium flowing in a single direction, such as a river or stream, at least one control area upstream of the assessment area shall be included, unless local conditions indicate such an area is inapplicable as a control area;

(3) The comparability of each control area to the assessment area shall be demonstrated, to the extent technically feasible;

(4) Data shall be collected from the control area over a period sufficient to estimate normal variability in the characteristics being measured and should represented at least one full cycle normally expected in that resource;

(5) Methods used to collect data at the control area shall be comparable to those used at the assessment area, and shall be subject to the quality assurance provisions of the Assessment Plan;

(6) Data collected at the control area should be compared to values reported in the scientific or management literature for similar resources to demonstrate that the data represent a normal range of conditions; and

(7) A control area may be used for determining the baseline for more than one kind of resource, if sampling and data collection for each resource do not interfere with sampling and data collection for the other resources.

(e) *Baseline services.* The baseline services associated with the physical, chemical, or biological baseline data shall be determined.

(f) *Other requirements.* The methodologies in paragraphs (g) through (k) of this section shall be used for determining baseline conditions for specific resources in additon to following the general guidelines identified in paragraphs (a) through (e) of this section. If a particular resource is not being assessed for the purpose of the Damage Determination phase, and data on that resource are not needed for the assessment of other resources, baseline data for that resource shall not be collected.

(g) *Surface water resources.* (1) This paragraph provides additional guidance on determining baselie services for surface water resources. The general guidance provided in paragraphs (a) through (f) of this section should be followed before beginning any work described in this paragraph.

(2) Applicable and available historical data shall be gathered to determine baseline conditions for the surface water resource at the assessment area. If deemed inadequate for determining baseline conditions, such data shall be used to the extent technically feasible in designating the control areas described in paragraph (g)(3) of this section for the surface water resource determined to be injured.

(3) Control areas shall be selected for the surface water resource subject to the general criteria in paragraph (d) of this section and additional criteria as follows:

(i) For each injured stream or river reach, a control area shall be designated consisting of a stream or river reach of similar size, that is as near to the assessment area as practical and, if practical, that is upstream from the injured resource, such that the channel characteristics, sediment characteristics and streamflow characteristics are similar to the injured resource and the water and sediments of the control area, because of location, have not have exposed to the discharge of oil or release of a hazardous substance.

(ii) For each injured standing water body, such as a marsh, pond, lake, bay, or esturary, a control area shall be designated consisting of a standing water body of similar size that is as near to the assessment area as practical, such that the sediment characteristics and inflow-outflow characteristics of the control area are similar to the injured resource and the water and sediments of the control area, because of location, have not been exposed to the discharge of oil or release of a hazardous substance.

(4)(i) Within the control area locations shall be designated for obtaining samples of water and sediments.

(ii) The water discharge, stage or tidal flux shall be measured and representative water and sediments collected as follows:

(A) Measure stage, water discharge, tidal flux as appropriate, at the same time that water and sediment samples are collected; and

(B) Obtain comparable samples and measurements at both the control and assessment areas under similar hydraulic conditions.

(iii) Measurement and samples shall be obtained as described in this paragraph in numbers sufficient to determine:

(A) The range of concentration of the substances in water and sediments;

(B) The variability of concentration of the substances in water and sediments during different conditions of stage, water discharge, or tidal flux; and

(C) The variability of physical and chemical conditions during different conditions of stage, water discharge, or tidal flux relating to the transport or storage of the substances in water and sediments.

(5) Samples should be analyzed from the control area to determine the physical properties of the water and sediments, suspended sediment concentrations in the water, and concentrations of oil or hazardous substances in water or in the sediments. Additional chemical, physical, or biological tests may be made, if necessary, to obtain otherwise unavailable data for the characteristics of the resource and comparison with the injured resource at the assessment area.

(6) The median and interquartile range of the available data or the test results should be used as the basis of comparison between the assessment and control areas.

(7) Additional tests may be made of samples from the control area, if necessary, to provide otherwise unavailable information about physical, chemical, or biochemical processes occurring in the water or sediments relating to the ability of the injured surface water resource to recover naturally.

(h) *Ground water resources.* (1) This paragraph provides additional guidance on determining baseline services for ground water resources. The general guidance provided in paragraphs (a) through (f) of this section should be followed before beginning any work described in this paragraph.

(2) Applicable and available historical data shall be gathered to determine baseline conditions for the ground water resource at the assessment area. If deemed inadequate for determining baseline conditions, such data shall be used to the extent technically feasible in designating the control areas described in paragraph (h)(3) of this section for the ground water resource determined to be injured.

(3) A control area shall be designated subject to the general criteria in paragraph (d) of this section and as near to the assessment area as practical, such that, within the control area, geological materials, geohydrological units, and hydrologic conditions are similar to the assessment area, and ground water resources are not exposed to substances from the discharge or release.

(4) Within the control area, wells shall be identified or drilled, designated as control wells, to obtain representative ground water samples for analysis. The location, depth, and number of control wells and the number of ground water samples collected should be sufficient to estimate the vertical and lateral variation in concentration of the substances in both the unsaturated zone and in ground water from geohydrologic units similar to units tested in the assessment area.

(i) Representative water samples from each control well shall be collected and analyzed. The analyses should determine the physical and chemical properties of the ground water relating to the occurrence of oil or hazardous substances.

(ii) If the oil or hazardous substances are commonly more concentrated on geologic materials than in ground water, representative samples of geologic materials from aquifers and the unsaturated zone, as appropriate, should be obtained and chemically analyzed. The location, depth, and number of these samples should be sufficient to determine the vertical and lateral variation in concentration of the oil or hazardous substances absorbing or otherwise coating geologic materials in the control area. These samples may also be analyzed to determine porosity, mineralogy, and lithology of geologic materials if these tests will provide otherwise unavailable information on storage or mobility of the oil or hazardous substances in the ground water resource.

(5) The median and interquartile range of available data or the test results on similar geohydrologic units shall be used as the basis of comparison between the assessment area and the control area.

(6) Additional tests may be made of samples from the control area, if necessary, to provide otherwise unavailable information about chemical, geochemical, or biological processes occurring in the ground relating to the ability of the injured ground water resource to recover naturally.

(i) *Air resources.* (1) This paragraph provides additional guidance on determining baseline services for air resources. The general guidance provided in paragraphs (a) through (f) of this section should be followed before beginning any work described in this paragraph.

(2) Applicable and available historical data shall be gathered on ambient air quality and source emissions to determine baseline conditions for the air resource. These historical data may be used to determine baseline conditions if the data satisfy the general guidelines in paragraph (d) of this section and if all the following criteria are met:

(i) The methodology used to obtain these historical data would detect the oil or hazardous substance at levels appropriate for comparison to the concentrations measured in § 11.71 of this part;

(ii) The effect of known or likely emission sources near the assessment area other than the source of the discharge or release can be identified or accounted for in the historical data; and

(iii) The historical data show that normal concentrations of the oil or hazardous substance are sufficiently predictable that changes as a result of the discharge or release are likely to be detectable.

(3) If historical data appropriate to determine baseline conditions at the assessment area are lacking, one or more control areas, as needed, shall be designated subject to the general criteria of paragraph (d) of this section and the following additional factors, which shall also be considered in establishing a monitoring schedule;

(i) Applicable and available historical data shall be used to the extent technically feasible in designating control areas or, lacking historical data, the factors in paragraph (i)(3)(iii) of this section shall be considered;

(ii) Control areas shall be spatially representative of the range of air quality and meteorological conditions likely to have occurred at the assessment area during the discharge or release into the atmosphere; and

(iii) The following additional factors shall be considered:

(A) The nature of the discharge or release and of potential alternative sources of the oil or hazardous substance, including such factors as existing sources, new sources, intermittent sources, mobile sources, exceptional events, trends, cycles, and the nature of the material discharged or released;

(B) Environmental conditions affecting transport, such as wind speed and

direction, atmospheric stability, temperature, humidity, solar radiation intensity, and cloud cover; and

(C) Other factors, such as timing of the discharge or release, use patterns of the affected area, and the nature of the injury resulting from the discharge or release.

(4)(i) The preferred measurement method is to measure air concentrations of the oil or hazardous substance directly using the same methodology employed in § 11.71 of this part.

(ii) Nonspecific or chemical compound class methodologies may be used to determine baseline generically only in situations where it can be demonstrated that measuring indicator substances will adequately represent air concentrations of other components in a complex mixture.

(j) *Geologic resources.* (1) This paragraph provides additional guidance on determining baseline services for geologic resources. The general guidance provided in paragraphs (a) through (f) of this section should be followed before beginning any work described in this paragraph.

(2) Applicable and available historical data shall be gathered to determine baseline conditions for the geologic resource at the assessment area. If deemed inadequate for determining baseline conditions, such data shall be used to the extent technically feasible in designating the control areas described in paragraph (j)(3) of this section for the geologic resource determined to be injured.

(3) Control areas shall be selected for geologic resources subject to the general criteria in paragraph (d) of this section and additional criteria as follows:

(i) Similarity of exposed soil or geologic material in the assessment area with the geologic resource in the control area should be the primary factor in selecting the control area. Other factors, including climate, depth of ground water, vegetation type and area covered, land slope and land area, and hydraulic gradients and spatial relation to source should be comparable to the assessment area.

(ii) The control area shall be selected such that the geologic resource in the control area is not exposed to the discharge or release.

(4)(i) A sufficient number of samples from unbiased, randomly selected locations in the control area shall be obtained in order to characterize the areal variability of the parameters measured. Each sample should be analyzed to determine the physical and chemical properties of the geologic materials relating to the occurrence of the oil or hazardous substance. Additional chemical, physical, or biological tests may be made, if necessary, to obtain otherwise unavailable data for the characterization and comparison with the injured resource at the assessment area.

(ii) The mean and standard deviation of each parameter measured shall be used as the basis of comparison between the assessment and control areas.

(k) *Biological resources.* (1) This paragraph provides additional guidance on determining baseline services for biological resources. The general guidance provided in paragraphs (a) through (f) of this section should be followed before beginning any work described in this paragraph.

(2) Applicable and available historical data shall be gathered to determine baseline conditions for the biological resource at the assessment area and should include both population and habitat data if available. These data may be derived from the data sources identified in paragraph (c) of this section, as well as from the following:

(i) Aerial photographs or maps showing distribution and extent of habitat types of other biological resources before the discharge or release;

(ii) Biological specimens in systematic museum or herbarium collections and associated records, including labels and collectors' field notes; and

(iii) Photographs showing the nature of the habitat before the discharge or release when the location and date are well documented.

(3)(i) Control areas shall be selected for biological resources subject to the general criteria in paragraph (d) of this section and additional criteria as follows:

(A) The control area shall be comparable to the habitat or ecosystem at the assessment area in terms of distribution, type, species composition, plant cover, vegetative types, quantity, and relationship to other habitats;

(B) Physical characteristics of the control and assessment areas shall be similar; and

(C) If more than one habitat or ecosystem type is to be assessed, comparable control areas should be established for each, or a control area should be selected containing those habitat types in a comparable distribution.

(ii) To the extent they are available, historical data should be gathered and used for the control area. Lacking adequate historical data for both the control and assessment areas, the control areas shall be used for the following purposes, as appropriate to the quantification:

(A) To measure baseline biota population levels or habitat or ecosystem quality, as discussed in § 11.71(1) of this part; and

(B) To measure the natural frequency, if any, of the injury being assessed in unaffected populations or to demonstrate the lack of that injury in unaffected populations if these have not been done for purposes of the Injury Determination, and if needed for purposes of the Quantification.

(4) In addition, a control area should be used to collect control specimens, as needed, for the Injury Determination procedures.

(5) The identity of species for which Damage Determinations will be made or that play an important role in the assessment, shall be confirmed except in the case where collecting the specimens of a species is likely to compromise the restoration of the species. One or more of the following methods shall be used:

(i) Specimens of the species shall be provided to an independent taxonomist or systematic biologist, who has access to a major systematic biology collection for that taxon, and who shall provide written confirmation of their identity to the species level;

(ii) A reference collection of specimens of the species, prepared and preserved in a way standard for systematic collections for that taxon, shall be maintained at least through final resolution of the damage action at which time it should be transfered to a major systematic biology collection; or

(iii) In the case of a species where collecting specimens is likely to compromise the recovery or restoration of that species population, the authorized official shall determine and use an alternative method for confirming species identity that will be consistent with established management goals for that species.

**§ 11.73 Quantification phase—resource recoverability analysis.**

(a) *Requirement.* The time needed for each injured resource to recover to the state that the authorized official determines services are restored to baseline levels shall be estimated. The time estimated for recovery or any lesser period of time as determined in the Assessment Plan shall be used as the recovery period for purposes of § 11.35 and the Damage Determination phase of this part.

(1) In all cases, the amount of time needed for recovery if no restoration efforts are undertaken beyond response

actions performed or anticipated shall be estimated. This time period shall be used as the "No Action-Natural Recovery" period for purposes of § 11.82 and § 11.84(g)(2)(ii).

(2) The estimated time for recovery shall be included in any alternatives for restoration, as developed in § 11.81 of this part, and the data and process by which these recovery times were estimated shall be documented.

(b) *Restoration not feasible.* If the authorized official determines that restoration will not be technically feasible, as that phrase is used in this Part, the reasoning and data on which this decision is based shall be documented as part of the justification for any replacement alternatives that may be considered or proposed.

(c) *Estimating recovery time.* (1) The time estimates required in paragraph (a) of this section shall be based on the best available information and where appropriate may be based on cost-effective models. Information gathered may come from one or more of the following sources, as applicable:

(i) Published studies on the same or similar resources;

(ii) Other data sources identified in § 11.72 of this part;

(iii) Experience of managers or resource specialists with the injured resource;

(iv) Experience of managers or resource specialists who have dealt with restoration for similar discharges or releases elsewhere; and

(v) Field and laboratory data from assessment and control areas as necessary.

(2) The following factors should be considered when estimating recovery times:

(i) Ecological succession patterns in the area;

(ii) Growth or reproductive patterns, life cycles, and ecological requirements of biological species involved, including their reaction or tolerance to the oil or hazardous substance involved;

(iii) Bioaccumulation and extent of oil or hazardous substances in the food chain;

(iv) Chemical, physical, and biological removal rates of the oil or hazardous substance from the media involved, especially as related to the local conditions, as well as the nature of any potential degradation or decomposition products from the process including:

(A) Dispersion, dilution, and volatilization rates in air, sediments, water, or geologic materials;

(B) Transport rates in air, soil, water, and sediments;

(C) Biological degradation or decomposition rates and residence times in living materials;

(D) Soil or sediment properties and adsorption-desorption rates between soil or sediment components and water or air;

(E) Soil surface runoff, leaching, and weathering processes; and

(F) Local weather or climatological conditions that may affect recovery rates.

**§ 11.80 Damage Determination phase—general.**

(a) *Requirement.* (1) The authorized official shall estimate the damages resulting from the discharge of oil or release of a hazardous substance based upon the information provided in the Quantification Determination and the guidance provided in the Damage Determination phase.

(2) The Damage Determination phase consists of § 11.80—general; § 11.81—restoration methodology; § 11.82—Restoration Methodology Plan; § 11.83—use value methodologies; and § 11.84—implementation guidance.

(b) *Purpose.* The purpose of the Damage Determination phase is to estimate the amount of money to be sought for compensation for injury to natural resources resulting from a discharge of oil or release of a hazardous substance.

(c) *Steps in the Damage Determination phase.* Based upon the decisions arrived at in the Economic Methodology Determination prepared in § 11.35 of this part, as the part of the Assessment Plan concerning the appropriate measure of damages to be employed during the Damage Determination phase, the authorized official shall use either the restoration methodology provided in § 11.81 of this part or one of the use value methodologies provided in § 11.83 of this part to calculate damages. For assessments that use the restoration methodology, a Restoration Methodology Plan described in § 11.82 of this part shall be prepared. The guidance provided in § 11.84 of this part shall be followed in implementing either the restoration methodology or one of the use value methodologies.

(d) *Completion of the Damage Determination.* Upon completion of the Damage Determination phase, the type B assessment is completed. The results of the Damage Determination phase shall be documented in the Report of Assessment described in § 11.90 of this part.

**§ 11.81 Damage Determination phase—restoration methodology.**

(a) *Requirement.* The guidance provided in this section shall be followed when estimating damages based upon restoration or replacement costs.

(b) *Diminution of uses.* Damages based on restoration or replacement costs may include any diminution of use values, as described in § 11.84, of this part, occurring during the recovery period as determined in § 11.73 of this part.

(c) *Measurement.* (1) Restoration or replacement measures are limited to those actions that restore or replace the resource services to no more than its baseline, that is, the without-a-discharge-or-release condition as determined in § 11.72 of this part.

(2) The resource services previously provided by the injured resource in its baseline condition shall be identified in accordance with § 11.72 of this part and compared with those services provided by the injured resource, that is, the with-a-discharge-or-release condition. All estimates of the with-a-discharge-or-release condition shall incorporate the ability of the resource to recover as determined in § 11.73 of this part.

(d) *Alternatives.* (1) Alternative methods to achieve the restoration or replacement of the resource services shall be developed. Alternative methods may range from the replacement of individual resources to modification or restoration of a habitat or other resource.

(2) Selection of the cost-effective restorationor replacement methodology shall be documented in the Restoration Methodology Plan as required in § 11.82 of this part.

(e) *Evaluation.* (1) The costs of the alternative restoration or replacement methods developed in (d) above shall be evaluated. When an alternative requires the replacement of a resource, local prices should be used when available for those resources.

(2) In determining the costs of resortation or replacement, the acquisition of land for Federal management should be used only if this acquisition would represent the sole viable method of obtaining the lost services.

(f) *Damages.* (1) The damage amount as measured by restoration or replacement is the cost to accomplish the cost-effective alternative that provides the lost services.

(2) All restoration or replacement techniques, management methods, and methodologies must be technically

feasible, as that phrase is used in this part.

**§ 11.82 Damage Determination—Restoration Methodology Plan.**

(a) *Requirement.* In instances where the authorized official has determined, based upon the Economic Methodology Determination in § 11.35 of this part, that restoration or replacement costs will form the basis of the measure of damages, a Restoration Methodology Plan shall be developed in accordance with the requirements of this section.

(b) *Purposes.* The purposes of the Restoration Methodology Plan are to ensure that the restoration or replacement alternative that forms the basis of the measure of damages is cost-effective and to serve as a basis for the more detailed restoration or replacement plan that shall be completed after a damage award.

(c) *Uses of the Plan.* (1) The expected present value of the costs of the restoration or replacement alternative selected shall be used as the measure of damages in any action or claim for damages under CERCLA or the CWA.

(2)(i) The Restoration Methodology Plan, updated and otherwise revised to reflect new information, shall be used as the basis of any restoration or replacement decision or plans that may be developed after the damage award has been made.

(ii) For purposes of submitting claims against the Fund, the requirements of 40 CFR 306.22 will need to be fulfilled before restoration work is authorized.

(d) *Plan content.* (1) The Restoration Methodology Plan shall describe all management actions or resource acquisitions to be taken consistent with the restoration or replacement decisions.

(2)(i) The Restoration Methodology Plan shall include a range of restoration and replacement alternatives that restore the lost services to no more than their baseline level. These alternatives shall include a "No Action-Natural Recovery" alternative and other alternatives that reflect varying rates of recovery, management actions, and resource acquisitions.

(ii) The "No Action-Natural Recovery" alternative shall be based upon the determination made in § 11.73(a)(1) of this part concerning the ability of the resource to recover without additional actions beyond those response actions taken or anticipated under the NCP.

(iii) The development of the alternatives should be consistent with the requirements of any Federal or State statue concerning the injured resource, should consider techniques currently available in the biological and physical sciences, engineering, or economic and other management sciences, and should consider the long-term and indirect impacts of the restoration or replacement on other resources.

(iv)(A) An alternative that requires the acquisition of land for Federal management shall not be developed unless in the judgement of the Federal agency acting as trustee such acquisition constitutes the only viable method of obtaining the lost services.

(B) If the acquistion of land for Federal management constitutes the only viable method of obtaining the lost services, the appropriation process must be included in the scheduling of such acquisition since funding for such acquisition will have to be obtained through appropriations.

(3)(i) The Restoration Methodology Plan shall be of sufficient detail to evaluate the alternatives for the purpose of selecting the cost-effective method of restoring or replacing the lost services.

(ii) The cost-effecitve alternative, shall be determined in accordance with the following:

(A) The description of the alternatives shall include cost and timing of expenditures;

(B) The guidance provided for discount rates in § 11.84(e) of this Part shall be used; and

(C) The guidance provided for calculating the diminution of use values over the period of time required for restoration or replacement in § 11.84(g) of this part.

(e) *Plan development.* (1) In developing the Restoration Methodology Plan, the guidance provided in § 11.81 of this part shall be followed.

(2)(i) The Restoration Methodology Plan shall be made available for review by any identified potentially responsible party, other Federal or State agencies acting as trustees, other affected Federal or State agencies, and any other interested member of the public for a period of at least 30 calendar days before the authorized official's final decision on selection of the alternative.

(ii) Comments received from any identified potentially responsible party, other Federal or State agencies acting as trustees, other affected Federal or State agencies, or any other interested members of the public, together with any responses that the agency may develop, shall be included in the Report of Assessment described in § 11.90 of this part.

(3) The Restoration Methodology Plan may be combined with other similar plans or may be expanded to incorporate requirements from procedures required under other portions of CERCLA or the CWA or from other Federal or State statutes applicable to restoration or replacement of the injured resource, so long as the requirements of this section are fulfilled.

(f) *Selection of alternative.* (1) The cost-effective alternative shall be selected as the basis for the measure of damages from among those evaluated in the Restoration Methodology Plan.

(2) The authorized official has the responsibility for the final approval of selection of the appropriate restoration or replacement alternative.

**§ 11.83 Damage Determination phase—use value methodologies.**

(a) *Requirement.* (1) The methodologies listed, or other methodologies that meet the acceptance criteria provided in this section, shall be used to estimate damages based on a diminution of use values.

(2) In estimating use values, either a marketed or nonmarketed resources methodology, as described in paragraphs (c) and (d) of this section shall be used.

(3) In using the nonmarketed resource methodologies in paragraph (d) of this section, the applicable guidance on the travel cost, contingent valuation, and unit value methodologies found in "National Economic Development (NED) Benefit Evaluation Procedures," (Procedures), (in *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*, Chapter II, Section VII, Appendices 1–3, U.S. Department of the Interior, Water Resources Council, Washington, DC, 1984, DOI/WRC/–84/01; available from National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161: No. PB 84–199–405), and any changes hereafter issued shall be followed.

(4) Nothing in this section precludes the use of different methodologies for separate damage estimates for different resources.

(b) *Use values.* (1) For the purposes of this part, use values are the value to the public of recreational or other public uses of the resource, as measured by changes in consumer surplus, any fees or other payments collectable by the government for a private party's use of the natural resource, and any economic rent accruing to a private party because the government does not charge a fee or price for the use of the resource.

(2) In instances where the Federal or State agency acting as trustee is the majority operator or controller of a for- or not-for-profit enterprise, and the injury to the natural resource results in a loss to such an enterprise, that portion of the lost income due the agency from

this enterprise resulting directly or indirectly from the injury to the natural resource may be included as a measure of damages under this Part.

(c) *Marketed resource methodologies.* (1) A determination shall be made as to whether the market for the resource is reasonably competitve. Unless the authorized official determines that the market for the resource is not reasonable competitive, the diminution in the market price of resource shall be used to estimate the damages to the injured resource. This methodology shall be referred to as the market price methodology.

(2)(i) When the authorized official determines that the market price methodology is not appropriate, the appraisal methodology shall be used if sufficient information exists. Damages should be measured, to the extent possible, in accordance with the applicable sections of the "Uniform Appraisal Standards for Federal Land Acquisition" (Uniform Appraisal Standards), (Interagency Land Acquisition Conference, Washington, DC, 1973; available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402: Stock Number 052–059–00002–0), and any changes hereafter issued. The measure of damages under this methodology shall be the difference between the with- and without-injury appraisal value.

(ii) In conflicts between guidance provided in this Part and guidance provided in the Uniform Appraisal Standards, the guidance in this Part shall govern.

(d) *Nonmarketed natural resource methodologies.* (1) Only when the authorized official has determined that neither the market price nor the appraisal methodology is appropriate shall the methodolgies listed in this section or those that meet the acceptance criteria in paragraph (d)(7) of this section be used to estimate a diminution of use value for the purposes of this Part.

(2) If the lost resource is an input to a production process, which has as an output a product with a well-defined market price, the factor income methodology can be used. This methodology should be used to estimate the economic rent associated with the use of a resource in the production process and is sometimes referred to as the "reverse value added" method. The factor income methodology should be used to measure the in-place value of the resource.

(3) The travel cost methodology may be used to estimate a value for the use of a specific area. An individual's incremental travel costs to an area are used as a proxy for the price of the services of that area. Damages to the area are the difference between the value of the area with and without-a-discharge-or-release. When regional travel cost models exist, they should be used if appropriate.

(4) Hedonic pricing methodologies may be used to estimate the value of a resource. These methodologies can be used to determine the value of nonmarketed resources by an analysis of private market choices. The demand for nonmarketed natural resources is thereby estimated indirectly by an analysis of commodities that are traded in a market.

(5) The contingent valuation methodology includes all techniques that set up hypothetical markets to elicit an individual's economic valuation of a natural resource. This methology can survey consumptive, option, and existence values. The use of this method to estimate option and existence values should be used only if the authorized official determines that no other valuation technique will be feasible.

(6) Unit values are preassigned dollar values for various types of nonmarketed recreational or other experiences by the public. Where feasible, regional unit values and unit values that closely resemble the recreational or other experience lost should be used.

(7) Nonmarketed resource methodologies that measure use values in accordance with willingness to pay or willingness to accept, in a cost-effective manner, are acceptable methodologies to estimate damages under this Part.

**§ 11.84 Damage Determination phase—implementation guidance.**

(a) *Requirement.* The damage estimation methodologies in § 11.81 and § 11.83 of this part should be implemented following the appropriate guidance in this section and that in § 11.35 of this part.

(b) *Determining uses.* (1) Before estimating damages based on the diminution of use values under § 11.83 of this part, the uses made of the resource services identified in the Quantification phase should be determined.

(2) Only committed uses, as that phrase is used in this part, of the resource of services over the recovery period will be used to measure the change from the baseline resulting from injury to a resource. The baseline uses must be reasonably probable, not just in the realm of possibility. Purely speculative uses of the injured resource are precluded from consideration in the estimation of damages.

(3)(i) When resources or resource services have mutually exclusive uses, the highest-and-best use of the injured resource or services, as determined by the authorized official, shall be used as the basis of the analyses required in this part. This determination of the highest-and-best use must be consistent with the requirements of paragraph (b)(2) of this section.

(ii) If the uses of the resource or service are not mutually exclusive, the sum of damages should be determined from individual services. However the sum of the projected damages from individual services must be consistent with the resulting projected total use of those services.

(c) *Double counting.* (1) Double counting of damages should be avoided. Double counting means that a benefit or cost has been counted more than once in the economic analysis.

(2) Natural resource damages are the residual to be determined by incorporating the effects, or anticipated effects, of any response actions. To avoid one aspect of double counting, the effects of response actions shall be factored into the analysis of damages. If response actions will not be completed until after the assessment has been initiated, the anticipated effects of such action should be included in the assessment.

(d) *Uncertainty.* (1) When there are significant uncertainties concerning the assumptions required to implement the selected damage methodology, reasonable alternative assumptions should be examined. In such cases, uncertainty should be handled explicitly in the analysis and documented. The uncertainty should be incorporated in the estimates of benefits and costs.

(2) To incorporate this uncertainty, a range of probability estimates for the important assumptions used in the methodology should be determined. In these instances, the damage estimate shall be the net expected present value of (1) restoration or replacement costs, or (2) diminution of use values.

(e) *Discounting.* (1) Where possible, damages should be estimated in the form of an expected present value dollar amount. In order to perform this calculation, a discount rate must be selected.

(2) The discount rate to be used is that specified in OMB "Circular A–94 Revised," and any changes hereafter issued.

(f) *Substitutability.* In calculating the diminution of use values, the estimates of the ability of the public to substitute uses for those of the injured services should be incorporated. This

substitutability shall be estimated only if the potential benefits from an increase in accuracy are greater than the potential costs.

(g) *Diminution of use in restoration or replacement.* (1) If restoration or replacement is to form the basis of the measure of damages, the diminution of use values during the period of time required to obtain restoration or replacement may also be included in the measure of damages.

(2) To calculate the diminution of use values during the period of time required to obtain restoration or replacement, the procedures described below should be followed. It is not necessary that they be followed in sequence.

(i) The ability of the resource to recover over the recovery period should be estimated. This estimate includes estimates of natural recovery rates as well as recovery rates that reflect management actions or resource acquistions to achieve restoration or replacement.

(ii) A recovery rate should be selected for this analysis that is based upon cost-effective management actions or resource acquisitions, including a "No Action-Natural Recovery" alternative. After the recovery rate is estimated, the diminution is use values should be estimated.

(iii) The rate at which the uses of the injured resource will be restored through the restoration or replacement of the services should be estimated. This rate may be discontinuous, that is, no uses are restored until the services are restored, or continuous, that is, restoration of uses will be a function of the level and rate restoration or replacement of the services. Where practicable, the supply of and demand for the restored services should be analyzed, rather than assuming that the services will be utilized at their full capacity at each period of time in the analysis. These use values should be discounted using the rate described in paragraph (e)(2) of this section. This estimate is the expected present value of uses obtained through restoration or replacement.

(iv) The use of the resource that would have occurred in the absence of the discharge or release should be estimated. This estimated should be done in accordance with the procedures in § 11.72 of this part. These uses should be estimated over the same period using the same discount rate as that specified in paragraph (e)(2) of this section. This amount is the expected present value of uses forgone.

(v) Subtraction of the present value of uses obtained through restoration or replacement from the expected present value of uses forgone gives the amount of compensation that may be included, if positive, in a measure of damages

(h) *Incorporating natural recovery in use values.* If use values will form the measure of damages, the natural ability of the resource to recover as determined in § 11.73 of this part shall be used to estimate the diminution of use values. The same procedures as those in pararaph (g)(2) of this section should be followed to determine the diminution of use values, except that only the natural rate of recovery, as determined by the analysis required in § 11.73 of this part, and any normal management actions, shall be used.

(i) *Scope of the analysis.* (1) The authorized official must determine the scope of the analysis in order to estimate a diminution of use values.

(2) In assessments where the scope of analysis is Federal, only the diminution of use values to the Nation as a whole should be counted.

(3) In assessments where the scope of analysis is at the State level, only the diminution of use values to the State should be counted.

## Subpart F—Post-Assessment Phase

### § 11.90 Post-assessment phase—Report of Assessment.

(a) *Requirement.* (1) At the conclusion of either a type A or type B assessment, the authorized official shall prepare a Report of Assessment that shall consist of the Preassessment Screen Determination, the Assessment Plan, and the requirements of paragraphs (2) or (3) of this paragraph as appropriate.

(2) For a type A assessment conducted in accordance with the guidance in Subpart D of this part, the Report of Assessment shall include the results of that assessment.

(3) For a type B assessment conducted in accordance with the guidance in Subpart E of this part, the Report of Assessment shall consist of all the documentation supporting the determinations required in the Injury Determination phase, the Quantification phase, and the Damage Determination phase, and specifically including the test results of any and all methodologies performed for the Injury Determination and the Quantification phases. Where the basis for the measure of damages is restoration or replacement costs, the Restoration Methodology Plan shall also be included in the Report of Assessment.

(b) The Report of Assessment shall constitute the administrative record of the assessment for purposes of judicial review or administrative consideration.

### § 11.91 Post-assessment phase—demand.

(a) *Requirement and content.* At the conclusion of the assessment the authorized official shall present to the responsible party a demand in writing for a sum certain, representing the damages determined in accordance with the requirements and guidance of § 11.80 and including the reasonable cost of the assessment, delivered in such a manner as will establish the date of receipt. The demand shall adequately identify the Federal or State agency asserting the claim, the general location and description of the injured resource, identification of the type of discharge or release determined to have resulted in the injuries, and the damages sought from that party.

(b) *Report of Assessment.* The demand letter shall include the Report of Assessment as an attachment.

(c) *Rebuttable presumption.* When performed by a Federal agency in accordance with this part, the assessment of damages and the resulting Damage Determination supported by a complete administrative record of the assessment including the Report of Assessment as described in § 11.90 of this part, shall have the force and effect of a rebuttable presumption on behalf of any claimant in any judicial or adjudicatory administrative proceeding under CERCLA or section 311 of the CWA.

### § 11.92 Post-assessment phase—restoration fund.

(a) *Fund establishment.* Upon award of damages pursuant to section 107(a)(4)(C) of CERCLA, the responsible party or parties shall set up an interest bearing account payable in trust to the Federal or State agency acting as trustee into which the responsible party or parties shall deposit all sums awarded as damages for injury to natural resources except as provided in paragraphs (b) and (c) of this section.

(b) *Land acquisition funds.* Any funds awarded for the purpose of acquiring land for Federal management shall be deposited in the United States Treasury. Federal agencies shall acquire land for Federal management solely with funds appropriated for that purpose..

(c) *Reimbursement for costs.* Sums awarded as reimbursement for the reasonable costs of conducting the assessment shall be payable to the appropriate treasury of the Federal or State agency that incurred the costs.

(d) *Adjustments.* In establishing the account pursuant to paragraph (a) of this section, the calculation of expected present value reflected in the measure of damages shall be reviewed and adjusted

in accordance with the guidance provided in § 11.84(g)(2)(iii) of this part.

(e) *Payments from fund.* Funds shall be paid out of the account established pursuant to paragraph (a) of this section only for those actions described in the Restoration Plan required by § 11.93 of this part.

**§ 11.93 Post-assessment phase—Restoration Plan.**

(a) Upon determination of the amount of the award of a natural resource damage claim as authorized by section 107(a)(4)(C) of CERCLA, the authorized official shall prepare a Restoration Plan as described in section 111(i) of CERCLA. If the measure of damages was determined in accordance with the guidance in § 11.81 of this part, the plan shall be based upon the Restoration Methodology Plan described in § 11.82 of this part. If the measure of damages was determined using any of the methodologies described in § 11.83 of this part, the plan shall describe how the funds will be used to address natural resources, specifically what restoration, replacement, or acquisition of the equivalent resources will occur. The Restoration Plan shall be prepared in accordance with the guidance set forth in § 11.82 of this part.

(b) No restoration activities should be conducted by Federal agencies that would incur ongoing expenses in excess of those that would have been incurred under baseline conditions and that cannot be funded by the amount included in the trust fund established pursuant to § 11.92(a) of this part unless such additional funds are appropriated through the normal appropriations process.

**Appendix I—Methods for Estimating the Areas of Ground Water and Surface Water Exposure During the Pressessment Screen**

This appendix provides methods for estimating, as required in § 11.25 of this Part, the areas where exposure of ground water or surface water resources may have occurred or are likely to occur. These methods may be used in the absence of more complete information on the ground water or surface water resources.

*Ground water*

The longitudinal path length (LPL) factors in table 1 are to be applied in estimating the area potentially exposed downgradient of the known limit of exposure or of the boundary of the site. Estimates of lateral path width (LPW) are to be used when the LPW exceeds the width of the plume as determined from available data, or when the width of the plume at the boundary of the site is estimated as less than the LPW. In the absence of data to the contrary, the largest values of LPL and LPW consistent with the geohydrologic data available shall be used to make the estimates required in the preassessment screen. An example computation using the LPL and LPW factors follows table 1.

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Table 1 -- Factors for Estimation of Areas Potentially Exposed Via the Ground Water Pathway

| Aquifer Type | Porosity/Hyd. Conductivity Factor (miles/year) | | Hydraulic Gradient Estimate (feet/mile) | | Time since Release Began (in years) | | Longitudinal Path Length (in feet) | Lateral Path Width (in feet) |
|---|---|---|---|---|---|---|---|---|
| Sand | 50 | X | _____ | X | _____ | = | _____ | LPW=0.2LPL |
| Sand+silt | 0.5 | X | _____ | X | _____ | = | _____ | LPW=0.3LPL |
| Gravel | 6000 | X | _____ | X | _____ | = | _____ | LPW=0.2LPL |
| Sandstone | 0.01 | X | _____ | X | _____ | = | _____ | LPW=0.4LPL |
| Shale | $3x10^{-6}$ | X | _____ | X | _____ | = | _____ | LPW=0.8LPL |
| Karst, Limestone, or Dolomite | 10 | X | _____ | X | _____ | = | _____ | LPW=0.2LPL |
| Limestone or Dolomite | 0.01 | X | _____ | X | _____ | = | _____ | LPW=0.4LPL |
| Fractured Crystalline Rocks | 0.3 | X | _____ | X | _____ | = | _____ | LPW=0.3LPL |
| Dense Crystalline Rocks | $1x10^{-5}$ | X | _____ | X | _____ | = | _____ | LPW=0.8LPL |

**Example of Computation for Estimating the Area Potentially Exposed via Ground Water Pathway**

A release of hazardous substances occurs from a facility located in a glacial valley. Available data indicate the release may have occurred intermittently over a period of almost 1 year, although only one well about 300 feet downgradient of the facility boundary had detectable quantities of contaminants. The contaminated well is screened in the water table aquifer composed of gravelly sands. The facility boundary nearest the contaminated well is almost 3,000 feet in length, but a review of available data determined the release is probably localized along a 500-foot section of the boundary where a stream leaves the facility. Available water table date indicate hydraulic gradients in the valley range from 0.005 feet/mile up to 0.25 feet/mile near pumping wells. No pumping wells are known to be located near the release, and a mean hydraulic gradient of 0.1 feet/mile is estimated in the vicinity of the release site. Using the gravel factor from table 1, the LPL and LPW are estimated:

$6000 \times 0.1 \times 1 = 600$ feet (LPL) and
$600 \times 0.2 = 120$ feet (LPW).

Since the estimated LPW (120 feet) is less than the plume width (500 feet) determined from other available data, the greater number is used to compute the area potentially exposed:

(1) 600 feet $\times$ 500 feet = 300,000 square feet (about 6.9 acres).

The available information allows an initial determination of area potentially exposed via the ground water pathway to be estimated:

(2) 300 feet $\times$ 500 feet = 150,000 square feet (about 3.5 acres).

The total area potentially exposed is the sum of (1) and (2): $6.9 + 3.5 = 10.4$ acres.

*Surface water*

The area of surface water resources potentially exposed should be estimated by applying the principles included in the examples provided below.

Example 1—A release occurs and most of the oil or hazardous substance enters a creek, stream, or river instantaneously or over a short time interval (pulse input is assumed). The maximum concentration at any downstream location, past the initial mixing distance, is estimated by:

$Cp = 25(Wi)/T^{0.5}Q)$

where Cp is the peak concentration, in milligrams/liter (mg/L).

Wi is the total reported (or estimated) weight of the undiluted substance released, in pounds,

Q is the discharge of the creek, stream, or river, in cubic feet/second, and

T is the time, in hours, when the peak concentration is estimated to reach a downstream location L, in miles from the entry point.

The time T may be estimated from:

$T = 1.467(L)/Vp$ where T and L are defined as above and Vp is the mean stream velocity, in feet per second.

The mean stream velocity may be estimated from discharge measurements or from estimates of channel slope S (foot drop per foot distance downstream) and estimates of discharge Q (defined above) using the following equations:

for pool and riffle reaches $Vp = 0.38(Q^{0.40})(S^{0.20})$, or

for channel-controlled reaches $Vp = 2.69(Q^{0.260.26})(S^{0.28})$.

As the peak concentrations become attenuated by downstream transport, the plume containing the released substance becomes elongated. The time the plume might take to pass a particular point downstream may be estimated using the following equation: $D = 92.5 \times 10^{9}Wi/(Q\ Cp)$ where D is the time estimate, in hours, and Wi, Cp, and Q are defined above.

Example 2—A release occurs and most of the oil or hazardous substance enters a creek, stream, or river very slowly or over a long time period (sustained input assumed). The maximum concentration at any downstream location, past the initial mixing distance, is estimated by: $c = C(q)/(Q + q)$ where c is the maximum downstream concentration, in mg/L,

C is the average concentration of the released substance during the period of release, in mg/L,

Q is the discharge rate of the release into the streamflow, in cubic feet/second, and

q is the discharge rate of the streamflow into which the contaminant flows, in cubic feet/second.

For the above computations, the initial mixing distance may be estimated by: $L = (1.7 \times 10 - 5)v(B^2)/(d^{3/2})(s^{1/2})$ where L is the initial mixing distance, in miles,

v is the mean stream velocity, in ft/s,

B is the average stream surface width, in ft,

d is the mean depth of the stream, in ft, and

s is the water-surface slope, in ft/ft.

Example 3—A release occurs and the oil or hazardous substance enters a pond, lake, reservoir, or coastal body of water. The concentration of soluble released substance in the surface water body may be estimated by: $c = C(v/V)$ where c is the estimated concentration of the released substance, in mg/L,

C is the average concentration of the released substance during the period of the release, in mg/L,

v is the total volume of substance released, in volumetric units, and

V is the volume of the surface water body, in the same volumetric units used for v.

[FR Doc. 85-30098 Filed 12-19-85; 8:45 am]

BILLING CODE 4310-10-M

federal register

Friday
December 20, 1985

Part V

# Department of Health and Human Services

## National Institutes of Health

**Recombinant DNA Advisory Committee Meeting; Recombinant DNA Research; Proposed Actions Under Guidelines; Notices**

## DEPARTMENT OF HEALTH AND HUMAN SERVICES

### National Institutes of Health

### Recombinant DNA Advisory Committee; Meeting

Pursuant to Pub. L. 92–463, notice is hereby given of a meeting of the Recombinant DNA Advisory Committee at the National Institutes of Health, Building 31C, Conference Room 10, 9000 Rockville Pike, Bethesda, Maryland 20892, on January 27, 1986, from 9:00 a.m. to adjournment at approximately 5:00 p.m. This meeting will be open to the public to discuss:

Scientific issues in human somatic-cell gene therapy;
Containment for retroviruses;
Exchange list for gram positive bacteria;
Amendment of Guidelines; and
Other matters to be considered by the Committee.

Attendance by the public will be limited to space available. Members of the public wishing to speak at the meeting may be given such opportunity at the discretion of the Chair.

Dr. William J. Gartland, Jr., Executive Secretary, Recombinant DNA Advisory Committee, National Institutes of Health, Building 31, Room 3B10, telephone (301) 496–6051, will provide materials to be discussed at the meeting, rosters of committee members, and substantive program information. A summary of the meeting will be available at a later date.

Dated: December 2, 1985.

**Betty Beverdige,**

*Committee Management Officer, NIH.*

OMB's "Mandatory Information Requirements for Federal Assistance Program Announcements" (45 FR 39592) requires a statement concerning the official government programs contained in the *Catalog of Federal Domestic Assistance*. Normally NIH lists in its announcements the number and title of affected individual programs for the guidance of the public. Because the guidance in this notice covers not only virtually every NIH program but also essentially every federal research program in which DNA recombinant molecule techniques could be used, it has been determined to be not cost effective or in the public interest to attempt to list these programs. Such a list would likely require several additional pages. In addition, NIH could not be certain that every federal program would be included as many federal agencies, as well as private organizations, both national and international, have elected to follow the NIH Guidelines. In lieu of the individual program listing, NIH invites readers to direct questions to the information address above about whether individual programs listed in the *Catalog of Federal Domestic Assistance* are affected.

[FR Doc. 85–30115 Filed 12–19–85; 8:45 am]

BILLING CODE 4140–01–M

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### Recombinant DNA Research; Proposed Actions Under Guidelines

**AGENCY:** National Institutes of Health, PHS, DHHS.

**ACTION:** Notice of Proposed Actions Under NIH Guidelines for Research Involving Recombinant DNA Molecules.

**SUMMARY:** This notice sets forth proposed actions to be taken under the National Institutes of Health (NIH) Guidelines for Research Involving Recombinant DNA Molecules. Interested parties are invited to submit comments concerning these proposals. After consideration of these proposals and comments by the NIH Recombinant DNA Advisory Committee (RAC) at its meeting on January 27, 1986, the Director of the National Institutes of Health will issue decisions on these proposals in accord with the Guidelines.

**DATE:** Comments must be received by January 21, 1986.

**ADDRESS:** Written comments and recommendations should be submitted to the Director, Office of Recombinant DNA Activities, Building 31, Room 3B10, National Institutes of Health, Bethesda, Maryland 20892. All comments received in timely response to this notice will be considered and will be available for public inspection in the above office on weekdays between the hours of 8:30 a.m. and 5:00 p.m. Comments received by close of business January 21, 1986, will be reproduced and distributed to the RAC for consideration at its January 27, 1986, meeting.

**FOR FURTHER INFORMATION:** Background documentation and additional information can be obtained from Drs. Stanley Barban and Elizabeth Milewski, Office of Recombinant DNA Activities, National Institutes of Health, Bethesda, Maryland 20892, (301) 496–6051.

**SUPPLEMENTARY INFORMATION:** The National Institutes of Health will consider the following actions under the Guidelines for Research Involving Recombinant DNA Molecules.

#### I. Proposal to Modify the NIH Guidelines to Specifically Refer to Recombinant RNA

The Recombinant DNA Advisory Committee (RAC) has discussed whether the NIH Guidelines should explicitly state that recombinant RNA (e.g., retroviral vectors) is covered by the NIH Guidelines, particularly in the case of human gene therapy protocols. Accordingly, a RAC working group has composed a proposal to modify Section III–A–4, Section III–B–3, and Section III–B–4–a of the NIH Guidelines to specifically refer to recombinant RNA. That proposal would modify these sections n the following manner:

A. Section III–A–4 of Section III–A, *Experiments that Require RAC Review and NIH and IBC approval Before Initiation*, currently reads as follows:

III–A–4. Deliberate transfer of recombinant DNA or DNA derived from recombinant DNA into human subjects (21). The requirement for RAC review should not be considered to preempt any other required review of experiments with human subjects. Institutional Review Board (IRB) review of the proposal should be completed before submission to NIH.

Under the working group proposal, Section III–A–4 would be modified to read as follows:

III–A–4. Deliberate transfer of recombinant DNA or DNA or RAN derived from recombinant DNA into human subjects (21). The requirement for RAC review should not be considered to preempt any other required review of experiments with human subjects. Institutional Review Board (IRB) review of the proposal should be completed before submission to NIH.

B. Section III–B–3 of Section III–B, *Experiments that Require IBC Approval Before Initiation*, currently reads as follows:

III–B–3. *Experiments Involving the Use of Infectious Animal or Plant Viruses or Defective Animal or Plant Viruses in the Presence of Helper Virus in Tissue Culture Systems.*

**Caution:** Special care should be used in the evaluation of containment levels for experiments which are likely to either enhance the pathogenicity (e.g., insertion of host oncogene) or to extend the host range (e.g., introduction of novel control elements) of viral vectors under conditions which permit a productive infection. In such cases, serious consideration should be given to raising the physical containment by at least one level.

**Note.**—Recombinant DNA molecules which contain less than two-thirds of the genome of any eukaryotic virus (all virus from a single Family (17) being considered identical (19)) may be considered defective and can be used in the absence of helper under the conditions specified in Section III–C.

Under the working group proposal, Section III–B–3 would be modified to read as follows:

III–B–3. *Experiments Involving the Use of Infectious Animal or Plant DNA or RNA Viruses or Defective Animal or Plant DNA or RNA Viruses in the Presence of Helper Virus in Tissue Culture Systems.*

**Caution:** Special care should be used in the evaluation of containment levels for experiments which are likely to either enhance the pathogenicity (e.g., insertion of a host oncogene) or to extend the host range (e.g., introduction of novel control elements) of viral vectors under conditions which permit a productive infection. In such cases, serious consideration should be given to raising the physical containment by at least one level.

Note.—Recombinant DNA molecules or RNA molecules derived therefrom which contain less than two-thirds of the genome of any eukaryotic virus (all virus from a single Family (17) being considered identical (19)) may be considered defective and can be used in the absence of helper under the conditions specified in Section III–C.

C. Section III–B–4–a of Section III–B, *Experiments that Require IBC Approval Before Initiation*, currently reads as follows:

III–B–4–a. DNA from any sources except for greater than two-thirds of a eukaryotic viral genome may be transferred to any non-human vertebrate organism and propagated under conditions of physical containment comparable to BL1 and appropriate to the organism under study (2). It is important that the investigator demonstrate that the fraction of the viral genome being tuilized does not lead to productive infection. A USDA permit is required for work with Class 5 agents (18, 20).

Under the working group proposal, Section III–B–4–a would be modified to read as follows:

III–B–4–a. Recombinant DNA or RNA molecules derived therefrom from any source except for greater than two-thirds of a eukaryotic viral genome may be transferred to any non-human vertebrate organism and propagated under conditions of physical containment comparable to BL1 and appropriate to the organism under study (2). It is important that the investigator demonstrate that the fraction of the viral genome being utilized does not lead to productive infection. A USDA permit is required for work with Class 5 agents (18, 20)."

## II. Proposal to Modify Appendix C of the NIH Guidelines

Section III–D–5 of the NIH Guidelines states that certain classes of recombinant DNA molecules are exempt ". . . if the Director, NIH, with advice of the RAC, after appropriate notice and opportunity for public comment, finds that they do not present a significant risk to health or the environment. . . ." These classes of experiments are listed in Appendix C.

A RAC Working Group on Gram Positive Bacteria has now suggested that a new section be added to Appendix C. That new section would be entitled Appendix C–V, *Extrachromosomal Elements of Gram Positive Organisms.* The current Appendix C–V, *Footnotes and References of Appendix C*, would be renumbered Appendix C–VI under the proposal.

The Working Group on Gram Positive Bacteria has suggested proposed Appendix C–V read as follows:

Recombinant DNA molecules derived entirely from extrachromosomal elements of the organisms listed below (including shuttle vectors constructed from vectors described in Appendix C), propagated and maintained in organisms listed below are exempt from these Guidelines.

Bacillus subtilis
Bacillus pumilus
Bacillus licheniformis
Bacillus thuringiensis
Bacillus cereus
Bacillus amyloliquefaciens
Bacillus brevis
Bacillus natto
Bacillus niger
Bacillus aterrimus
Bacillus amylosacchariticus
Bacillus anthracis
Bacillus globigii
Bacillus megaterium
Staphylococous aureus
Staphylococous epidermindis
Staphylococous carnosus
Clostridium acetobutylicum
Pediococcus damnosus
Pediococcus pentosaceus
Pediococcus acidilactici
Listeria grayi
Listeria murrayi
Listeria monocytogenes
Streptococcus pyogenes
Streptococcus agalactiae
Streptococcus sanguis
Streptococcus salivarious
Streptococcus cremoris
Streptococcus pneumoniae
Streptococcus avium
Streptococcus faecalis
Streptococcus anginosus
Streptococcus sobrinus
Streptococcus lactis
Streptococcus mutans
Streptococcus equisimilis
Streptococcus thermophylus
Streptococcus milleri
Streptococcus durans
Streptococcus mitior
Streptococcus ferus

*Exceptions.*

Experiments described in Section III–A which require specific RAC review and NIH approval before initiation of the experiment.

Large-scale experiments (e.g., more than 10 liters of culture) require prior IBC review and approval (see section III–B–5).

Experiments involving the deliberate cloning of genes coding for the biosynthesis of molecules toxic for vertebrates (see Appendix F).

The Working Group on Gram Positive Bacteria also suggested the first paragraph of Appendix C–IV, *Experiments involving Bacillus subtilis Host-Vector Systems*, be modified. That paragraph currently reads as follows:

Any asporogenic *Bacillus subtilis* strain which does not revert to a sporeformer with a frequency greater than $10^{-7}$ can be used for cloning DNA with the exception of those experiments listed below. Indigenous *Bacillus* plasmids and phages whose host-range does not include *Bacillus cereus* or *Bacillus anthracis* may be used as vectors.

The second sentence of that paragraph would be deleted and the paragraph would read as follows:

Any asporogenic *Bacillus subtilis* strain which does not revert to a sporeformer with a frequency greater than $10^{-7}$ can be used for cloning DNA with the exception of those experiments listed below.

## III. Proposed Revision of Appendix C–I

Dr. Robert Simpson, Chair of the NIH Institutional Biosafety Committee, has requested a modification of Appendix C–I, *Exemptions Under section III–D–5. In proposing this modification, Dr. Simpson said:*

A great number of experiments are currently carried out which involve the use of 'shuttle' vectors containing small amounts of eukaryotic viral DNA together with bacterial plasmid sequences; such recombinant DNA constructions can replicate in either bacteria or tissue culture cells. These vectors are used for cloning and for expression studies. Examples of the types of viral sequences utilized are the SV40 origin of replication, splice junction, polyadenylation signal, herpes thymidylate kinase gene, etc. Such recombinant molecules are not capable of generating infectious virus.

Currently the Guidelines require registration of any experiment in which any eukaryotic viral sequences are propagated in tissue culture cells. [The NIH IBC feels] this is not necessary and would like to propose . . . revision to Appendix C–I. . . .

Appendix C–I currently reads:

Appendix C–I. *Recombinant DNAs in Tissue Culture.* Pecombinant DNA molecules derived entirely from non-viral components (that is, no component is derived from a eukaryotic virsus) that are propagated and maintained in cells in tissue culture are exempt from these Guideline with the exceptions listed below.

*Exceptions.*

Experiments described in section III–A which require specific RAC review and NIH approval before initiation of the experiment.

Experiments involving DNA from Class 3, 4 or 5 organisms (1) or cells known to be infected with these agents.

Experiments involving the deliberate introduction of genes coding for the biosynthesis of molecules toxic for vertebrates (see Appendix F).

Dr. Simpson suggested Appendix C–I be modified to read as follows:

Appendix C–I. *Recombinant DNAs in Tissue Culture.* Recombinant DNA molecules that are propagated and maintained in cells in tissue culture are exempt from these Guidelines with the exceptions listed below.

*Exceptions*

Experiments described in section III–A which require specific RAC review and NIH approval before initiation of the experiment.

Experiments involving DNA from Class 3, 4, or 5 organisms (1) or cells known to be infected with these agents.

Experiments involving the deliberate introduction of genes coding for the biosynthesis of molecules toxic for vertebrates (see Appendix F).

Experiments involving DNA molecules which contain more than two-thirds of a primate retroviral genome.

## IV. Proposal to Modify Appendix J, Federal Interagency Advisory Committee on Recombinant DNA Research, of the NIH Guidelines

In a memorandum dated November 25, 1985, Dr. Bernard Talbot, Deputy Director of the National Institute of Allergy and Infectious Diseases, noted that the NIH Guidelines for Research Involving Recombinant DNA Molecules (49 FR 46266) devotes Appendix J to a description of the Federal Interagency Advisory Committee on Recombinant DNA Research. Appendix J lists those departments and agencies which had representation on this committee as of December 1980.

Dr. Talbot said this committee met from 1976 to 1980 but has not met since 1980. Recently another interagency committee, the Biotechnology Science Coordinating Committee, was established to provide for interagency science policy coordination and guidance and for exchange of information as announced in a **Federal Register** notice on November 14, 1985 (50 FR 47174).

Dr. Talbot suggested Appendix J be modified to reflect the current situation. He requested the following change in the NIH Guidelines be issued for public comment and placed on the agenda for the next meeting of the NIH Recombinant DNA Advisory Committee.

Dr. Talbot proposed that current Appendix J be deleted from the NIH Guidelines and the following language be substituted:

*Appendix J. Biotechnology Science Coordinating Committee*

The following excerpts from its charter (signed October 30, 1985) describe the Biotechnology Science Coordinating Committee:

*Purpose*

The Domestic Policy Working Group on Biotechnology has determined that in the area of biotechnology with its rapid growth of scientific discovery, scientific issues of interagency concern will arise frequently and need to be communicated among the various agencies involved with reviews of biotechnology applications. The Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) established by 42 U.S.C. 6651 is an interagency science committee chaired by the Director of the Office of Science and Technology Policy with the mission of coordinating science activities affecting more than one agency. Committees may be established under FCCSET for addressing particular science issues. Thus, the Biotechnology Science Coordinating Committee (BSCC) is established to provide formally an opportunity for interagency science policy coordination and guidance and for the exchange of information regarding the scientific aspects of biotechnology applications submitted to federal research and regulatory agencies for approval.

*Functions*

The BSCC will coordinate interagency review of scientific issues related to the assessment and approval of biotechnology research applications and biotechnology product applications and postmarketing surveillance when they involve the use of recombinant RNA, recombinant DNA, cell fusion or similar techniques. The BSCC will:

(a) Serve as a coordinating forum for addressing scientific problems, sharing information, and developing consensus;

(b) Promote consistency in the development of Federal agencies' review procedures and assessments;

(c) Facilitate continuing cooperation among Federal agencies on emerging scientific issues; and

(d) Identify gaps in scientific knowledge.

*Authority*

To accomplish these functions the BSCC is authorized to:

(a) Receive documentation from agencies necessary for the performance of its function;

(b) Conduct analyses of broad scientific issues that extend beyond those of any one agency;

(c) Develop generic scientific recommendations that can be applied to similar, recurring applications;

(d) Convene workshops, symposia, and generic research projects related to scientific issues in biotechnology; and

(e) Hold periodic public meetings.

*Members and Chairman*

The BSCC includes the following initial members:

Department of Agriculture
Assistant Secretary for Marketing and Inspection Services
Assistant Secretary for Science and Education
Department of Health and Human Services
Commissioner, Food and Drug Administration
Director, National Institutes of Health
Environmental Protection Agency
Assistant Administrator for Pesticides and Toxic Substances
Assistant Administrator for Research and Development National Science Foundation
Assistant Director for Biological, Behavioral & Social Sciences

The BSCC is chaired by the Assistant Director for Biological, Behavioral and Social Sciences of the National Science Foundation and the Director of the National Institutes of Health on a rotating basis.

*Administrative Provisions*

(a) The BSCC will report to the FCCSET through the Chair.

(b) Meetings of the BSCC shall be held periodically. Some public meetings will be held.

(c) Confidential business information and proprietary information shall be protected under the confidentiality requirements of each member agency.

(d) Subcommittees and working groups, with participation not restricted to BSCC members or full-time Federal employees, may be formed to assist the BSCC in its work.

(e) All BSCC members will be full-time Federal employees whose compensation, reimbursement for travel expenses and other costs shall be borne by their respective agencies.

(f) Each member of the BSCC shall provide such agency support and resources as may be available and necessary for the operation of the BSCC including undertaking special studies as come within the functions assigned herein.

(g) An Office of Science and Technology Policy staff member will serve as BSCC Executive Secretary.

Dated: December 16, 1985.

**Bernard Talbot, M.D., Ph.D.,**

*Acting Director, National Institute of Allergy and Infectious Diseases.*

OMB's "Mandatory Information Requirements for Federal Assistance Program Announcements" (45 FR 39592) requires a statement concerning the official government programs contained in the *Catalog of Federal Domestic Assistance.* Normally NIH lists in its announcements the number and title of affected individual programs for the guidance of the public. Because the guidance in this notice covers not only virtually every NIH program but also essentially every federal research program in which DNA recombinant molecule techniques could be used, it has been determined to be not cost effective or in the public interest to attempt to list these programs. Such a list would likely require several additional pages. In addition, NIH could not be certain that every federal program would be included as many federal agencies, as well as private organizations, both national and international, have elected to follow the NIH Guidelines. In lieu of the individual program listing, NIH invites readers to direct questions to the information address above about whether individual programs listed in the *Catalog of Federal Domestic Assistance* are affected.

[FR Doc. 85–30116 Filed 12–19–85; 8:45 am]

BILLING CODE 4140–01–M

federal register

Friday
December 20, 1985

## Part VI

# Department of Transportation

### Federal Aviation Administration

**14 CFR Parts 11 and 93**

**High Density Traffic Airports; Slot Allocation and Transfer Methods; Final Rule**

**14 CFR Part 93**

**Slot Allocation; Initial Withdrawal and Redistribution of Slots; Proposed Rule**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Parts 11 and 93**

**[Docket No. 24105; Amdts. Nos. 11-28 and 93-49]**

## High Density Traffic Airports; Slot Allocation and Transfer Methods

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation, (DOT).

**ACTION:** Final rule; request for comments.

**SUMMARY:** This action will permit air carrier and commuter operator slots (i.e., allocated instrument flight rules (IFR) takeoff and landing reservations) at Kennedy International Airport, LaGuardia Airport, O'Hare International Airport, and Washington National Airport to be transferred for any consideration. This amendment also adopts certain procedures for the allocation and use of slots including a use-or-lose provision at these airports. In addition, a procedure is adopted to allocate unused slots. Special procedures are provided for international flights and flights which fulfill obligations under the Essential Air Service Program, to assure that a sufficient number of slots will be available for these operations.

**DATES:**

*Effective Date:* The prohibition against trading slots on other than a one-for-one basis at the same airport until April 1, 1986 (§ 93.221(d)) is effective upon publication of this rule.

The other provisions are effective 30 days after publication. Existing slot allocations are established in reference to conditions in effect on the date of publication of this rule (see § 93.215(a)).

*Comment Date:* Comments must be received on or before January 24, 1986.

*Hearing Date:* A public hearing will be held on January 21 and 22, 1986.

**ADDRESS:** Comments on this final rule may be mailed in duplicate to:

Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket (AGC-204), Docket No. 24105, 800 Independence Avenue, SW., Washington, DC 20591.

or delivered in duplicate to:

FAA Rules Docket, Room 916, 800 Independence Avenue, SW., Washington, DC.

Comments may be examined in the Rules Docket weekdays, except Federal Holidays, between 8:30 a.m. and 5:00 p.m.

The public hearing will be held at the Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC, in the Third Floor Auditorium.

**FOR FURTHER INFORMATION CONTACT:**

Edward P. Faberman, Deputy Chief Counsel, Telephone: (202) 426-3775, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591.

**SUPPLEMENTARY INFORMATION:**

### Comments Invited

Even though this action is a final rule, interested persons are invited to comment on the rule by submitting such written data, views, or arguments as they may desire. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in developing reasoned regulatory decisions. Communications should identify the regulatory docket number and be submitted in duplicate to the address listed above. Commenters wishing the FAA to acknowledge receipt of their comments must submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 24105." The postcard will be date/time stamped and returned to the commenter. Also, this rule may be changed in the light of comments received. All comments submitted will be available for examination in the Rules Docket both before and after the closing date of comments.

In addition to seeking comments on this amendment, the FAA will hold a public hearing to allow public input and to answer questions on the administration of the rule adopted. The hearing will be held on January 21-22, 1986, at the Federal Aviation Administration, 800 Independence Avenue, SW., Third Floor Auditorium. This meeting will maximize the ability of those affected by the amendment to familiarize themselves with its implementation.

### Availability of Document

Any person may obtain a copy of this document by submitting a request to the Federal Aviation Administration, Office of Public Affairs, Attention: Public Information Center, APA-430, 800 Independence Avenue, SW., Washington, DC 20591; or by calling (202) 426-8058. Communications must identify the amendment number of the document.

### Meeting Procedures

Persons who plan to attend the hearing should be aware of the following procedures to be followed:

(a) The hearing will be informal in nature and will be conducted by the designated representative of the Administrator under 14 CFR 11.33. Each participant will be given an opportunity to make a presentation. Questions may be asked of each presenter by other participants or by representatives of the Administrator.

(b) The hearing will begin at 9:00 a.m. (local time). There will be no admission fee or other charge to attend and participate. All sessions will be open to all persons on a space available basis. The presiding officer may accelerate the schedule if possible. The second day of the hearing will be held only if all speakers cannot be accommodated during the first scheduled day.

(c) All meeting sessions will be recorded by a court reporter. Anyone interested in purchasing the transcript should contact the court reporter directly. A copy of the court reporter's transcript will be filed in the docket.

(d) Position papers or other handout material relating to the substance of the meeting may be distributed. Participants submitting handout materials must present an original and two copies to the presiding officer. There should be an adequate number of copies provided for further distribution to all participants.

(e) Statements made by DOT participants at the hearing should not be taken as expressing a final DOT position.

### Public Hearing Schedule

The schedule for the meeting is as follows:

*Tuesday, January 21, 1986*

9:00 a.m.—Hearing is opened
9:15 a.m.—Summary of Rule
9:30 a.m.—Questions
10:00-12:00—Formal presentations
1:00-5:00—Formal presentations

A continuation of the hearing can be held on Wednesday, January 22, if necessary.

Anyone interested in making a presentation at the hearing must contact Pam Trebbe, (202) 426-3773, with the name of the individual making the presentation and the name of the group represented. Presentations should be limited to 10 minutes.

### Related Rulemaking

In this issue of the **Federal Register**, there is a Notice of Proposed Rulemaking which proposes to amend

the provisions adopted in this rule by withdrawing and redistributing a percentage of slots at each of the covered airports.

**Background**

The FAA has broad authority under the Federal Aviation Act (FAAct) of 1958, as amended, to regulate and control the use of navigable airspace of the United States. Under section 307(a) of the FAAct (49 U.S.C. 1348(a)), the agency is authorized to develop plans for and to formulate policy with respect to the use of navigable airspace and to assign by rule, regulation, or order the use of navigable airspace under such terms, conditions, and limitations as may be deemed necessary in order to ensure the safety of aircraft and the efficient utilization of such airspace. Under section 307(c) of the FAAct (49 U.S.C. 1348(c)), the agency is further authorized and directed to prescribe air traffic rules and regulations governing the efficient utilization of the navigable airspace.

Federal Aviation Regulations (FAR) Amendment No. 93–13, effective April 27, 1969 (33 FR 17896, December 3, 1968), designated Kennedy, O'Hare, LaGuardia, Washington National, and Newark Airports as high density airports and prescribed special air traffic rules, known as the "High Density Rule," that apply to operations at those airports. The High Density Rule (FAR Part 93, Subpart K) was made permanent in 1973 (38 FR 29463, October 25, 1973). The rule establishes limitations (quotas) on the number of Instrument Flight Rule (IFR) reservations per hour that would be accepted at those airports and allocated the hourly reservations among the three classes of users: air carriers except air taxis, scheduled air taxis (commuter airlines), and all other operators—primarily general aviation operators but also charter operators. The hourly quotas are set at the predominant IFR capacity for each airport, as determined by the FAA. The predominant IFR capacity is the airport's capacity under the circumstances and configurations most frequently encountered when weather conditions preclude Visual Flight Rule (VFR) operation. The limitations in the rule are predominantly determined by groundside restraints.

The entire quota for Newark International Airport was suspended indefinitely, although the airport was retained in the rule as a high density airport.

On March 1, 1984, the FAA issued an Interim Final Rule (49 FR 8237, March 6, 1984) which amended the limitations on operations at Kennedy, LaGuardia, and O'Hare Airports and continued the suspension of operational quotas at Newark Airport. The Interim Final Rule was effective on April 1, 1984.

The current rule provides hourly and half-hourly quotas for classes of operators, but does not specifically provide for the means by which particular slots are allocated to individual operators within the hourly or half-hourly limits of the rule. For certificated air carriers and commuter carriers, slots at each of the four airports generally have been allocated by eight scheduling committees composed of the incumbent carriers and interested new entrant carriers in each category at each airport. Each committee meets and operates under a limited grant of antitrust immunity issued under section 414 of the Federal Aviation Act. The functions and responsibilities of the Civil Aeronautics Board for the administration of Title IV of the Federal Aviation Act, including grants of antitrust immunity, were transferred to the Department of Transportation on January 1, 1985.

The agreements under which the four air carrier scheduling committees operate require unanimous agreement on carrier schedules and contain no provisions for resolving deadlocks if agreement cannot be reached. The air carrier agreements also have no use-or-lose provisions which would require the return of unused slots. As a result of the unanimity requirement and the lack of deadlock-breaking provisions, the air carrier scheduling committees have found it difficult in recent years to reach agreement on a schedule in full compliance with the High Density Rule. The committees have been able to avoid deadlocks in some situations due in large part to the FAA's flexibility in accommodating certain schedule adjustments if within the overall limits of the rule and when consistent with air traffic control resources and objectives. However, the National Airport Scheduling Committee has been deadlocked for some time and others have also deadlocked at times. Overall, the scheduling committees are not currently functioning in a manner which provides for the efficient allocation of slots, for rapid adjustment to market conditions and shifting carrier needs and preferences, for adequate opportunity for expansion of operations, or for new carriers to serve high density airports.

The committee agreements under which the commuter carriers operate contain both deadlock breaking mechanisms and use-or-lose provisions. For example, a commuter carrier at O'Hare Airport which fails to operate its slots 5 days per week at least 80 percent of the time during a particular scheduling period will surrender those slots to the O'Hare Regional Carrier Scheduling Committee for reallocation. If the committee members cannot reach agreement on the allocation of newly available slots, a lottery is held to de'ermine which carriers will obtain each of the available slots. As a result of these procedures, the committees do not encounter formal deadlocks in the allocation of slots. However, procedures at the four airports are not uniform, and there have been difficulties in interpretation of the use-or-lose and other provisions of the agreements. Also, the commuter agreements do not contain clear provisions for the transfer of slots among carriers.

When the scheduling committees fail to agree on an allocation in compliance with High Density Rule quotas, the responsibility for accomplishing allocation falls to the Government. The slot allocation alternatives available to the Government without additional regulatory authority are limited, however, and administrative procedures for allocation have proven to have significant drawbacks. For these reasons, the DOT has issued three regulatory proposals over the past five years to further the public discussion of alternative methods of allocating and exchanging slots among carriers.

On October 21, 1980, the Department issued Notice No. 80–16 (45 FR 71236; October 27, 1980) which proposed alternative procedures for slot allocation at National Airport. The alternatives proposed included administrative allocation, slot auctions and variations thereof. In addition, the notice solicited comments on the continued use of the airline scheduling committees. The notice also proposed variations of each alternative to assure that small- and medium-sized communities do not lose nonstop service to the airport. Comments submitted on that NPRM are in the Docket of the Office of the Secretary (Docket No. 70, Office of the General Counsel, Room 4107, 400 Seventh Street, SW., Washington, DC 20590).

On June 1, 1984, the FAA issued two notices proposing alternate procedures for the allocation and exchange of slots. Notice No. 80–16 was superseded by these two later notices. The first notice, Notice 84–6, Slot Transfer Methods (49 FR 23788, June 7, 1984), proposed that air carrier slots could be exchanged for any consideration. Under the proposal, air carrier slots could only be exchanged and held by air carriers, and slots obtained through any deadlock breaking

mechanism could not be transferred until used for at least 90 days. The second notice, Notice 84–7, Slot Allocation Alternative Methods (49 FR 23806, June 7, 1984), proposed deadlock breaking and use-or-lose provisions for air carrier and commuter slots. The notice proposed to preserve the scheduling committee system of allocation and to provide a regulatory allocation mechanism if a committee reached an impasse. Existing slots would continue to be used by the operator holding them. The notice proposed the use of a lottery to allocate newly created slots and slots that were not used. The lottery provided for a 15 percent set-aside of available slots for new entrants, a set-aside of Essential Air Service (EAS) program slots at O'Hare Airport, and a lottery procedure weighted in accordance with the approximate number of slots already held by carriers. Slots obtained through the lottery could not be transferred until they had been used for at least 90 days. Under the NPRM, it was proposed that a slot not used at least 71 percent of the time (approximately 5 days out of 7) in any 2-month period would be withdrawn by the FAA.

**Slot Transfer and Allocation Rules Adopted: Overview**

On consideration of the issues and proposals presented in both Notices 84–6 and 84–7, and public comment thereon, the DOT is adopting a new Subpart S to Part 93 of the Federal Aviation Regulations, 14 CFR Part 93, to establish regulatory procedures and rules for the allocation and transfer of high density slots. In summary form, the amendment provides as follows:

—Separate slot pools for air carrier, commuter, and other operators are retained. The numbers contained in the High Density Rule are not changed by this amendment.
—Air carriers and commuters holding permanent slots which are in use on December 16, 1985 will be allocated those slots.
—Beginning on April 1, 1986, any person may purchase, sell, trade, or lease air carrier or commuter slots (except for international and EAS slots) in any number at any of the high density airports.
—International and essential air service slots are treated specially and transfer of such slots is restricted.
—All slots are "tagged" with a priority number, assigned by lottery, to determine the order of withdrawal if necessary.
—Slots not used 65 percent of the time in a 2-month period must be returned to the FAA (use-or-lose).
—A lottery procedure is provided for the allocation of newly available slots and slots returned under the use-or-lose provision.
—The use-or-lose provision does not apply to slots allocated by lottery until 60 days after allocation (180 days after allocation to a new entrant awaiting a Part 121 or Part 135 certificate, and 90 days after allocation to any other new entrant).
—Slots will be made available for additional EAS operations, as requested and approved by OST, by taking slots from incumbent operators if not otherwise available.
—Slots will be made available for new international operations at O'Hare and John F. Kennedy Airports, as requested, by taking slots from incumbent operators if not otherwise available.
—Slots utilized for general aviation operations are not affected by this amendment.
—This amendment does not create proprietary rights in slots.
—Slots may be recalled or eliminated by the agency for operational reasons.

All comments were thoroughly reviewed prior to the issuance of this amendment. Numerous comments were submitted and various options were proposed. There was not any consensus among commenters on an approach to take. In fact, most commenters suggested their own version of a deadlock/allocation mechanism. In selecting a procedure to be utilized, the Department had to be mindful of statutory responsibilities including the need to place maximum reliance on competitive market forces, the maintenance of air service to small communities, honoring international air service treaty obligations, avoiding immediate disruption of the existing air service patterns at the affected airports, and maximizing scheduling flexibility for the air carriers and for the public. The Department believes that this amendment is the one alternative which best meets these objectives.

This amendment basically adopts Notice 84–6, slot transfer methods, as proposed. It does not adopt a deadlock breaking mechanism as proposed in Notice 84–7 although a number of the provisions set forth in that document are adopted.

As a result of this amendment, the role of the scheduling committees in the allocation of slots is eliminated. However, the FAA, as discussed below, suggests that there may be a role for the committees in keeping track of slot holdings and facilitating slot transfers.

The following is a brief summary of this amendment. A more detailed section-by-section description appears later in this preamble.

**Summary of the Rule**

*Applicability of Rules.* This amendment applies to the allocation and transfer of air carrier and commuter slots. It does not apply to the category of "other" slots which includes general aviation operations. Those slots are not allocated on a permanent basis and, therefore, will not be made subject to this amendment. The use of slots for general aviation is governed by FAA Advisory Circular 90–43F, "Operations Reservations for High Density Traffic Airports." Operations by general aviation at high density airports are required to have slot reservations under the high density rule and the procedures described in AC 90–43F.

*Initial Allocation.* The first step in the allocation process will be to continue the assignment of all previously allocated slots to the carriers and commuters utilizing them. (Each air carrier or commuter operator holding a permanent slot on December 16, 1985 as evidenced by the records of the appropriate scheduling committee, shall be allocated those slots.)

In order to consider further the reallocation of some permanently held slots, a NPRM was issued and is published in today's **Federal Register.** The NPRM (Notice No. 85–25) proposes to withdraw up to 5 percent of the slots used by air carriers and commuter operators and to redistribute those slots by lottery.

*Purchase and Sale of Slots.* This amendment allows air carriers, commuters or other persons, effective April 1, 1986, to buy, sell or lease slots for any consideration and any time period and allows the trading of slots in any combination for slots at the same airport or any other high density airport.

*Use-or-Lose.* The Amendment provides that slots which are not used at least 65 percent of the time in a 2-month period shall be returned to the FAA. This provision does not apply during a strike or bankruptcy proceeding, or for the following periods after slots are awarded in a lottery: 60 days for incumbents; 180 days for uncertificated new entrants who have made substantial progress toward FAA certification; and 90 days for all other new entrants.

*EAS Operations.* Slots will be made available for service as provided under the Essential Air Service (EAS) program. The Department may assign slots to carriers if necessary to provide EAS service and may recall non-EAS slots for that purpose if unallocated slots are not

available. The rule restricts transfer of all slots used for EAS operations. The rule further provides that a slot awarded for EAS purposes under the rule may not be sold or traded except on a one-for-one basis at the same airport.

*International Operations.* Slots will be made available for certain international service at Kennedy and O'Hare airports. If slots are not available, they will be withdrawn from incumbent operators. The rule further provides that international slots shall not be sold or leased. Further, international slots may only be traded on a one-for-one basis at the same airport.

*Procedural rules.* This amendment establishes minimal regulations for the allocation and transfer of high density airport slots. As such, the rule contains specific procedures for the acquisition, use, and transfer of slots. Among the areas covered are: reporting requirements; allocation of newly available slots by lottery; special procedures applicable to EAS and international slots; use-or-lose provisions; exceptions to the use-or-lose rules during the start-up of operations and in strikes or bankruptcy situations; eligibility to buy and sell slots; identification of the recall priority of each slot; slot recall procedures; and penalties for noncompliance. Each of the above provisions is discussed in the response to comments immediately below.

**ATC Services**

The rule will provide for the allocation of existing ATC capacity among individual operators. The rule will have no affect on the provision of ATC services or on FAA's determination of the capacity of the air traffic control system at the four high density airports. The priorities and operating rights provided by the rule do not preclude the expansion, limitation, or modification of ATC services as deemed necessary by the FAA for purposes or the safe and efficient movement of air traffic. In addition, ATC will not give special consideration to any operator because it has a slot, special slot number or has a use-or-lose problem.

**Comments received in response to Notice 84–6 and Notice 84–7**

The FAA has received a significant number of comments to Dockets 24105 and 24110 in response to Notices 84–6 and 84–7. Comments were submitted by air carriers and commuter carriers, other Federal agencies, state and local government agencies including airport operators, and aviation-related organizations and industry associations as well as consumer groups. Supporting and opposing comments were received on virtually every aspect of the two proposals, and a wide range of alternative courses of action was suggested by various commenters. Supporters of the buy-sell proposal included American, Continental, Eastern, Flying Tigers, Northwest, Pan Am, People Express, Piedmont, TWA, United and Western Air Lines ("Joint Commenters"); the Regional Airline Association (RAA), (representing commuter airlines); and three government agencies, the Council of Economic Advisers (CEA), the Department of Justice (DOJ), and the Bureaus of Economics, Competition, and Consumer Protection of the Federal Trade Commission (FTC) as well as the Office of Management and Budget (OMB). Commenters opposed to a buy-sell rule included USAir, Delta, Midwestern, Jet America, Muse Air, and PSA; the National Association of State Aviation Officials (NASAO) and the National Air Carrier Association (NACA), as well as a number of state agencies and airport operators.

The comments tended to focus on several issues. The comments and the Departmental response to each of these issues are discussed below by general subject area.

*Applicability of Rules.* Notice 84–6 proposed that only air carrier slots be subject to these provisions. The agency solicited comments on whether the proposal should extend to commuters as well as to air carriers. A large majority of commenters agreed that the provisions should apply to both types of operation. RAA supported the right of commuters to buy and sell slots. The RAA stated, "the scheduling committee process employed over the past sixteen years to allocate access at the "high density airports no longer works."

The Department agrees that the rules should apply to both air carrier and commuter operators. Therefore, this amendment applies to both air carrier and commuter opreations at the high density airports. In order to provide for continued service from smaller communities to the high density airports, the amendment does not allow air carriers (as defined in 14 CFR 93.123(c)(1) as operator using aircraft having a certificated maximum seating capacity of 56 or more) to use commuter slots (as defined in 14 CFR 93.123(c)(2) as operators using aircraft having a certificated maximum seating capacity of less than 56 or if used for cargo service in air transportation, with aircraft having a maximum payload capacity of less than 18,000 pounds.) The rule allows the use of air carrier slots with smaller aircraft.

*Initial allocation.* Notice 84–6 did not specifically address the rights of incumbent operators to hold onto existing slots. The primary alternatives suggested for this initial allocation were to "grandfather" the existing allocation; to distribute all or some percentage of slots by lottery, with the remaining slots to be grandfathered; or to auction all slots or some percentage of slots.

Notice 84–7 did propose that the first step in an allocation process would be to continue the assignment of all previously allocated slots to the air carriers and commuters currently utilizing them. That proposal is adopted in this amendment. A slot is not permanent if it has been allocated for a short period of time and is to be returned to the appropriate scheduling committee. The issue of "permanent" slots will primarily apply to commuter slots. For example, the commuter scheduling committees reallocate returned slots for short periods of time until the next scheduled permanent allocation. As part of this reallocation, the committee advises the participating commuters that these slots will be reallocated at a certain date. Slots which have been temporarily allocated, such as by the commuter committee, are not permanent and are not allocated under this rule. Instead, those slots will be permanently allocated under the lottery provisions of this amendment. Representatives of the FAA will meet with each scheduling committee to decide upon a complete list of permanent slots. The Chief Counsel of the FAA will make the final determination on all matters relating to initial slot allocations to individual carriers, including which slots are permanent and which slots shall be allocated under the lottery provisions. The slots to be permanently allocated will be in accordance with the 30-minute and 60-minute limitations contained in § 93.123(a).

The auction mechanism was not proposed in Notice 84–6 because legislation would be required for the collection and disposition of the proceeds. DOJ noted that several unresolved legal questions make it impractical to use auctions, citing in particular the Independent Offices Appropriations Act, 31 U.S.C. 9701 as an example. This is particulary so if these proceeds were to be applied for airport improvements as suggested by some commenters. Further, several commenters, including the Joint Commenters and RAA, noted their opposition to the concept of an auction

on the basis of service disruptions and the lack of recognition of existing carrier investments.

The grandfathering of the existing slot allocation was supported by the Joint Commenters and the RAA, as well as by OMB, DOJ, and FTC. A number of commenters opposed the grandfathering of existing slot allocations, primarily because of concern that such an allocation, in conjunction with the ability to sell slots, would confer a financial windfall on the incumbent carriers. A second major concern was the adverse effect on new entrants.

The Department recognizes the benefit to incumbent carriers inherent in the ability to sell the slots now assigned to each of those carriers. However, the Department believes that this one-time benefit is necessary, in the implementation of the buy-sell system, in order to minimize disruption of existing service patterns.

Allocation of slots to carriers currently holding them will avoid immediate disruption of air service to the public. A comprehensive reallocation of slots could leave carriers that now have a large investment in airport assets without the operating rights to utilize those assets. This approach recognizes the investments and commitments in personnel, equipment, terminal development, and planning by existing carriers. The investments noted in the preamble to the NPRM, which have been made at O'Hare, are evidence of this need. As part of this, carriers and commuters have made large investments in hub/spoke operations at the high density airports. Further, other airports have made corresponding commitments. The Department believes that this one-time allocation is necessary for near-term stability in the services provided to the public.

According to many commenters, the windfall to incumbent carriers may be exaggerated. As noted in the comments of OMB, incumbent carriers are already entitled to use the slots, and, therefore, have already received the value of the slots at no cost. The ability to sell the slots only marginally increases that value. Most air carriers and commuters have expended large amounts of resources to establish existing service and facilities. This provision recognizes that investment.

With respect to the effect of "grandfathering" on new entrants, several other provisions of the rule mitigate the initial effects and will act to eliminate these effects over time. First, the adoption of the buy-sell rule itself permits new entrants to acquire slots on the same basis as incumbents seeking additional slots. This would allow new entrants (some of which have waited for some time) to obtain immediate access at a high density airport. Second, the lottery mechanism adopted for the allocation of new, returned, or otherwise unallocated slots provides a set-aside of 15 percent of the available slots for new entrants.

As previously mentioned, Notice 85–25, published on this date, further addresses the issue of comprehensive "grandfathering" of slots by proposing to withdraw up to five percent of the slots initially assigned to incumbents, for distribution by a lottery in which new entrants would be given a preference.

*Purchase and sale of slots.* Notice 84–6 proposed to allow incumbent or new entrant carriers to obtain additional slots for any mutually agreed consideration. The Department has decided to adopt the "buy-sell" proposal to permit maximum reliance on market forces to determine slot distribution following the initial allocation of slots. The Department believes that the rule minimizes the need for government intervention in the continuing allocation and distribution of slots. Because carrier agreement on schedules, as the scheduling committees now operate, is not required, there will no longer be deadlocks in the allocation process. Finally, the Department believes that a market in slots will permit long-range stability in carrier planning and marketing that would not be availabe if slots were periodically reallocated using another mechanism such as lotteries or auctions.

Notice 84–6, which proposed in principle the buy-sell rule adopted here, generated substantial public comment. Many commenters expressed opinions that the purchase and sale of slots would have various anticompetitive or other effect adverse to the public interest. Particular concerns were that a buy-sell regulation would result in the concentration of slots held by large affluent carriers; that slots would tend to be used for large, high-volume markets to the detriment of smaller cities; that the initial allocation to incumbents unfairly constituted a substantial financial windfall on incumbents; that fares would be raised to cover the costs of slots purchased; that the cost of slots would raise a new barrier to market entry; and that buy-sell would create proprietary rights in slots which would complicate the carriers' dealings with airport proprietors and bankruptcy coiurts. Each of these concerns is addressed in detail in the response to comments below. The Department of Transportation believes that most of the problems anticipated will not result from the specific rule adopted, and that in consideration of all of the effects of the rule that the net costs of the amendment will be outweighed by its benefits.

*Effect on Air Fares.* Several commenters opposed to a buy-sell rule, including the National Association of State Aviation Officials (NASAO) and the National Air Carrier Association (NACA), cited the objection that the cost of purchasing slots at high density airports would be passed on to consumers in the form of higher air fares. The price paid for a slot purchased under the rule would represent an additional one-time cost for the purchasing carrier. However, there are a number of factors other than cost which determine pricing, and DOT does not believe that the cost of purchasing a slot will necessarily be passed on to the consumer.

FTC, on the basis of economic theory and the actual past pricing policies of carriers at the high density airports, concluded that fares would not increase as a result of the market in slots. FTC noted that the scarcity of slots causes fares to increase and not the fact that they can be bought and sold. Because the hourly limits at high density airports are unaffected by this rule, the scarcity of high density slots remains unchanged. The scarcity value of the slots will therefore be the same after adoption of the buy-sell rule as before. On the basis of economic theory, FTC predicts that fares in the slot-constrained markets currently reflect this scarcity value, and, therefore, that fares will not increase even if the value of the slots must be paid.

As an example, FTC cites from an FTC staff report which found that in the first quarter of 1981, fares in slot-constrained markets were two to five percent higher than in other markets. FTC concluded that even if carriers were to acquire those slots at their market value (rather than for free, as under the existing rule), that the average fare level would not rise. If a carrier's fare in a slot-constrained market did rise, it would indicate that the carrier had not been charging a profit-maximizing fare prior to buy-sell, which is unlikely. FTC further noted that the above conclusion applied to the average of all fares, and that there were circumstances which could result in the increase in fares in some markets and the decrease of fares in others.

DOJ, responding to the question of whether the sale of slots would lead to higher fares to cover the purchase costs,

stated that the current level of fares is not reduced to reflect the availability of slots at no charge. Rather fares are determined by marginal costs and demand, and cover the economic cost of slots as well as the costs of other resources used in providing service. The fact that slots currently are provided without cost accrues to the carriers and not to consumers in the form of lower fares. On this basis, DOJ concludes that fares will not increase and predicts that, as a result of allowing slots to be utilized more productively, airline fares in slot-constrained markets actually be lowered.

Amercian Airlines commented that fares are not always directly related to costs. American also noted that fares might actually be lowered as a result of buy-sell, because the market in slots would increase economic efficiency and allow a more productive use of slots. Other comments pointed out that since the expenditures for slots would only be a small part of overall costs, those expenditures would not have a significant effect on ticket prices.

For all the above reasons, the Department does not believe that "buy-sell" will significantly affect fares.

*Barriers to Entry/Market Concentration.* Several commenters objected in a buy-sell rule on the basis that it would be anticompetitive, either as a result of the barriers it would raise to new entrants or because of the unfair advantage it would provide to larger, more affluent carriers.

USAir, Republic, Jet America, Muse Air, and Midwestern, among others, commented that a buy-sell rule would tend to exclude new entrants from high density airport markets as a result of the high cost of purchasing operating authority. However, because the buy-sell rule permits a new entrant to obtain slots in the same manner and for the same costs as an incumbent carrier, it is the market price of the slots themselves and not the method of allocation which constitutes the alleged barrier to new entry in a slot market.

DOJ in their comments stated that both the Airline Deregulation Act and the Federal Aviation Act require DOT to rely, to the maximum extent possible, on market mechanisms to create an efficient procompetitive system for allocating slots. They further stated that a market approach (such as adopted in this amendment) is the only way to accomplish that mandate.

FTC responded to the concern of barriers to market entry with the observation that it is the absence of a slot market which poses the barrier to entry, because there exists no competitive means for entry in a slot-constrained market. FTC stated that an entry barrier exists when a incumbent can maintain price above average cost (including a reasonable return on investment) in the long run, without inducing potential new entrants to start serving the market. Any restriction on slot transfers enables an incumbent carrier to maintain fares above average per-passenger costs in a slot-constrained market, without inducing entry. The existing system, which permits slot trades, allows some entry by slot holding carriers willing to abandon another market, but does not adequately provide for entry by carriers not holding any slots. An unrestricted market in slots will permit a new entrant to obtain marginally profitable slots from one carrier at a price which will allow the new entrant to compete in a market in which another carrier is maintaining a price above average cost.

CEA notes that cost-related barriers to entry (as opposed to prohibitions on entry) result because an entrant is putting its money at risk to enter the market. If the new entrant subsequently decides to leave the market, it cannot recoup its sunk costs, such as the depreciation of its assets. The price paid for a slot under a buy-sell rule is not a sunk cost, however. Because the slot does not depreciate, a carrier can recover the money paid for the slot on leaving the market. FTC concludes that the purchase of slots does not put a new entrant's money at risk and, therefore, is not a barrier to entry.

CEA cites the examples of new entrants being able to gain access during the limited buy-sell experiment conducted with interim operations plan slots in 1982. They cite the example in which one carrier acquired 26 slots at that time. The price of the slots did not constitute a barrier to entry or to subsequent profitable operation.

On this issue, DOJ stated that a "buy/sell" market would enable the incumbents and new entrants with the lowest costs and greatest passenger demand to obtain slots. They pointed out that the existing scheduling committee system provides little opportunity for such new entry or growth.

While the Department believes that an unrestricted slot market may represent the most effective opportunity for new entry at high density airports, special consideration has been provided in this amendment for new entrants. In the first selection sequence in the lottery mechanism for distribution of newly available slots, 15 percent of slots will be set aside for new entrants, and new entrants will be able to select 4 slots instead of 2. New entrants will otherwise compete on an equal basis with incumbent carriers for the remainder of the available slots.

The Department believes that the ability to buy and sell slots also removes existing artificial barriers to entry into high density airport markets. The elimination of barriers to entry is essential for the optimal operation of a competitive market. The rule accomplishes this by placing new entrants in the same position as incumbent carriers desiring additional slots. One additional point is that in the case of each airport, there is at least one other airport in the area that can be utilized by all operators including new entrants.

In a related objection, Midway, PSA, Republic, USAir and others commented that the buy-sell rule discriminates against smaller carriers or those carriers using smaller aircraft in secondary markets. The commenters believes that the greater economic power of the larger carriers would result in the entrenchment of those carriers and the concentration rather than diversification of the industry.

The FTC observed that the motivation to purchase in a slot market will be the expectation of providing relatively high-value flights and not simply the availability of cash on hand. If a smaller carrier can obtain higher profitability from an additional operation than can a larger carrier, the smaller carrier should be able to offer a higher purchase price and obtain the slot, even if financing is required. The size of a carrier is not necessarily related to the ability to finance purchases. FTC notes that smaller carriers such as People Express have been able to finance large equipment purchases and should have no more trouble financing slot purchases. Financing should be facilitated by the fact that slots are non-depreciating and readily transferable.

Inherent in the concern that a buy-sell rule will result in market concentration is the notion that larger carriers will use their resources to dominate markets. The Department does not believe that such anticompetitive behavior will be a problem, because of the lack of business incentives to do so and because of the impracticality of obtaining any monopoly control of slot-constrained markets. A carrier will not have the incentive to acquire and use a slot merely to prevent other carriers from using it. For example, if another carrier could offer more valuable service, then the slot is worth more to that carrier than to the holding carrier. The Department believes that the holding carrier can maximize profits only by

selling the slot to another carrier offering more highly valued service.

Nor would there by any practical purpose in accumulating slots in quantity for the possible monopoly value of a dominant slot block at a high density airport. FTC lists several reasons why such a strategy would not be effective in a buy-sell system. First, in each case, a carrier or group of carriers attempting to monopolize markets would face competition from other airports in the same metropolitan area, such as Midway in Chicago and Washington Dulles International and Baltimore/Washington International in the Washington area. Therefore, the opportunity for monopoly pricing would be extremely limited.

Second, successful monopolization of a market would require control of a massive number of slots. Since at each airport any slot may be used in any city-pair market, an attempt to charge monopoly prices in that market would induce other carriers to enter the market unless the monopolizing carrier or carriers controlled virtually all available slots. FTC believes that even if a carrier attempted this, which is unlikely given the financial incentives not to hold slots unnecessarily, the size of the purchasing activity would enable antitrust authorities to detect the attempt and intervene to stop it. FTC concludes, and the Department agrees, that the use-or-lose provisions of the rule, in conjunction with existing antitrust laws, will be sufficient to deter anticompetitive behavior.

As to possible anticompetitive behavior, DOJ notes that, in a market context, interdependent behavior would almost certainly require an explicit agreement among the holders of slots to boycott potential purchases. They pointed out that such an agreement would be a felony violation of the Sherman Act.

*Effect on Service to Small Communities.* Notice 84–6 specifically solicited comments on the effects a buy-sell rule would have on levels of service to smaller communities. In its comments, FTC pointed out that current non-market slot allocation methods give slots to airlines which can use those slots to serve any city-pair market they choose. If it is more profitable to serve large cities, the current slot allocation system will not preserve service to small cities. CEA commented that deregulation has resulted in an increase in service to small communities. Since such service can be profitable for air carriers, CEA sees no reason to assume that a slot market will result in a decline in service to smaller communities. FTC also commented that other policies, such as the Essential Air Service program, and reservations of certain numbers of slots for commuter carriers, tend to maintain levels of service to smaller communities. Both of those policies are retained in the current rule.

DOJ commented that smaller communities may act on their own to preserve air service by entering into contractual agreements with carriers holding slots or by purchasing slots and leasing them to carriers. This rule would allow such arrangements.

The majority of commenters felt that a pure buy-sell rule would not detract from service to small communities, but many felt otherwise. USAir theorized that buy-sell would result in a shift in service to longer haul, higher density markets served by large airplanes because the profit potential of a large airplane is always greater than that of a small airplane. Thus, said USAir, smaller markets would not generate passengers or revenue to justify the use of a slot.

The FTC in their comments stated that service to small communities is not affected by this rule. They stated that service to small communities will work equally well with marketable slots as they now do under non-market slot allocation. The Joint Commenters stated that the fear is unfounded that a buy/sell rule would result in shifting of service to small communities from the high density airports, or that slots would be used only with large aircraft. They cite numerous examples of carriers serving small communities and suggest that that will continue. In fact, they suggest that "without buy/sell some small and medium community services might be adversely affected." American Airlines pointed out that an efficient hub-spoke system requires short-haul routes from the hub. American cites the recent expansion of service to smaller communities as proof that new service will be directed towards small communities to "tap" new markets and feed the established long-haul routes.

The retention of separate slot markets for air carrier and commuter operator categories preserves slots for service to smaller communities by aircraft suited to short-haul, lower passenger volume markets. Therefore, the rule will continue to limit the use of commuter slots to aircraft defined in § 93.123(c)(2), having a certificated maximum passenger seating capacity of less than 56 or a maximum cargo payload capacity of less than 18,000 pounds. However, the rule adopted will now permit the use of any aircraft in an air carrier slot. The policy reasons for maintaining separate operator categories require the protection only of commuter slots and not of air carrier slots, so the use restrictions on air carrier slots have been removed to provide maximum carrier flexibility. Therefore, additional slots may be available to commuters for service to such communities.

Protection and development of service to smaller communities is also achieved by the provision for separate treatment of slots used for service to certain communities under the Essential Air Service (EAS) Program. The Airline Deregulation Act of 1978 (ADA) included provisions for the continuation of service to small communities after deregulation of air carrier routes. (49 U.S.C. 1389). Carriers serving communities identified under the EAS program have certain obligations before suspending that service and may be eligible for subsidies to provide continued service. Under the rule adopted, the Office of the Secretary may decide that slots should be assigned to carriers if necessary to provide EAS service. This may necessitate the recall of other non-EAS slots for that purpose if unallocated slots are not available, although this is not anticipated to occur often. The rule further provides restrictions on the transfer of EAS slots. This restriction will be closely monitored by the Office of the Secretary of Transportation.

The Department of Transportation believes that the above provisions will preserve and enhance the protection of air service under the EAS program and the the adoption of the buy-sell rule will not adversely impact the present level of service to eligible communities.

*International Operations.* In Notice 84–6, comments were solicited on whether the rule should apply to international operations.

Six foreign airlines and the International Air Transport Association (IATA) favored the exclusion of any international operations from the buy-sell rule. Japan Airlines commented that a rule allowing international slots to be bought and sold had the potential for seriously disrupting the international scheduling framework. International carriers, according to Japan Airlines, are subject to different scheduling seasons, and different lead times for schedule planning, than those applicable to domestic services. Air Canada's comments pointed out the possible conflicts between a buy-sell rule (with or without an accompanying lottery) and bilateral agreements between the U.S. and respective foreign countries. American Airlines, on the other hand, argued that exclusion of foreign operations would reduce the supply of

domestic slots, thus, driving up the price with the result that domestic carriers would be subsidizing foreign carriers. DOJ's comments agreed with American Airlines, further stating that a buy-sell rule would not interfere with bilateral air service agreements.

The Department of State commented that bilateral agreements would probably not be violated if foreign carriers were given a fair and equal opportunity to compete with domestic carriers for available slots. DOS was concerned, however, that the larger scale of activity of domestic carriers at the high density airports might give them at least an initial unfair advantage. DOS recommended that the buy/sell approach be confined at first to domestic operations to gain experience and to make any needed adjustments before adapting the rule to include international operations.

This rule adopts the approach recommended by the foreign commenters and by DOS. To ensure equal treatment, U.S. international operators are treated the same as foreign operators in most respects. International slots may not be bought or sold and may be traded only on a one-for-one basis for other international slots at the same airport.

Accordingly, the Office of the Secretary of Transportation has determined that as a matter of international aviation policy the allocation of new slots to international carriers at Kennedy and O'Hare Airports will be made by the FAA based on requests from foreign and U.S. operators conducting international operations. Kennedy and O'Hare handle the vast majority of international operations at the high density airports.

This amendment does not allow the sale or multiple trading of slots utilized for international operations. It does, however, require the government to provide slots to any carrier wishing to conduct international operations at either Kennedy or O'Hare airports.

Slots for international operations will be allocated administratively, upon request to the FAA by an appropriately authorized carrier, rather than being issued by lottery. In the event insufficient unallocated slots are available to meet valid requests for international operations, the FAA may recall allocated slots to meet the international demand. The Department believes that the above provisions will ensure sufficient capacity for international operations at Kennedy and O'Hare Airports.

The Department will closely monitor requests for international slots, and the use of those slots, to determine whether this section of the rule needs to be reviewed to avoid undue discrimination against domestic operations.

*Future Allocation of Available Slots.* The lottery procedures proposed in Notice 84–7 were intended for use as a supplemental allocation mechanism to resolve deadlocks in the scheduling committee negotiations. Because the initial allocation under the rule adopted is by "grandfathering" of the existing allocation, and because most future adjustments will be accommodated throught the purchase and sale of slots, the scheduling committees will not be used to allocate slots after December 16, 1985. However, from time to time, as a result of new system capacity or by operation of the use-or-lose provisions, unallocated slots will become available. The amendment provides for a period lottery mechanism to allocate those slots.

The majority of comments on Notice 84–7, "Slot Allocation Alternative Methods" favored adoption of the "deadlock" proposal. A few commenters qualified their support by emphasizing that the proposed rule should be adopted as a temporary measure only until such time as the High Density Rule (HDR) is rescinded. The Aviation Consumer Action Project (ACAP) urged adoption on an experimental basis only. Others, such as American Airlines and Federal Express, emphasized that the proposal should be adopted only in conjunction with the companion buy-sell rule. "Slot Transfer Methods."

Those who opposed the rule proposed in Notice 84–7, did so mainly on the grounds that it favored the incumbents, and would therefore act as an incentive for them to encourage deadlock. The original proposal involved use of the lottery as the backup allocation method in the event that the Airline Scheduling Committees failed to agree. The lottery mechanism set out in this rule is intended only as a supplementary allocation procedure for newly available slots. The mechanism eliminates the weighted allocations based on historical patterns of service. Therefore, it no longer favors incumbents. Furthermore, since deadlock is no longer the triggering event for the lottery, any objection on this basis is no longer applicable.

On the issue of eligibility requirements, McClain Airlines argued that new carriers without FAA operating authority, but who had obtained economic authority under section 401 of the Federal Aviation Act (or its equivalent), should be allowed to participate in the allocation sessions so that slots could be used to obtain financing. The final rule includes in the lottery those operators who have obtained apppropriate economic authority and made substantial progress toward obtaining FAA operating authority, as evidenced by the submission of three or more documents specifically listed in the rule, § 93.225(g)(1) throught (6). This is necessary to ensure that those who enter the lottery will be able to use the slots within a reasonable time and are not intent on just leasing the slots during the time they hold them for a quick profit. This would unnecessarily penalize carriers who are in the lottery to obtain slots for use rather than for speculative reasons.

Empire Airlines proposed that dual operators (those conducting air carrier and commuter operations) be allowed to use their slots for either type of operation, but that these slots should retain their original identity when traded. Empire would also allow cross-trading of slots (i.e.—commuter slots may be traded for air carrier slots and vice versa.) The final rule allows air carrier slots to be used for either air carrier or commuter operations, but limits the use of commuter slots to commuter operations only. this provides a measure of protection for short-haul routes and small community markets by insuring that the number of commuter slots will not be depleted by air carrier operations. The final rule also allows slots to be traded in any combination.

**Procedural Requirements**

A. *Weighting of New Slot Allocations Based on Historical Patterns of Service.* The proposal outlined an allocation scheme whereby larger operators would be given some additional selections during the first slot selection sequence in each session, as well as in the second sequence at O'Hare. American, Eastern, Delta, Western, and United Airlines all favored this provision, American asserting that any unfairness would be mitigated by the 15 percent set-aside and additional weighting in the allocation scheme for new entrants. Eastern objected to the different weighting schemes at O'Hare and the two New York Airports, arguing that all should be the same.

There were several comments filed in opposition to the weighting scheme. In answer to the argument that weighting would recognize the investments, commitments, and planning by existing carriers, Midway, Pacific Southwest, and Air One argued that incumbents could realize on their investments through other methods, such as leasing of terminal space. Other commenters

opposed were NACA, DOJ, Midwestern Airlines and Southwest Airlines. Midway stated that any preferential treatment should be considered on a case by case basis, in response to individual petitions. USAir suggested that incumbents be allowed to choose two slots, and new entrants four. Jet America suggested all carriers be allowed to choose four slots each, after 15 percent were set-aside for new entrants.

Since the final rule provides for grandfathering of virtually all existing slots and since investments by incumbents and historical patterns of service are recognized in the current distribution, the rationale for the weighting scheme initially proposed is not appropriate.

B. *Order of Slot Selection.* Under the proposal, every 30 days after an allocation session, the FAA would notify carriers of the availability of additional slots. They would then be offered to the next operator in the lottery sequence. Midwest Express expressed concern that carriers might manipulate the option to "pass" during the allocation session, thereby putting themselves in an advantageous position at the head of the list for additional slots, thereby encouraging subsequent deadlocks. Jet America suggested that carriers who either received slots or "passed" during the allocation session, be placed at the end of the list in a subsequent lottery.

Under the rule adopted, a random lottery will be held whenever the FAA determines that sufficient slots have become available for distribution. The order of slot selection will thus be determined anew for each slot allocation session, and there will be no opportunity to abuse the "pass" option. It must be noted that there is no certain date set for holding any lottery. That will be determined by the FAA at its discretion.

C. *Set-Aside for New Entrants.* No commenter opposed the 15 percent set-aside for new entrants, although three commenters felt the set-aside should be greater. The Department believes that a reservation of 15 percent of newly available slots to new entrants in the first selection sequence, in addition to the advantage given to new entrants to select 4 instead of 2 slots in the first selection sequence of the lottery session, will provide a sufficiently large slot pool for new entrants. This advantage is in addition to the provisions which would allow all operators including new entrants to purchase slots.

D. *60-Day Use Requirement for Lottery Slots.* Notice 84–7 provided that no slot obtained through the lottery mechanism could be transferred unless it had been used by the transferor carrier for at least 90 days. CEA opposed any such restriction on trade, and McClain favored reducing the time to 30 days. Accordingly, section 93.221(a)(5) modifies this provision, requiring only that slots obtained in a lottery be used 65 percent of the time during a 2-month period, before such slots can be sold or traded on other than a one-for-one basis. To avoid circumvention of this rule, any slot obtained in a one-for-one trade for a slot obtained in the lottery also may not be sold until it is used 65 percent of the time over a 2-month period.

Many commenters suggested that the 90-day use restriction apply only to *inter*-airport trades, and not to slot trades at the same airport. This, it was argued, would provide for needed flexibility and allow airlines to accommodate each other's individual needs when the initial allocation does not meet them, but would not encourage speculation, since speculators would presumably be interested only in *inter*-airport trades. This amendment prohibits *sale* of slots obtained in a lottery until such slots have been used for the requisite 65 percent of the time for a 2-month period. In addition, it limits trading of slots obtained in a lottery to one-for-one intra-airport trades until such slots have been used for the requisite time. This provision is necessary to maximize the ability of new entrant carriers and small carriers already operating at the airport to obtain slots by keeping certificated carriers from entering the lotteries only for the purpose of obtaining slots for later sale.

E. *60/90-Day Start Up Rule.* Under the proposed rule, slots obtained under the lottery mechanism would have to be utilized within 60 days of the lottery or the slot would be lost (90 days for new entrants). This provision received broad support, many commenting that the penalty was not harsh enough. It was suggested that the rule exclude circumstances beyond the carrier's control.

The final rule contains a 65 percent use-or-lose rule for all slots not used for international operations. An exception is made, however, in § 93.217 (c) and (d) for slots of an operator forced by a strike to cease operations using those slots and slots of an operator filing for bankruptcy during the first 60 days after filing.

Two commenters, McClain Airlines and Northwestern, felt the 90-day use provision was unfair to new entrants. They urged that special provisions be made for them because of the inherent delays in commencing operations. The final rule, at § 93.217(b), provides for a 180-day grace period for new entrants who have not yet obtained operating authority. It retains the 90-day period for all other new entrants, and the 60-day period for all other operations. At the end of this period, the slots become subject to the 65 percent use-or-lose rule.

F. *50 Percent Ownership or Control Provision.* The proposed rule provided that if an air carrier or commuter operator has more than a 50 percent ownership or control of one or more air carriers, the air carrier or commuter shall be considered to be a single entity. The same rule would apply to two or more carriers or commuters owned or controlled (more than 50 percent) by a single company. There were few comments on this provision. However, Continental and New York Air, both of which are owned and controlled by the same company, argued that it was irrational to treat the two carriers as different in their operations, but the same for the purpose of slot lotteries. They argued that even if the provision was adopted, publicly held corporations should be exempt, since there is little danger that it would be merely a sham corporation set up to obtain slots. The National Air Carrier Association also felt that the provision discriminated against separate corporate entities.

The Department believes that the 50 percent ownership provision serves to prevent the use of business organizations to obtain advantages under slot withdrawal and lottery provisions. Therefore, the amendment incorporates the 50 percent ownership provision.

G. *Use or Lose Provisions.* Notice 84–7 proposed use-or-lose provisions for air carrier and commuter slots. The proposal would have required that any slot not utilized at least 71 percent of the time (approximately 5 days out of 7) in any 2-month period would be withdrawn by the FAA. Most commenters supported the use-or-lose provisions and the reasons for that support are equally applicable to this rule. The Department of Justice commented that a use-or-lose provision may be necessary to prevent large carriers or several large carriers from "hoarding" slots in an attempt to restrict service to drive up fares or to keep smaller competitors from entering into or expanding in certain markets. DOJ supported such a provision provided that it is not so restrictive that it forces carriers to sell slots they could use productively or to conduct near empty flights to hold slots for future use and

provided, further, that leasing and co-ownership of slots are permitted.

The use-or-lose provision in this rule prevents the holding of "pocket" slots for speculative purposes and serves to maximize utilization of airport capacity.

The Massachusetts Port Authority proposed that the term "use" include leasing of slots. The Department agrees that the ability to lease slots will help to ensure that all available slots are used, and the rule allows holders to lease their slots for any period.

The National Air Carrier Association (NACA), ATA and RAA commented that use-or-lose requirements should make exceptions for circumstances beyond the carriers' control, including strikes, and cancellations due to aircraft malfunction or weather. The Department recognizes this concern and has reduced the requirement to 65 percent. The 65 percent use requirement embodied in this rule permits a carrier to normally utilize a slot 5 days a week and still allows for a limited number of cancellations because of unforeseen circumstances. In addition, as previously stated, this rule specifically provides that slots which are unused due to a strike are not subject to loss.

The FAA will apply the use-or-lose provision in discrete 2-month periods to facilitate tracking and enforcement. The 2-month period begins on the first day of the first month after the rule is issued. The next 2-month period begins on the first day of the third month after the rule is issued, and so on.

RAA and ATA commented that any use-or-lose provision should accommodate those flights which are not scheduled on a daily basis. The rule provides that slots may be shared, that is, different carriers may operate a slot on different days of the week, so that the 65 percent rule would only apply to those days actually allocated to the carrier.

H. *Eligibility to Purchase Slots.* In Notice 84-6, it was proposed that only air carriers holding valid operating certificates be allowed to obtain or transfer slots. Comments were invited on this issue. A number of air carriers suggested that only carriers be allowed to purchase slots.

DOJ in their comments stated that slot ownership should not be restricted to aviation users but should be open to other entities including banks, communities, and brokers to ensure that slots go to their most productive use. DOJ further noted that allowing cities to purchase slots is one way to enable small communities to preserve service at the high density airports. According to DOJ, this would allow small communities to enter into contractual arrangements with carriers holding slots and would also allow communities to purchase slots to lease them for service to their airport. CEA made the same argument. The FTC suggested that allowing non-airlines to participate in the process might help enable small carriers to obtain financing.

DOT agrees with these comments. Even if non-carriers could not purchase slots, arrangements could be made with carriers to help finance slots. It seems to be an unnecessary step to require. Therefore, there will be no limitation on which organizations or persons can purchase slots. In this connection, as already noted, a use-or-lose provision is also contained in this amendment. Therefore, any group purchasing a slot must use it or it would be returned to the Government for reallocation. This rule, however, allows only carriers to participate in the lottery.

**Rights of Local Airport Proprietors**

A large group of commenters, including the Joint Commenters, Delta, People Express and Southern Jersey Airways were concerned that airport proprietors might misinterpret a buy-sell rule as granting them authority to sell slots on their own. The Massachusetts Port Authority and the Port Authority of New York and New Jersey asserted that proprietors should be able to regulate local resources through slot restrictions. The Department's position in this manner remains that the FAA retains sole jurisdiction over the Nation's airspace, and that nothing in this rule should be construed to authorize a sale of slots by any airport authority.

The authority for this amendment is contained in Section 307 of the Federal Aviation Act which gives the FAA exclusive jurisdiction to regulate the safety and efficiency of the Nation's airspace system. Moreover, with respect to non-high density rule airports, DOJ stated in its comments that the buy-sell rule does not set a precedent that local airport proprietors can use to restrict operations.

In its comments on this subject, DOJ also stated that proprietors of the high density airports are preempted from changing either FAA's hourly limitations or its slot allocations systems because FAA already has used its airspace management powers to "stake out its turf" at those airports.

**Section-by-Section Description of the Rule**

Set forth below is a section-by-section description of the more important provisions of the rule. Included in the discussion are reasons for adopting certain of the provisions and an explanation of how the provisions will be applied.

*Section 93.211 Applicability.*

This section describes, in general terms, the applicability of the new Subpart S of Part 93. The subpart prescribes rules applicable to the allocation, withdrawal and transfer of slots at the High Density Traffic Airports. The rules do not apply to Newark Airport since the High Density Rule—Subpart K of Part 93—is not currently in effect at that airport. Subpart S only applies to air carrier and commuter operator slots and not to those slots designated by Subpart K as general aviation slots. General aviation slots will continue to be allocated by the Air Traffic Control Reservation Office on a first-come first-served basis.

*Section 93.213 Definitions and General Provisions.*

The terms "new entrant carrier" and "slot" are specifically defined in this section. The definition of "new entrant carrier" is particularly important since those carriers will be provided a preference in any lotteries held to distribute slots in the future. "New entrant carrier" is defined as any commuter operator or air carrier that does not hold a slot at a particular airport and has never sold or given up a slot at that airport after December 16, 1985. The Department does not believe it would be appropriate to permit carriers that have sold or given up their slots at an airport to receive a preference in a lottery to reobtain slots at that airport.

A "slot" is defined as the authority to conduct one allocated IFR landing or takeoff operation during a specific hour or 30-minute period at one of the high density airports. Under Subpart K, each of the high density airports have slots allocated by the hour, except at O'Hare and LaGuardia Airports where the allocations are in 30-minute periods. The hours of the day during which slots are required for IFR operations at the high density airports are: 6:45 a.m. to 9:15 p.m. at O'Hare, 3:00 p.m. to 8:00 p.m. at Kennedy, and 6:00 a.m. to 12:00 a.m. at LaGuardia and National Airports. All parties are reminded that in accordance with Subpart K, scheduled operations at a high density airport must only be conducted with appropriate IFR reservations.

Section 93.213(b) makes it clear that the definitions contained in Subpart K of Part 93 also apply to Subpart S.

Paragraph (c) of § 93.213 includes a provision that was applied under the Interim Operations Plan, which was in effect as the air traffic control system

recovered from the 1981 controllers' walk-out. Under this provision, any air carrier, commuter operator, or other persons that owns or controls more than 50 percent of one or more other air carriers, commuter operators, or other persons is considered to be a single air carrier or commuter operator for purposes of Subpart S. Since any person [person is defined in 14 CFR Part 1 to include corporations] is allowed to buy or sell slots, it is necessary to apply the "co-ownership" provisions to them as well as to carriers and commuters. This provision applies for entry in any lottery held under § 93.225 or to slots withdrawn by the Government under § 93.223. Thus, a corporation owning two corporations and two carriers, all with slots, would only appear in a § 93.223 or § 93.225 lottery once.

The section also makes it clear that a single operator may be considered to be both an air carrier and a commuter operator for purposes of entering lotteries under this subpart. Thus, for example, a single operator that owns two commuter operators and two air carriers could enter lotteries for both the commuter operator class of user and air carrier class of user at a particular airport, but it could enter each lottery only once. This is no change from current procedures. For example, if Carrier A operates large and small aircraft at O'Hare, it may obtain and use slots in both the commuter and air carrier pools. Of course, commuter slots can only be utilized for commuter operations.

*Section 93.215 Initial Allocation of Slots.*

Subpart S does not affect the total number of slots and the total number of commuter operator and air carrier slots as specified in Subpart K of Part 93. This section specifies how slots will be initially allocated.

Paragraph (a) of § 93.215 provides that air carriers and commuter operators holding permanent slots on December 16, 1985 will be allocated those slots subject to the withdrawal provisions of Subpart S. The records of the air carrier and commuter operator scheduling committees will be used to determine which operators were holding permanent slots on December 16, 1985. A slot allocated on a temporary basis is not a permanent slot. If the scheduling committee records submitted to the FAA indicate a dispute over which carrier holds a slot, the FAA will resort to other records to effectuate the initial slot allocation. The FAA will meet with each scheduling committee to determine proper placement of each slot. The agency may ask carriers to produce documentation to support any claim to slots. If the FAA cannot determine which operators were holding particular slots as of December 16, 1985, those slots will not be allocated under § 93.215. Rather, they will be allocated at a later date under the provisions of § 93.217, for international operations; § 93.219, for essential air service (EAS) operations; or § 93.223, by lottery, to air carrier or commuter operators, for any operations they desire. The Chief Counsel of the FAA shall be the final decisionmaker in this regard. Slot trades may need to be temporarily suspended by the FAA in order to make these determinations.

Paragraph (b) of § 93.215 provides for those slots that are being held by different operators on different days of the week and those whose use is otherwise divided. Any such division of slots would have to be confirmed by a scheduling committee.

Those carriers having partial use of slots will continue to be allocated those slots as they operated them in the past. For example, some slots have been allocated for 2 days to one operator and for 2 days to another operator. Those operators would be able to continue to use those slots in that fashion. For slot withdrawal purposes (see the discussion of § 93.223), the slots would receive a single withdrawal priority number and, for slot use-or-lose purposes (see the discussion of § 93.227), if either carrier ceases to use its share of the slots 65 percent of the time over a 2-month period, that carrier would lose its share while the other carrier would not. Thus, only 2 days use of the slots would be reallocated.

Since certain slots used for international operations—those described in § 93.217(a)(1)—are specially treated within Subpart S, it is important that the Department be aware of which slots are being used for those operations. Paragraph (c) of § 93.215 requires that, within 30 days after the issuance date of the rule, each U.S. air carrier and commuter operator must notify the FAA in writing of those slots used, as of December 16, 1985, for the international operations described in § 93.217(a)(1). This requirement applies to slots used for international operations at LaGuardia Airport. This provision does not apply to foreign operators since all operations conducted by them are international.

Section 93.215(d) indicates that slots not held by an operator on December 16, 1985 will be allocated in accordance with other provisions of Subpart S.

*Section 93.217 Allocation of Slots for International Operations and Applicable Limitations.*

Section 93.217(a) provides that slots will be allocated to airlines to conduct certain specified international operations at Kennedy and O'Hare Airports. For purpose of allocation, slots will not be allocated for international operations at LaGuardia Airport unless otherwise required by bilateral agreement. The international operations for which slots will be provided under § 93.217(a) are—(a) any flight segment in which either the takeoff or landing is at a foreign point, and (b) for foreign operators only, any flight segment that is a continuation of a flight that begins or ends at a foreign point.The Department believes that foreign operator continuation flights should be few in number.

Under § 93.217(a)(1), continuation flights by U.S. international operators to or from high density airports will be treated as domestic operations since U.S. operators can carry local traffic on those flight segments. To treat continuation flights of U.S. international operators the same as those of foreign operators, for slot allocation purposes, would place U.S. domestic operators at a competitive disadvantage since they will not be able to obtain slots upon request under § 93.217. It could also lead to abuse, since U.S. international operators could obtain numerous slots under § 93.217 by characterizing purely domestic flights as continuation flights. Should the Department receive convincing evidence that a significant competitive disadvantage to U.S. international operators results from this provision, the Department reserves the option to review the treatment of continuation flights under the rule.

The same paragraph also provides that slots obtained under § 93.217 may not be bought, sold, leased or otherwise transferred, except that those slots may be traded for other slots used for international operations on a one-for-one basis at the same airport. In addition, if a slot obtained under § 93.217 will not be used for more than a 2-week period, the slot must be returned to the FAA, and, if it is not used every day of the week, the carrier is required to notify the FAA in writing of those days in which the slot will not be used. Failure to comply with these requirements will result in the slots involved becoming available for reallocation under Subpart S.

In providing a slot for an international operation, the FAA will atttempt to match the hour of the slot with that

requested by the U.S. or foreign operator consistent with international scheduling needs. However, in order to provide some flexibility to the FAA in allocating slots for international operations, § 93.217(a) provides that slots will be allocated to carriers in a time period within two hours of the time period requested. In this way, the FAA will be able to avoid withdrawing slots from a domestic operator to fill an international operation's need if there are unallocated slots available reasonably close in time to the time requested by the international operator.

It should be noted that, under § 93.217(b), slots obtained under § 93.215 which are used for the international operations described in § 93.217(a)(1) are subject to the same basic conditions as are applied to slots obtained under § 93.217. These conditions apply to slots used for international operations at LaGuardia Airport as well as Kennedy and O'Hare Airports. The conditions include those relating to how the slots may be used, the prohibition against most transfers the return of unused slots, and the notification of the days of the week on which the slots are not being used.

Under paragraph (c) of § 93.217, the Office of the Secretary of Transportation (DOT) states a reservation with respect to the application of the provisions of § 93.217(a). In this paragraph, DOT makes it clear that slots need not be allocated to foreign operators if the country of that operator allocates slots to U.S. operators on a basis more restrictive than that provided by Subpart S. For example, if a foreign country allocates slots at its capacity constrained airports in a manner which limits increased operations by U.S. carriers, operators from that country should not automatically expect to receive free slots for increased operations under this amendment. Any decision on the application of § 93.217(a) will be made by the Office of the Secretary of Transportation.

Paragraph (d) of § 93.217 states that requests for slots for international operations must be submitted to the FAA by August 1, for operations planned for the Winter scheduling period, and by February 1, for operations planned for the Summer scheduling period. These time frames coincide, more or less, with the time frames used under the past practice of obtaining slots through the scheduling committees for international operations.

In order to ensure that those airlines requesting slots for international operations will in fact use them, § 93.217(e) requires a certified statement, signed by a senior officer of the operator requesting the slots. The statement must indicate that the operator has bona fide plans to use the requested slots for operations described in § 93.217)(a)(1) and has, or has contracted for, appropriate aircraft. This provision is needed since, in some cases, slots will have to be withdrawn from domestic operators to be provided for international operations and needless withdrawals would unnecessarily disrupt air transportation service. This would be the case even though the FAA will offer to the affected domestic operator any slots that were withdrawn from it for international operations and then were returned within 180 days after withdrawal. Any lack of good faith on the part of those requesting slots for international operations could result in criminal enforcement action under Title 18 of the U.S. Code for false certification to the Federal Government (18 U.S.C. 1001).

*Section 93.219 Allocation of Slots for Essential Air Service (EAS) Operations and Applicable Limitations.*

Under this section, whenever the Office of the Secretary of Transportation determines that slots are needed for operations to or from a high density airport under the essential air service (EAS) program, established under section 419 of the Federal Aviation Act, as amended, those slots will be provided to the designated air carriers or commuter operators, subject to the following conditions. Those slots may not be bought, sold, leased or otherwise transferred, except they may be traded for other slots on a one-for-one basis at the same airport. This would enable EAS operators to make slight adjustments in their schedules to better serve the public. In addition, any slot obtained under the section must be returned to the FAA if it will not be used for EAS purposes for more than a 2-week period. A slot so returned, however, may be reallocated to the operator which returned it, upon request to the FAA, if that slot has not been reallocated to an operator to provide substitute EAS service. To provide the FAA with some flexibility in allocating slots under this section, slots will be allocated in a time period within 90 minutes of the time period requested. This flexibility could result in fewer slots having to be withdrawn for EAS purposes from other operators.

Section 93.219(d) provides that the agency will not honor a request for a slot for essential air service if the requesting operator has sold or traded a slot it used for essential air service to or from the same point in the past.

Finally, paragraph (e) of § 93.219 makes it clear that slots obtained under Civil Aeronautic Board Order No. 84-11-40 will be considered to have been obtained under § 93.219. Only a limited number of such slots exist and they were allocated by the Department specifically for EAS purposes. They should, therefore, be subject to the special restrictions in § 93.219, which are discussed above.

*Section 93.221 Transfer of Slots.*

This section provides, in general, that slots may be bought, sold or leased for any consideration and for any time period and they may be traded in any combination for slots at the same airport or any other high density airport. The section contains a number of conditions that must be met for these transfers to be effective.

This section does not wholly apply to the transfer of slots obtained for international operations and essential air service operations under §§ 93.217 and 93.219, respectively. Section 93.221 must be applied together with § 93.217(a)(2) or § 93.219(a) for such transfers.

The conditions that must be met under § 93.221(a) include the following:

(1) requests for confirmation of the validity of the transfer, including leases, must be made to the FAA in writing and must identify the slot designation;

(2) current FAA records must indicate that the transferor has the slots to be transferred in its base;

(3) written evidence of each transferor's consent (signed by a senior official of the transferor) to the transfer must be provided to the FAA;

(4) the recipient of a transferred slot may not use the slot until written confirmation has been received from the FAA. The confirmation process within the FAA will be handled as expeditiously as possible; and

(5) slots obtained in a lottery may not be sold or traded on other than a one-for-one basis at the same airport unless they are first used by the operator obtaining them for a 2-month period at least 65 percent of the time.

This section makes it clear that leases of slots are included in the reporting requirements applicable to transfer.

Because the Department prefers to rely upon the private sector whenever possible, we urge the air transport industry to establish its own system of tracking slot holdings and confirming slot transfers. This might be done through an existing instrumentality, such as the scheduling committees reservation center, or through a new organization, perhaps funded by fees

imposed on slot transfers. If such an industry sponsored system were established, which adequately provided for transactions involving EAS slots, as discussed below, the FAA would be amenable to allowing operations to begin after a slot transfer as soon as confirmation was received under the industry system. The FAA would, however, reserve the right, at a later date, to review the transactions and disallow any transfer if the rules of Subpart S were not met. The FAA may issue further instructions in this connection.

A final condition, which will be applied by the Office of the Secretary of Transportation, is that the transfer may not be injurious to the EAS program. Carriers serving communities with an EAS designation may have a continuing obligation to provide that service. This regulation is not intended to provide an incentive or means to abrogate that obligation. Therefore, should a carrier with an obligation to provide essential air service to a point enter into a transaction after which that service would no longer be provided, the Department may find it necessary to disapprove the transaction to ensure that the legal obligation to provide EAS service is met. In order to avoid the possibility of this occurring, the Office of the Secretary is willing to advise concerned parties informally prior to their entering a proposed slot transaction as to whether that transaction is likely to be disapproved by the Department. The Department urges that operators take advantage of this procedure. If not, approval of the transaction may be delayed.

Under § 93.221(b), the FAA will keep records of all slot transfers and current slot assignments. Those records will be made available to the public upon written request or by visiting the FAA Docket.

Paragraph (c) of § 93.221 makes it clear that any person, a term defined in 14 CFR Part 1, may buy or sell slots and any air carrier or commuter may use them. For purposes of Subpart S, a state or local government would be considered to be a person. However, even though any person may buy or sell slots or hold them, commuter slots may only be used by air carriers with aircraft of the kind described in § 93.123(c)(2). This provision will ensure that commuter slots continue to be used with the smaller aircraft most suitable for serving small and medium size communities and are not bought by carriers intent on serving busier, more populous markets with large aircraft. Air carrier slots, on the other hand, could be used with large or small aircraft.

Section 93.221(d) indicates that, until April 1, 1986, slots may only be transferred by trade on a one-for-one basis for slots at the same high density airport. This provision is needed in order to set up a slot tracking system and to consider Notice No. 85-25. If unrestricted slot transfers were allowed during the period before April 1, 1986, the FAA would be faced with the impossible administrative problem of trying to track the many slots that are in existence without the necessary tracking system in place. This period will also provide a period of time for application of the use-or-lose provisions of § 93.227. This will ensure that carriers are not able to profit from the sale of any slots that they are not actually using.

*Section 93.223 Slot Withdrawal.*

This section establishes a procedure for the withdrawal of slots if that should become necessary. Slots may have to be withdrawn from some operators for operational needs, such as to allow other carriers to conduct essential air service or international operations. Paragraph (a) of the section makes it clear that slots do not represent a property right but represent only an operating privilege subject to absolute FAA control. Paragraph (a) also indicates that, before withdrawing any slots for operational needs, those slots available because they were returned to the FAA or recalled by the FAA under the use-or-lose provisions of § 93.227 will be allocated for these purposes.

To establish withdrawal priorities, the FAA will conduct a series of lotteries. They will be held within 30 days after the scheduling committee records are obtained or 30 days after the effective date of the rule, whichever occurs later. The slot withdrawal lottery procedures are set forth in § 93.223(b). Separate lotteries will be conducted for air carrier slots and for commuter operator slots at each airport. Each slot at the airport will be provided a specific designation, which will include an airport code, a code indicating whether the slot is an air carrier or commuter slot, the airline code, and the time period of the slot. The designation may also indicate that the slot is used for international operations, or EAS operations, or by different operators on different days of the week. All communications with the agency concerning slots must include the designation assigned in the lottery.

The agency will either place the slot designations on individual pieces of paper and place those pieces of paper in containers for the drawings or it might use another similarly random method to establish the withdrawal priority. All drawings will be blind and they will be made one at a time. As drawn, each slot will be assigned a withdrawal priority in numerical order, i.e., the slot first drawn in the lottery will be the first slot to be withdrawn if withdrawal should become necessary and if the drawn slot is in a time period in which a slot is required. After a withdrawal priority number is established for each of the slots, a complete list of the withdrawal priority numbers will be made available to the public.

Whenever slots must be withdrawn, they will be withdrawn in accordance with the priority list established under § 93.223. A slot will retain its withdrawal priority number at all times, even after reallocation by the FAA or transfer to another carrier. If there are newly created slots, they will be assigned the lowest withdrawal priorities (i.e., the highest withdrawal priority numbers.)

Slots necessary for international and essential air service operations will be exempt from withdrawal for use for other international or essential air service operations. This provision is set forth in § 93.223(c). Such slots will retain their withdrawal priority number but will be passed over for withdrawal as long as they are used for international or EAS operations.

Since some U.S. carriers will hold slots in the same time period that are used for domestic and international operations, a special rule is set forth in paragraph (d) of § 93.223 to establish which of those slots are international and EAS slots and what the withdrawal priorities of each are. Under that paragraph, if an operator has more than one slot in a specific time period in which it has a slot being used for international or essential air service operations, the international and essential air service slots will be considered to be those with the lowest withdrawal priority (i.e., the highest priority number.) By applying this rule, carriers will be able to determine (1) which slots may only be traded on a one-for-one basis for international and essential air service slots, and (2) the order of slot withdrawal, if withdrawal were required for purposes other than to provide for international and essential air service operations. Section 93.223(d) will also make it clear to operators and potential transferees that the slots with the highest withdrawal priority are those that are not used for international or essential air service operations.

When the FAA determines that a slot must be withdrawn, the operator currently using it will be notified in

writing and, generally, will be given at least 30 days after notification to cease operations with that slot. During this period, the operator could notify the FAA if the slot is being used for essential air service operations. Where exigencies exist, a shorter time period to cease operations may be necessary and will be specified in the notification to the operator. This procedure is set forth in § 93.223(e).

Finally, paragraph (f) of § 93.223 provides that the FAA will not withdraw slots granted in the initial allocation or slots awarded in a lottery under § 93.225 from any air carrier or commuter operator holding eight or fewer slots, excluding slots used for international operations, at that airport. This provision recognizes that withdrawing slots from carriers with a limited number of slots could be disproportionately injurious to them. The provision does not apply to purchased slots because the price of those slots presumably will reflect their withdrawal priority. The provision does not apply to non-carrier slot holders. In this connection, slots of carriers or commuters with joint ownership, as defined in § 93.213(c), will be considered a single entity for purposes of withdrawal under § 93.223.

*Section 93.224 Return of Slots.*

Section 93.224 sets forth how carriers are to return slots when required and how they should return those slots if they voluntarily do so. Return is accomplished under this section by written notification to the FAA.

*Section 93.225 Lottery of Available Slots.*

Under this section, whenever the FAA determines that sufficient slots have become available for distribution for purposes other than international or essential air service operations, they will be allocated using a lottery. The FAA does not expect that such lotteries will be held more than twice a year because of administrative burdens and because the existence of a sufficient number of available slots to warrant such a lottery is unlikely to exist any more frequently. The FAA will not necessarily hold a lottery each time slots are available.

Section 93.225(b) through (f) prescribes the lottery procedures. Initially, a random lottery would be held to determine the order in which carriers will select slots. Separate lotteries will be held on an airport-by-airport basis for commuter operators and for air carriers. Unlike the lotteries for slot withdrawal purposes (which will be conducted only once for air carrier and commuter operator slots for each high density airport), lotteries for allocation purposes will be conducted whenever the agency determines that a sufficient number of slots are available for allocation. A notice will be published in the **Federal Register** announcing the lottery dates and possibly specifying additional procedures to be in effect for the lotteries. The FAA will attempt to publish the notice at least 30 days prior to the lottery. Each U.S. air carrier and commuter operator that is operating at the affected airport will be included in the lottery. It should be noted that foreign operators will not be permitted to participate in the lotteries since they can obtain slots under §93.217 for their international operations. Any U.S. carrier not operating at the airport but wishing to initiate service at the airport will be included in the lottery if it notifies the FAA at least 15 days prior to the lottery date.

At the slot selection, each operator, in the order established by the random lottery, will make its selection within 5 minutes after being called or it will lose its turn. If capacity still remains after each operator has had an opportuity to select slots, the selection process will be repeated in the same order. An operator may select any two slots available at the airport during each selection sequence, except that new entrant carriers may select four slots, if available, in the first sequence.

Paragraph (g) of § 93.225 sets forth carrier qualifications for participating in the lottery. The carrier must have appropriate economic authority under Title IV of the Federal Aviation Act of 1958, as amended, and at least have made substantial progress in obtaining FAA operating authority under 14 CFR Parts 121 or 135. This latter condition is necessary to preclude "paper" airlines from obtaining slots in the lottery for free purely for speculative purposes. Paragraph (g) also specifies, in detail, what will be considered to be substantial progress in obtaining FAA operating authority.

As a further preference for new entrant carriers and to ensure that some slots are available to them, 15 percent of the slots available during the first selection sequence will be reserved for selection by new entrant carriers. This number will not be less than two slots. The FAA believes the new entrant preferences in the lotteries are warranted to further policies enunciated in the Airline Deregulation Act of 1978.

Paragraph (i) of § 93.225 explains the withdrawal priorities for slots obtained in a lottery. They are discussed above in connection with § 93.223.

*Section 93.227 Slot Use and Loss.*

The general rule under § 93.227 is that slots must be used 65 percent of the time over a 2-month period or they will be recalled by the FAA. This 65 percent rule would permit a carrier to use a slot five out of the 7 days in each week (many carriers do not operate certain slots on weekends) and would also provide some leeway for those circumstances where, because of mechanical problems, a limited number of flights might have to be cancelled over a 2-month period.

Section 93.227, in paragraphs (b), (c), (d) and (f), contains a number of exceptions to the general use-or-lose rule. First, slots obtained in a lottery will not have to be used for the first 60 days after they are allocated to give operators an opportunity to arrange for the necessary aircraft, gate space, crews, etc. New entrant carriers would be given 90 days instead of 60 to first use their slots, recognizing their need for additional time to initiate operations at a new airport. Furthermore, new entrant carriers that have not obtained their Part 121 or 135 certificates from the FAA at the time of allocation will be given 180 days after the slots are allocated in the lottery to initiate operations. This 180-day period recognizes the fact that obtaining FAA authority can take some time, but a carrier meeting the requirements of § 93.225(g) when entering the lottery should be able to initiate revenue operations within 180 days after the slots are allocated.

Second, the use-or-lose provisions do not apply to slots of an operator forced by a strike to cease operations using those slots. The FAA has no way of knowing how long a strike will last and also no way of knowing which particular slots will continue to be used by a carrier who might have to cease only some operations because of a strike. Therefore, the FAA is unable to withdraw and reallocate slots of a carrier subjected to a job action by its employees. If a significant number of slots are not used for some time because of a strike, the FAA will consider special regulatory action to put the slots back into use.

Third, the use-or-lose provisions are inapplicable to slots of an operator that files for protection under the Federal bankruptcy laws during the first 60 days after filing. This 60-day period will provide time for the trustee in bankruptcy to lease or sell the slots of the bankrupt carrier, or for the carrier to be reorganized and to resume operations. It should be noted that after the 60-day period, the use-or-lose

provisions would apply to the slots of the bankrupt carrier.

Fourth, the use-or-lose provisions do not apply to slots used for international operations, as designated in § 93.217(a)(1). Under the provisions of § 93.217, international slots must be returned to the FAA if they are not used for a 2-week period.

Section 93.227(f) makes it clear that slots obtained in a lottery, slots of a carrier subject to a strike, and slots of a bankrupt carrier may be leased to others while they are not being used by the carrier holding them. Leasing, which is permitted for all slots under § 93.221, allows slots to be used to the maximum extent.

Section 93.227(h) provides that, within 30 days after an operator files for protection under the Federal bankruptcy laws, the FAA may recall any slots of that operator that have been used for essential air service if the Office of the Secretary of Transporation determines that those slots are required to provide substitute essential air service to or from the same points. Absent this provision, a trustee in bankruptcy could lease or sell slots that are necessary to provide essential air service.

Finally, § 93.227(i) requires that each holder of a slot (air carrier, commuter operator or other person) file with the FAA a bi-monthly report setting forth the daily usage for each of its high density airport slots. This will enable the agency to readily track operations in accordance with the use-or-lose provision. The report must be signed by a senior official of the air carrier or commuter operator holding the slot. The report shall show the name of the operator which operated the slot (after April 1, 1986, the operator may or may not be the same as the holder) for each day of the particular calendar month. Since this amendment would, effective April 1, 1986, allow non-air carriers and commuters to hold slots, this provision would require any "person" holding a slot to file the report. This provision may be withdrawn if the industry develops a self-regulating system to monitor slot usage. The report must include the airline flight number for which the slot was used and must identify the flight as an arrival or departure.

This requirement should not create any burden on any party since similar information is already kept by operators for other purposes. It must be noted that submission of false information under this requirement will subject the person and company filing this report to civil and criminal penalties.

*Section 93.229 Penalties.*

This section emphasizes that the provisions of Section 901 of the Federal Aviation Act of 1958, as amended, which prescribe a civil penalty, currently up to $1,000, for each violation of the Federal Aviation Regulations, are applicable to Subpart S. Any air carrier or commuter operator using a slot that it is not entitled to use will be subject to a $1,000 maximum civil penalty for each unlawful takeoff or landing operation it conducts. The violations continue for each day the rule is not complied with. Moreover, any person failing to return a slot to the FAA, as required by Subpart S, will be subject to a $1,000 maximum civil penalty for each such slot for each day the person is in violation. For purposes of taking enforcement action under Subpart S, FAA records concerning the identity of the persons holding slots shall be controlling in any enforcement proceeding. This section does not preclude the application of any other penalty available under FAR Part 13.

**Regulatory Evaluation**

A regulatory evaluation of the projected economic impacts of the final rule has been prepared and placed in the docket. The Department's conclusions in this evaluation may be summarized as follows:

*Carriers.* In the short term, benefits to air carriers and commuters will accrue from the full utilization of slots resulting from the use-or-lose provisions. In the long run, benefits will also be realized from the more efficient allocation of slots which will result from the competitive slot market. Further benefits will accrue from the ability to liquidate a slot at a price higher than the value to the using carrier, or alternatively, to acquire a slot at a price which will permit a return on investment higher than the next preferable investment alternative. A 1980 study found that an economically efficient allocation of slots at Washington National Airport could result in an increase in air carrier profits of between $100,000 and $130,000 per day. The separate allocation of international and EAS slots and the continuing restrictions on commuter slot use, adopted for public policy reasons discussed above, mitigate somewhat the potential efficiency benefits of the buy-sell rule. It must further be noted that carriers and commuters are not required to buy or sell slots and that other airports are available for their use in each area.

*New Entrants.* New entrant carriers benefit from being able to obtain access to high density airport markets at the market price for such access.

*Passengers.* In the competitive buy-sell market, the Department believes that the cost of slot purchases will not be passed through to passengers to any significant degree, and fares may actually be decreased by the resulting economic efficiency. However, it is possible that fares in certain isolated markets may increase to a degree without drawing competition.

*Government.* Under the regulation adopted, the Department will be relieved of the responsibility of monitoring the air carrier and commuter scheduling committees. However, the Government will incur additional costs for recordkeeping and monitoring of slot assignments and transfers, and also for antitrust oversight of slot transactions. The Government may need to hire additional personnel to monitor and implement this amendment.

*Summary of costs and benefits.* The analysis indicates that the regulation is likely to produce economic benefits in the long run by facilitating improvement in the allocation of slots among air carriers. The proposal may also result in some increased governmental responsibilities and costs with respect to rule enforcement and antitrust activity. On balance, it is expected that the benefits will exceed the costs, resulting in a positive net benefit to society. It is also likely that the regulation will result in some redistribution of wealth among various groups—incumbent carriers, potential new entrants, and consumers of air transportation services based upon an analysis of DOJ, FTC, CEA, and OMB comments. On balance, and in the context of the existing competitive market, the Department believes that the impacts of the regulation are positive.

**International Trade Impact Analysis**

This rule will not influence or affect the sale of foreign products or services domestically or the sale of U.S. products or services in foreign countries. Therefore, the Department certifies that this rule will not eliminate existing or create additional barriers to the sale of foreign aviation products or services in the U.S. The Department also certifies that the rule will not eliminate existing or create additional barriers to the sale of U.S. aviation products and services in foreign countries.

**Regulatory Flexibility Act Determination**

As discussed above, this rule should only result in minimal positive benefits to U.S. carriers. Small operators will not

be disproportionately affected in any discernible way by this rule. Accordingly, the Department has determined that the rule will not, if enacted, have a significant economic impact on a substantial number of small entities.

For the reasons set forth above, the Department has determined that this amendment (1) is not a major rule under Executive Order 12291, (2) is significant under Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and I certify that under the criteria of the Regulatory Flexibility Act, this rule will not have a significant economic impact on a substantial number of small entities. A copy of the regulatory evaluation prepared for this action can be obtained from the person identified under the caption **"FOR FURTHER INFORMATION CONTACT."**

### Immediate Effectivity

This rule contains a requirement prohibiting slot transfers, except trades on a one-for-one basis at the same airport, until April 1, 1986, that becomes effective upon publication. Other requirements establish allocations based on conditions in effect on the issuance date of the rule. These provisions are needed for the FAA to establish initial slot allocations. A failure to make them apply as adopted herein could render the FAA's task impossible. Therefore, I find that good cause exists for making these requirements effective immediately.

### Paperwork Reduction Act

This amendment will require the reporting of certain information by air carrier and commuter operators to the FAA. Under the requirements of the Federal Paperwork Reduction Act, the Office of Management and Budget has approved the information collection provision of this rule. OMB Approval Number 2120-0524 has been assigned to Subpart S.

### List of Subjects in 14 CFR Parts 11 and 93

Aviation safety, Air traffic control.

### Adoption of the Amendment

For the reasons set out above, Parts 11 and 93 of the Federal Aviation Regulations (14 CFR Parts 11 and 93) are amended as follows:

## PART 11—[AMENDED]

1. The authority citation for Part 11 is revised to read as follows:

**Authority:** 49 U.S.C. 1341(a), 1343(d), 1348, 1354(a), 1401 through 1405, 1421 through 1431, 1481, 1502, 49 U.S.C. 106 (Revised Pub. L. 97-449, January 12, 1983).

**Note.**—Authority citations following any section throughout Part 11 are removed.

2. By amending § 11.101 by adding a new OMB Control Number to the table in paragraph (b), as follows:

**§ 11.101 OMB control numbers assigned pursuant to the Paperwork Reduction Act.**

* * * * *

(b) * * *

| | |
|---|---|
| Part 93 Subpart S | 2120-0524 |

3. The authority citation for Part 93 is revised to read as follows:

**Authority:** 49 U.S.C. 1302, 1303, 1348, 1354(a), 1421(a), 1424, 2402 and 2424; 49 U.S.C. 106 (Revised Pub. L. 97-449, January 12, 1983).

**Note.**—Authority citations preceding any subpart or following any section through out Part 93 are removed.

4. A new Subpart S is added to read as follows:

## PART 93—SPECIAL AIR TRAFFIC RULES AND AIRPORT TRAFFIC PATTERNS

* * * * *

### Subpart S—Allocation of Commuter and Air Carrier IFR Operations at High Density Traffic Airports

Sec.


93.211 Applicability.
93.213 Definitions and General Provisions.
93.215 Initial Allocation of Slots.
93.217 Allocation of Slots for International Operations and Applicable Limitations.
93.219 Allocation of Slots for Essential Air Service Operations and Applicable Limitations.
93.221 Transfer of Slots.
93.223 Slot Withdrawal.
93.225 Lottery of Available Slots.
93.227 Slot Use and Loss.
93.229 Penalties.


### Subpart S—Allocation of Commuter and Air Carrier IFR Operations at High Density Traffic Airports

#### § 93.211 Applicability.

(a) This subpart prescribes rules applicable to the allocation and withdrawal of IFR operational authority (takeoffs and landings) to individual air carriers and commuter operators at the High Density Traffic Airports identified in Subpart K of this part except for Newark Airport.

(b) This subpart also prescribes rules concerning the transfer of allocated IFR operational authority and the use of that authority once allocated.

#### § 93.213 Definitions and general provisions.

(a) For purposes of this subpart—

(1) "New entrant carrier" means a commuter operator or air carrier which does not hold a slot at a particular airport and has never sold or given up a slot at that airport after December 16, 1985.

(2) "Slot" means the operational authority to conduct one IFR landing or takeoff operation each day during a specific hour or 30 minute period at one of the High Density Traffic Airports, as specified in Subpart K of this part.

(b) The definitions specified in Subpart K of this part also apply to this subpart.

(c) For purposes of this subpart, if an air carrier, commuter operator, or other person has more than a 50-percent ownership or control of one or more other air carriers, commuter operators, or other persons, they shall be considered to be a single air carrier, commuter operator, or person. In addition, if a single company has more than a 50-percent ownership or control of two or more air carriers and/or commuter operators or any combination thereof, those air carriers and/or commuter operators shall be considered to be a single operator. A single operator may be considered to be both an air carrier and commuter operator for purposes of this subpart.

#### § 93.215 Initial allocation of slots.

(a) Each air carrier and commuter operator holding a permanent slot on December 16, 1985, as evidenced by the records of the air carrier and commuter operator scheduling committees, shall be allocated those slots subject to withdrawal under the provisions of this subpart. The Chief Counsel of the FAA shall be the final decisionmaker for initial allocation determinations.

(b) Any permanent slot whose use on December 16, 1985 is divided among different operators, by day of the week, or otherwise, as evidenced by records of the scheduling committees, shall be allocated in conformity with those records. The Chief Counsel of the FAA shall be the final decisionmaker for these determinations.

(c) Within 30 days after December 16, 1985, each U.S. air carrier and commuter operator must notify the office specified in § 93.221(a)(1), in writing, of those slots used for operations described in § 93.217(a)(1) on December 16, 1985.

(d) Any slot not held by an operator on December 16, 1985 shall be allocated in accordance with the provisions of §§93.217, 93.219 or 93.225 of this subpart.

#### § 93.217 Allocation of Slots for International Operations and Applicable Limitations

(a) Any air carrier or commuter operator having the authority to conduct

international operations shall be provided slots for those operations, subject to the following conditions:

(1) The slot may be used only for a flight segment in which either the takeoff or landing is at a foreign point or, for foreign operators, the flight segment is a continuation of a flight that begins or ends at a foreign point. Slots may be obtained and used under this section only for operations at Kennedy and O'Hare airports unless otherwise required by bilateral agreement.

(2) Slots used for an operation described in paragraph (a)(1) of this section may not be bought, sold, leased or otherwise transferred, except that such a slot may be traded for another slot used for such operations on a one-for-one basis at the same airport.

(3) Slots used for operations described in paragraph (a)(1) of this section must be returned to the FAA if the slot will not be used for such operations for more than a 2-week period.

(4) Each air carrier or commuter operator having a slot that is used for operations described in paragraph (a)(1) of this section but is not used every day of the week shall notify the office specified in § 93.221(a)(1) in writing of those days on which the slots will not be used.

(5) Slots shall be allocated in a time period within two hours of the time period requested.

(b) If a slot allocated under § 93.215 was scheduled for an operation described in paragraph (a)(1) of this section on December 16, 1985, its use shall be subject to the requirements of paragraphs (a)(1) through (a)(4) of this section. This requirement applies to slots used for international operations at LaGuardia Airport.

(c) The Office of the Secretary of Transportation reserves the right not to apply the provisions of paragraph (a) of this section, concerning the allocation of slots, to any foreign air carrier or commuter operator or a country that provides slots to U.S. air carriers and commuter operators on a basis more restrictive than provided by this subpart. Decisions not to apply the provisions of paragraph (a) will be made by the Office of the Secretary of Transportation.

(d) Each operator desiring slots under paragraph (a) of this section must request those slots from the office specified in § 93.221(a)(1) by August 1, for operations to be conducted during the following Winter scheduling period (during the observance of Standard Time), and by February 1, for operations during the Summer scheduling period (during the observance of Daylight Savings Time.)

(e) Each request for slots under this section shall state the airport, days of the week and time of the day of the desired slots and the period of time the slots are to be used. The request must be accompanied by a certified statement signed by an officer of the operator indicating that the operator has or has contracted for aircraft capable of being utilized in using the slots requested and that the operator has bona fide plans to use the requested slots for operations described in paragraph (a).

**§ 93.219 Allocation of slots for essential air service operations and applicable limitations.**

Whenever the Office of the Secretary of Transportation determines that slots are needed for operations to or from a High Density Traffic Airport under the Department of Transportation's Essential Air Service (EAS) Program, those slots shall be provided to the designated air carrier or commuter operator subject to the following limitations:

(a) Slots obtained under this section may not be bought, sold, leased or otherwise transferred, except that such slots may be traded for other slots on a one-for-one basis at the same airport.

(b) Any slot obtained under this section must be returned to the FAA if it will not be used for EAS purposes for more than a 2-week period. A slot returned under this paragraph may be reallocated to the operator which returned it upon request to the FAA office specified in § 93.221(a)(1) if that slot has not been reallocated to an operator to provide substitute essential air service.

(c) Slots shall be allocated for EAS purposes in a time period within 90 minutes of the time period requested.

(d) The Department will not honor requests for slots for EAS purposes to a point if the requesting carrier has previously traded away or sold slots it had used or obtained for use in providing essential air service to that point.

(e) Slots obtained under Civil Aeronautics Board Order No. 84–11–40 shall be considered to have been obtained under this section.

**§ 93.221 Transfer of slots.**

(a) Except as otherwise provided in this subpart, effective April 1, 1986, slots may be bought, sold or leased for any consideration and any time period and they may be traded in any combination for slots at the same airport or any other high density traffic airport. Transfers, including leases, shall comply with the following conditions:

(1) Requests for confirmation must be submitted in writing to Slot Transfers, Office of the Chief Counsel, Rules Docket, 800 Independence Avenue, SW., Room 915G, AGC–204, Washington, DC 20591, in a format to be prescribed by the Administrator. Requests will provide the names of the transferor and recipient; business address and telephone number of the persons representing the transferor and recipient; whether the slot is to be used for an arrival or departure; the date the slot was acquired by the transferor; the section of this subpart under which the slot was allocated to the transferor; whether the slot has been used by the transferor for international or essential air service operations; and whether the slot will be used by the recipient for international or essential air service operations. After withdrawal priorities have been established under § 93.223 of this part, the requests must include the slot designations of the transferred slots as described in § 93.223(b)(5).

(2) The slot transferred must come from the transferor's then-current FAA-approved base.

(3) Written evidence of each transferor's consent to the transfer must be provided to the FAA.

(4) The recipient of a transferred slot may not use the slot until written confirmation has been received from the FAA.

(5) Slots obtained in a lottery held under § 93.225 of this part may not be sold or traded, except on a one-for-one basis at the same airport, unless they are first used by the operator obtaining them for a 2-month period at least 65 percent of the time. If a slot obtained in a lottery is traded before the above use requirement is met, any slot acquired in the first or subsequent trades may not be sold or traded except on a one-for-one basis at the same airport until such slot is used for a 2-month period at least 65 percent of the time by the operator which obtained the slot in the lottery. Requests for confirmation of transfers of slots obtained in a lottery must be accompanied by documentation of use.

(6) The Office of the Secretary of Transportation must determine that the transfer will not be injurious to the essential air service program.

(b) A record of each slot transfer shall be kept on file by the office specified in paragraph (a)(1) of this section and will be made available to the public upon request.

(c) Any person may buy or sell slots and any air carrier or commuter may use them. Notwithstanding § 93.123, air carrier slots may be used with aircraft of the kind described in § 93.123 (c)(1) or

(c)(2) but commuter slots may only be used with aircraft of the kind described in § 93.0123(c)(2).

(d) Prior to April 1, 1986, slots may only be transferred by trade on a one-for-one basis at the same airport, provided that the conditions specified in paragraphs (a)(1) through (a)(4) and (a)(6) of this section are met.

**§ 93.223 Slot withdrawal.**

(a) Slots do not represent a property right but represent an operating privilege subject to absolute FAA control. Slots may be withdrawn at any time to fulfill the Department's operational needs, such as providing slots for international or essential air service operations or eliminating slots. Before withdrawing any slots under this section to provide them for international operations, essential air services or other operational needs, those slots returned under § 93.224 of this part and those recalled by the agency under § 93.227 will be allocated.

(b) By December 16, 1985 or within 30 days after receipt of the scheduling committee records specified in § 93.215(a) of this part, whichever occurs later, the FAA shall conduct recall lotteries for each High Density Traffic Airport to establish a priority for the recall of slots at each airport. The lotteries shall be conducted as follows:

(1) A separate lottery shall be conducted for air carrier slots and for commuter operator slots at each airport.

(2) Each slot shall be assigned a designation consisting of the applicable airport code, a code indicating whether the slot is an air carrier or commuter operator slot, the airline code, and the time period of the slot (e.g., DCA/Air Car/PL/0900). The designation shall also indicate if the slot is used by different operators on different days of the week, is used for international operations, or was allocated for EAS purposes.

(3) Separate pools shall be established for air carriers and commuters at each airport. The slot designations shall be placed in drawing pools.

(4) Blind drawings shall be made from each of the pools, one at a time, and, as withdrawn, each slot designation will be assigned a withdrawal priority in numerical order (i.e., the slot first drawn in the lottery will be the first slot to be withdrawn if withdrawal should become necessary and if the drawn slot is in a time period in which a slot is required).

(5) The withdrawal priority number shall be added to the slot designation (e.g., DCA/Air Car/DL/0900/1) and a complete list of the withdrawal priority numbers will be made available to the public.

(c) Whenever slots must be withdrawn, they will be withdrawn in accordance with the priority list established under paragraph (b) of this section, except:

(1) Slots obtained in a lottery held pursuant to § 93.225 of this part shall be subject to withdrawal pursuant to paragraph (i) of that section, and

(2) Slots necessary for international and essential air service operations shall be exempt from withdrawal for use for other international or essential air service operations.

(d) The following withdrawal priority rule shall be used to permit application of the one-for-one trade provisions for international and essential air service slots and the slot withdrawal provisions where the slots are needed for other than international or essential air service operations. If an operator has more than one slot in a specific time period in which it also has a slot being used for international or essential air service operations, the international and essential air service slots will be considered to be those with the lowest withdrawal priority.

(e) The operator(s) using each slot to be withdrawn shall be notified by the FAA of the withdrawal and shall cease operations using that slot on the date indicated in the notice. Generally, the FAA will provide at least 30 days after notification for the operator to cease operations unless exigencies require a shorter time period.

(f) Notwithstanding other provisions in this section, the FAA shall not withdraw slots obtained under § 93.215 or § 93.225 from any air carrier or commuter holding eight or fewer slots (excluding slots used for operations described in § 93.217(a)(1)) at that airport.

**§ 93.224 Return of slots.**

(a) Whenever a slot is required to be returned under this subpart, the holder must notify the office specified in § 93.221(a)(1) in writing of the date after which the slot will not be used.

(b) Slots may be voluntarily returned for use by other operators by notifying the office specified in § 93.221(a)(1) in writing.

**§ 93.225 Lottery of available slots.**

(a) Whenever the FAA determines that sufficient slots have become available for distribution for purposes other than international or essential air service operations, but generally not more than twice a year, they shall be allocated in accordance with the provisions of this section.

(b) A random lottery shall be held to determine the order of slot selection.

(c) Slot allocation lotteries shall be held on an airport-by-airport basis with separate lotteries for commuter operator and air carrier slots.

(d) The FAA shall publish a notice in the **Federal Register** announcing any lottery dates. The notice may include special procedures to be in effect for the lotteries.

(e) Each U.S. air carrier or commuter operator, as appropriate, operating at the airport shall be included in the lottery. Any U.S. carrier not operating at the airport, but wishing to initiate service at the airport, shall be included in the lottery if that operator notifies, in writing, the Office of the Chief Counsel, Docket Section, AGC-204, 800 Independence Ave., SW., Washington, DC 20591. The notification must be in duplicate and must be received 15 days prior to the lottery date.

(f) At the lottery, each operator must make its selection within 5 minutes after being called or it shall lose its turn. If capacity still remains after each operator has had an opportunity to select slots, the allocation sequence will be repeated in the same order. An operator may select any two slots available at the airport during each sequence, except that new entrant carriers may select four slots, if available, in the first sequence.

(g) In order to select slots during a slot lottery session, the operator must have appropriate economic authority under Title IV of the Federal Aviation Act of 1958, as amended, and must have made substantial progress in obtaining FAA operating authority under Parts 121 or 135 of this chapter. For purposes of this subpart, substantial progress in obtaining FAA operating authority under Parts 121 or 135 of this chapter shall be evidenced by the submission of at least three of the following documents, as required by those parts, to the FAA:

(1) The compliance statements.

(2) The aircraft operating manuals.

(3) The company operating manuals.

(4) The operator's training program.

(5) The operator's maintenance programs.

(6) A schedule of certification events, such as planned dates of:

(i) Proving runs;

(ii) Aircraft deliveries;

(iii) Training completion;

(iv) Emergency evacuation demonstration; and

(v) First revenue trip.

(h) During the first selection sequence, 15 percent of the slots available but no fewer than two slots shall be reserved for selection by new entrant carriers.

(i) Slots obtained under this section shall retain their withdrawal priority as established under § 93.223. If the slot is newly created, a withdrawal priority shall be assigned. That priority number shall be higher than any other slot assigned a withdrawal number previously.

**§ 93.227 Slot use and loss.**

(a) Except as provided in paragraphs (b), (c), (d), and (g) of this section, any slot not utilized 65 percent of the time over a 2-month period shall be recalled by the FAA.

(b) Paragraph (a) of this section does not apply to slots obtained under § 93.225 of this part during—(1) the first 180 days after they are allocated if the operator obtaining them did not have a Part 121 of 135 certificate at the time of allocation; (2) the first 90 days for other new entrant carriers; or (3) the first 60 days after they are allocated for all other operators.

(c) Paragraph (a) of this section does not apply to slots of an operator forced by a strike to cease operations using those slots.

(d) Paragraph (a) of this section does not apply to slots of an operator that files for protection under this Federal bankruptcy laws during the first 60 days after filing.

(e) Persons having slots withdrawn pursuant to paragraph (a) of this section must cease all use of those slots upon receipt of notice from the FAA.

(f) Persons holding slots but not using them pursuant to the provisions of paragraphs (b), (c) and (d) may lease those slots for use by others. A slot obtained in a lottery may not be leased after the expiration of the applicable time period specified in paragraph (b) of this section unless it has been operated for a 2-month period at least 65 percent of the time by the operator which obtained it in the lottery.

(g) This section does not apply to slots used for the operations described in § 93.217(a)(1) of this part.

(h) Within 30 days after an operator files for protection under the Federal bankruptcy laws, the FAA shall recall any slots of that operator, if—(1) the slots were formerly used for essential air service and (2) the Office of the Secretary of Transportation determines those slots are required to provide substitute essential air service to or from the same points.

(i) Every air carrier and commuter operator or other person holding a slot at a high density airport shall, within 14 days after the last day of the second full month after December 16, 1985 and every 2 months thereafter, forward, in writing, to the address identified in § 93.221(a)(1), a list of all slots held by the air carrier, commuter operator or other person along with a listing of which air carrier or actually operated the slot for each day of the particular calendar month. The report shall identify the flight number for which the slot was used and shall identify the flight as an arrival or departure. The report shall be signed by a senior official of the air carrier or commuter operator. If the slot is held by an "other person," the report must be signed by an official representative.

**§ 93.229 Penalties.**

(a) Any air carrier or commuter operator using a slot it is not entitled to use under the provisions of this subpart shall be subject to a $1,000 maximum civil penalty in accordance with section 901 of the Federal Aviation Act, as amended, for each unlawful takeoff or landing operation it conducts. For purposes of this subpart, FAA records concerning the identity of the persons holding slots shall be controlling in any enforcement proceeding.

(b) Any person failing to return a slot to the FAA as required by this subpart shall be subject to a $1,000 maximum civil penalty in accordance with section 901 of the Federal Aviation Act, as amended, for each day the person is in violation.

Issued in Washington, DC, on December 16, 1985.

**Elizabeth Hanford Dole,**

*Secretary of Transportation.*

[FR Doc. 85-30081 Filed 12-17-85; 2:34 pm]

BILLING CODE 4910-13-M

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 93**

**[Docket No. 24105; Notice No. 85-25]**

## Slot Allocation; Initial Withdrawal and Redistribution of Slots

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Notice of Proposed Rulemaking (NPRM).

**SUMMARY:** This notice proposes to amend Subpart S of Part 93 of the Federal Aviation Regulations (FAR) (14 CFR Part 93, Subpart S), which was adopted in this issue of the **Federal Register** to provide for the initial withdrawal of up to 5 percent of the slots used by air carrier and commuter operators by lottery. Subpart S provides, in general, that slots being used as of the issuance date of that subpart will be allocated to the carriers then holding them. Those slots can be sold at a later date and any carrier not now holding slots or wishing additional slots would be able to buy slots to begin operations in the future. This gives incumbent carriers at the High Density Airports an advantage that this notice attempts to diminish by assuring that a number of slots will be initially allocated by a lottery in which new entrant carriers would be given preference.

**DATES:** Comments must be received on or before January 24, 1986. A public hearing will be held on January 21 and 22, 1986.

**ADDRESSES:** Send comments on the proposal in duplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket (AGC-204), Docket No. 24105, 800 Independence Avenue, SW., Washington, DC 20591. All comments must be marked "Docket No. 24105." Comments may be examined in the Rules Docket, Room 915G, weekdays, except Federal holidays, between 8:30 a.m. and 5:00 p.m.

The hearing will be held at the Federal Aviation Administration, 800 Independence Avenue, SW., Third Floor Auditorium, Washington, DC.

Copies of this document are available by writing the Federal Aviation Administration, Office of Public Affairs, Attention: Public Information Center, APA-430, 800 Independence Ave., SW., Washington, DC 20591 (or call 202-426-8058).

**FOR FURTHER INFORMATION CONTACT:** Edward P. Faberman, Deputy Chief Counsel, AGC-2, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591, Telephone (202) 426-3775.

**SUPPLEMENTARY INFORMATION:**

### Comments Invited

Interested persons are invited to participate in this regulatory action by submitting such written data, views, or arguments as they may desire. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in developing reasoned regulatory decisions. Communications should identify the regulatory docket number and be submitted in duplicate to the address listed above. Commenters wishing the FAA to acknowledge receipt of their comments must submit with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. 24105." The postcard will be date/time stamped and returned to the commenter. All communications received between the specified opening and closing dates for comments will be considered by the Administrator before taking further action on this rulemaking. This proposal may be changed in the light of comments received. All comments submitted will be available for examination in the Rules Docket both before and after the closing date for comments. A report summarizing each substantive public contact with FAA personnel concerned with this rulemaking will be filed in the docket.

In addition to seeking comments on this proposal the FAA will hold a public hearing to allow public input on the proposal and to answer questions on the administration of the new Subpart S.

The hearing will be held on January 21-22, 1986, at the Federal Aviation Administration, 800 Independence Avenue, SW., Third Floor Auditorium. This meeting will maximize the ability of those affected by Subpart S to familiarize themselves with its implementation.

### Availability of Document

Any person may obtain a copy of this document by submitting a request to the Federal Aviation Administration, Office of Public Affairs, Attention: Public Information Center, APA-430, 800 Independence Avenue, SW., Washington, DC 20591; or by calling (202) 426-8058. Communications must identify the notice number of the document.

### Meeting Procedures

Persons who plan to attend the hearing should be aware of the following procedures to be followed:

(a) The hearing will be informal in nature and will be conducted by the designated representative of the Adminstrator under 14 CFR 11.33. Each participant will be given an opportunity to make a presentation. Questions may be asked of each presenter by other participants or by representatives of the Administrator.

(b) The hearing will begin at 9:00 a.m. (local time). There will be no admission fee or other charge to attend and participate. All sessions will be open to all persons on a space available basis. The presiding officer may accelerate the schedule if possible. The second day of the hearing will be held only if all speakers cannot be accommodated during the first scheduled day.

(c) All meeting sessions will be recorded by a court reporter. Anyone interested in purchasing the transcript should contact the court reporter directly. A copy of the court reporter's transcript will be filed in the docket.

(d) Position papers or other handout material relating to the substance of the meeting may be distributed. Participants submitting handout materials must present an original and two copies to the presiding officer. There should be an adequate number of copies provided for further distribution to all participants.

(e) Statements made by FAA participants at the hearing should not be taken as expressing a final FAA position.

### Public Hearing Schedule

The schedule for the meeting is as follows:

*Tuesday, January 21, 1986*

9:00 a.m.—Hearing is opened
9:15 a.m.—Summary of Subpart S
9:30 a.m.—Questions
10:00-12:00—Formal Presentations
1:00-5:00—Formal Presentations

A continuation of the hearing may be held on Wednesday, January 22, if necessary.

Anyone interested in making a presentation at the hearing must contact Pam Trebbe, (202) 426-3773, with the name of the individual making the presentation and the name of the group represented. Presentations should be limited to 10 minutes.

### Background

In today's edition of the **Federal Register**, the Department has adopted a new Subpart S to Part 93 of the FAR.

That subpart prescribes rules applicable to the allocation and withdrawal of IFR operational authority, i.e., takeoff and landing authority (commonly referred to as "slots"), to individual air carriers and commuter operators at the high density airports—LaGuardia and Kennedy Airports in New York, O'Hare Airport in Chicago, and National Airport in Washington. That subpart also prescribes rules governing the transfer of slots and the use of slots once allocated.

Section 93.215 of Subpart S prescribes, in general, that each air carrier and commuter operator holding slots as of the issuance date of the rule shall be allocated those slots subject to withdrawal by the FAA. Under Subpart S, those slots not being used and those slots for which the FAA cannot determine the holder will be made available to other operators in accordance with the provisions of the subpart, which include lotteries of available slots to carriers that desire them. In those lotteries, new entrant carriers would be given a preference.

Under the amendment, approximately 90 to 95 percent of the slots at the high density airports are anticipated to be allocated initially to carriers now using them. As a result of non-use or slots returned, a small percentage should be available for allocation by lottery. Some, however, may have to be allocated outside the lottery for international or essential air service operations.

A number of the commenters to the notices of proposed rulemaking which led to Subpart S, while not opposed to the buying and selling of slots once allocated, were opposed to allocating all slots initially to incumbent carriers. Several suggested auctioning off all or a portion of the slots and applying the proceeds to improving the aviation system. These suggestions were rejected for a number of reasons, including costs to the industry, the potential for major disruption in air service in the case of auctioning off all, or a substantial portion of all, slots, and a lack of statutory authority. Several other commenters suggested that a limited number of slots, perhaps 10 percent, be withdrawn and redistributed by lottery. This approach does not have the drawbacks of an auction if the initial withdrawal is not so large as to disrupt service. A 10-percent withdrawal, in the Department's view, is too large. If the maximum number of slots to be withdrawn is held to 5 percent (and in all probability under this proposal, it should be less), little, if any, service will be disrupted.

The Department believes it is important that a pool of slots equal to 5 percent of those that exist be established and made available for acquisition in a lottery. Although it is appropriate for incumbent carriers to retain a large percentage of the slots they have because of their investments and commitments in personnel, equipment, terminal development, and planning at the high density airports, it could by place new entrant carriers and incumbent carriers with few slots at an initial disadvantage since the only way they could obtain new or additional slots would be to buy them. In the past, these operators have found it very difficult to obtain slots at some of the high density airports, and the Department believes that the disadvantages they have faced can be offset if at least 5 percent of the slots would be allocated initially by lottery.

**The Proposal**

Although the Department believes an adequate pool of slots will be available for allocation through a lottery under Subpart S, at least at some of the high density airports, the possibility exists that that will not be the case at all the airports. The exact size of the pools of available slots will not be certain for several months because all pertinent records of who held slots and how they were used must be compiled and reviewed. If a sufficient number of slots do not become available for adequate lottery allocations under Subpart S, the additional slots could be withdrawn from the carriers currently holding them. This proposal would provide for such a withdrawal if that should become necessary.

Under this proposal, the FAA would determine the number of slots available for lottery allocations under Subpart S at each high density airport for each class of user (air carrier and commuter operators). The FAA would then determine the extent to which this number is less than 5 percent of the slots for each class of user at each of the high density airports. The number of available slots will be determined separately for commuters and air carriers. If the number of slots equals 5 percent or more of the available slots, this proposal will be withdrawn for that airport and category of user. If, however, the number is less than 5 percent of either the air carrier or commuter operator slots at an airport, the number of slots needed to reach the 5-percent level would be withdrawn from incumbent air carriers and commuter operators, as appropriate. This would be accomplished through a withdrawal procedure different than that prescribed in Subpart S. The slots would be withdrawn randomly in a blind lottery from the air carrier and commuter operator pools of slots. The slots would retain the withdrawal priorities established under §93.223 after they are reallocated. Slots utilized for international or EAS operations would not be withdrawn. The withdrawals would be accomplished prior to the date that slots can be sold under Subpart S, i.e., April 1, 1986.

The following chart shows the *maximum* number of slots that would be withdrawn from incumbent operators at each of the high density airports under this proposal:

NUMBER OF SLOTS THAT MIGHT BE WITHDRAWN

| Airport | Air carrier | Commuter operator | Hours |
|---|---|---|---|
| O'Hare | 84 | 22 | 0645-2114 |
| LaGuardia | 36 | 11 | 0700-2159 |
| Kennedy | 18 | 3 | 1500-1959 |
| Washington National | 28 | 8 | 0700-2159 |

The Department recognizes that an argument exists that this withdrawal provision should not apply to commuter operators since the commuter operator scheduling committees have used deadlock-breaking mechanisms in the past which have assured some access by new entrants. The Department invites comments on whether this proposal should not apply to one or more of the air carrier or commuter operator slot pools because of actions taken by the appropriate scheduling committee to encourage new entry into the particular airport. The Department is also considering not withdrawing any slots from incumbent operators having eight or fewer slots at a particular airport because of the disproportionate impact this would cause. Comments on these alternatives are invited.

In addition, comments are invited on whether the total number of slots to which 5 percent is applied should include international slots, since international slots are not subject to withdrawal and the burden of withdrawal would fall disproportionately on domestic operators.

Once withdrawn under the proposal, slots would be redistributed by lottery, as provided in Subpart S (14 CFR 93.225). That lottery procedure gives new entrant carriers two preferences in the first selection sequence. First, it guarantees them 15 percent of the slots available to be allocated. Second, it gives each new entrant carrier the opportunity to choose four instead of two slots. Suggestions on other

distribution mechanisms for reallocation are solicited.

**Regulatory Evaluation**

This proposal should have only a minimal economic impact overall. It would affect only a small number of slots at the high density airports. Those slots represent operational authority controlled by the FAA and are not a property right. The proposal would merely shift the usage of those few slots withdrawn from certain operators and provide them to others. The operators losing slots would be able to buy replacement slots if it was economically justified to them. The operators gaining slots might be relieved of the need to buy slots. Comments on the economic impact of the proposal are invited.

**Regulatory Flexibility Determination**

Small entities should not be disproportionately affected by this rulemaking overall. In fact, as mentioned above, the Department is considering not withdrawing slots from carriers operating a minimum number of flights at an airport (e.g., eight or fewer). the overall impact on small entities should be minimal. Comments on this determination are requested.

For the reasons set forth in this notice: (1) The Department has determined that the proposal does not involve a major proposal under Executive Order 12291; (2) Is significant under the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) The overall economic impact is so minimal as not to warrant a full regulatory evaluation, and I certify that under the criteria of the Regulatory Flexibility Act this proposed rule, if promulgated, will not have a significant economic impact on a substantial number of small entities.

**List of Subjects in 14 CFR Part 93**

Aviation safety, Airspace, Air traffic control.

(49 U.S.C. 1302, 1303, 1348, 1354(a) and 1421(a); 49 U.S.C. 106(f) (Revised Pub. L. 97-449, January 12, 1983))

Issued in Washington, DC, on December 16, 1985.

**Elizabeth Hanford Dole,**

*Secretary of Transportation.*

[FR Doc. 85-30080 Filed 12-17-85; 2:34 pm]

BILLING CODE 4910-13-M

federal register

Friday
December 20, 1985

Part VII

# Department of Agriculture

## Cooperative State Research Service

## Special Research Grants Program for Fiscal Year 1986; Solicitation of Applications; Notice

## DEPARTMENT OF AGRICULTURE

### Cooperative State Research Service

### Special Research Grants Program for Fiscal Year 1986; Solicitation of Applications

Applications are invited for competitive grant awards under the Special Research Grants Program for Fiscal Year 1986.

The authority for this program is contained in section 2(c)(1) of the Act of August 4, 1965, Pub. L. 89–106, as amended (7 U.S.C. 450i(c)(1)). This program is administered by the Cooperative State Research Service (CSRS) of the U.S. Department of Agriculture (USDA). Under this program, and subject to the availability of funds, the Secretary may award grants for periods not to exceed five years, for the support of research projects to further the programs discussed below. Proposals may be submitted by any land-grant college or university, research foundation established by a land-grant college or university, State agricultural experiment station, and any college or university having a demonstrable capacity in food and agricultural research. Proposals from scientists at non-United States organizations will not be considered for support.

#### Applicable Regulations

Regulations applicable to this program include the following: (a) The regulation governing the Special Research Grants Program, 7 CFR Part 3400 (50 FR 5498, February 8, 1985), which sets forth procedures to be followed when submitting grant proposals, rules governing the evaluation of proposals and the awarding of grants, and regulations relating to the post-award administration of grant projects; and (b) the USDA Uniform Federal Assistance Regulations, 7 CFR Part 3015.

#### Introduction to Program Description

Standard project grants will be awarded to support basic studies in selected areas of (1) animal health research and (2) aquaculture research. Consideration will be given to proposals that address innovative as well as fundamental approaches to the research areas outlined below and that are consistent with the mission of USDA. The following specific program areas and guidelines are thus provided as a base from which proposals may be developed:

#### Program Areas

*1.0 Animal Health Research*

CSRS Contacts: Dr. Dale K. Sorensen; Telephone: (202) 447–7437; Dr. Howard S. Teague; Telephone: (202) 447–3847.

Funds will be awarded to support research seeking solutions to health problems of livestock and poultry and major aquaculture species. No more than $150,000 will be awarded for the support of any one project under the program area, regardless of the amount requested. A proposal will not be evaluated by more than one peer panel.

*Investigators and co-investigators who have received Special Research Grant awards in the Animal Health area during the past five years should include a brief summary of progress and a list of publications resulting from such grants.*

The overall objective of this research is to develop and/or refine abiotic and biotic methodologies for suppression of animal losses due to infectious and noninfectious diseases and internal and external parasites of livestock, poultry and major aquaculture species.

Research should be directed toward: (1) Basic studies to clarify infectious and noninfectious diseases and parasites or their interactive effects on animal health; and (2) development of practical, implementable management systems for the producer to prevent or alleviate these causes of animal losses. Research may include clarification of complex or unknown etiologies including nutritional, genetic, and environmental interactions; development of improved methods of detecting disease agents or antibodies in animals, animal products, tissues, etc.; clarification of disease pathogenesis; determination of methods of disease transmission including transmission by embryo transfer, artificial insemination and importation of animal products (such studies should mimic as closely as possible the normal conditions of collection, preparation and use of these items); development of improved methods of imunization against disease agents that will provide solid and persistent protection without compromising diagnosis; development of alternative pest eradication methods so as to limit the use and dependence on biotoxic substances (such alternatives may include biologic methods, sterile male techniques, artificial pheromones, etc.); developmnt of other disease prevention, control and eradication technology; and evaluation of the economics of disease and disease prevention or control.

The specific areas of inquiry in which projects will be funded are listed below. The areas are broken down into subcategories which will be funded in the approximate percentages listed. In the event that there are insufficient meritorious proposals recommended by peer panels to utilize all funds in each specific area of inquiry or in each subcategory, the balance of any such funds will be awarded for meritorious proposals recommended by peer panels under the other subcategories within the specific area of inquiry or the other specific areas of inquiry. Utilizing the recommendations of the peer panels, the Administrator of CSRS will make the final determination on specific grants to be awarded.

*1.1 Beef Cattle*

(1) Respiratory diseases complex (approximately 17 percent of available funds).

(2) Reproductive diseases, especially brucellosis, including but not limited to, anestrus, leptospirosis and vibriosis (approximately 12 percent of available funds).

(3) Enteric diseases, including but not limited to Johne's Disease (approximately 8 percent of available funds).

(4) Parasites (internal and external), including but not limited to anaplasmosis, ticks, flukes, nematodes, and interactive effects of internal and external parasites; metabolic diseases, especially bloat, grass tetany, and mineral imbalance (approximately 4 percent of available funds).

*1.2 Dairy Cattle*

(1) Mastitis (approximately 6 percent of available funds).

(2) Reproductive diseases, including but not limited to, brucellosis and nondetected estrus (approximately 5 percent of available funds).

(3) Respiratory diseases (approximately 3 percent of available funds).

(4) Digestive and enteric diseases, including but not limited to Johne's Disease (approximately 2 percent of available funds).

(5) Johne's Disease (approximately 2 percent of available funds).

*1.3 Swine*

(1) Enteric diseases. Viral enteritis, colibacillosis, coccidiosis, salmonellosis, clostridium, dysentery, and proliferative enteritis (approximately 5 percent of available funds).

(2) Respiratory diseases. Hemophilus pleuropneumonia, mycoplasma pneumonia, atrophic rhinitis, influenza, Hemophilus parasuis and Pasteurella

multocida (approximately 5 percent of available funds).

(3) Reproductive diseases. Parvovirus, Mastitis-metritis-agalactia, leptospirosis, and streptococcus (approximately 4 percent of available funds).

(4) Other swine diseases. Trichinosis, pseudorabies, eperythrozoonosis, parasites, mycotoxicosis, and lameness (approximately 4 percent of available funds).

*1.4 Poultry*

(1) Respiratory diseases (approximately 5 percent of available funds).

(2) Metabolic and immunologic diseases (approximately 5 percent of available funds).

(3) Enteric disorders (approximately 3 percent of available funds).

*1.5 Sheep and Goats*

Bluetongue, foot rot, chlamydial polyarthritis, respiratory disease, and mastitis (approximately 5 percent of available funds).

*1.6 Horses*

Especially respiratory diseases, including but not limited to, enteric diseases, reproductive diseases, and musculoskeletal diseases (especially laminitis and lameness) (approximately 3 percent of available funds).

*1.7 Aquaculture*

Infectious diseases and parasites (approximately 2 percent of available funds).

*2.0 Aquaculture Research*

CSRS Contacts: Dr. Meryl Broussard; Telephone: (202) 447–6014; Dr. Howard S. Teague; Telephone: (202) 447–3847.

No more than $80,000 will be awarded for support of any one project under this program area, regardless of the amount requested. The objective of this research is to provide and improve upon the scientific and technical base needed by the aquaculture industry.

Proposals focused on production of commercially important aquaculture species in the following *specific areas of inquiry* will be considered:

*2.1 Improved production efficiency in diet formulation, reproduction and breeding, and disease and parasite control.*

*2.2 Improved water quality for production and factors affecting the quality of water discharges.*

**How To Obtain Application Materials**

Copies of this solicitation, the "Research Grant Application Kit," and the Administration Provisions governing this program, 7 CFR Part 3400 (50 FR 5498, February 8, 1985), may be obtained by writing to the address or by calling the telephone number which follows: Grants Administrative Management, Attention: Proposal Services Unit, Office of Grants and Program Systems, U.S. Department of Agriculture, Room 007, J.S. Morrill Building, 15th and Independence Ave., SW., Washington, DC 20251; telephone number (202) 475–5049.

**What To Submit**

An original and 9 copies of each proposal submitted are requested. This number of copies is necessary to permit thorough, objective peer evaluation of all proposals received before funding decisions are made.

Each copy of the proposal must include a Form S&E–661, "Grant Application," which is included in the "Research Grant Application Kit." Proposers should note that one copy of this form, must contain pen and ink signatures of the Principal Investigator(s) and the Authorized Organizational Representative.

Members of review committees and the staff expect each project description to be complete in itself. It should be noted that the reviewers are not required to read beyond 10 pages (single spaced) of the project description to evaluate the proposal. It would be helpful to the reviewers if the Principal Investigator(s) vitaes were limited to three (3) or four (4) pages.

All copies of a proposal must be mailed in one package. Due to the volume of proposals received, proposals submitted in several packages are very difficult to identify. Also, please see that each copy of each proposal is stapled securely in the upper left-hand corner. DO NOT BIND. Information should be typed on one side of the page only. Every effort should be made to ensure that the proposal contains all pertinent information when initially submitted. Prior to mailing, compare your proposal with the Application Requirements checklist contained in the "Research Grant Application Kit" and instructions contained in the regulations governing the Special Research Grants Program, 7 CFR Part 3400.

Applicants should not submit the same research proposal twice in the same fiscal year to different research program area categories within the Special Research Grants Program. Duplicate proposals will be returned without review.

**Where and When To Submit Grant Applications**

Each research grant application must be submitted by the time limits set forth below to: Grants Administrative Management, Attention: Proposal Services Unit, Office of Grants and Program Systems, U.S. Department of Agriculture, Room 007, J.S. Morrill Building, 15th and Independence Avenue, SW., Washington, DC 20251.

To be considered for funding during fiscal year 1986, proposals *must be received* in the Grants Administrative Management office *by the close of business* on the date specified below for each program area:

March 10, 1986—Animal Health Research

March 19, 1986—Aquaculture Research

One copy of each proposal not selected for funding will be retained for a period of one year. The remaining copies will be destroyed.

**Special Instructions**

The Special Research Grants Program should be indicated in Block 7, and the applicable program area and specific area of inquiry should be indicated in Block 8 on Form S&E–661 provided in the Research Grant Application Kit. *Select one program area only.* The number assigned to the specific area of inquiry must also be cited in Block 8. Example: (Animal Health, 1.5 Sheep and Goats). The final determination of the program area and specific area of inquiry will be made by agency staff members and/or the appropriate peer review panel. The code numbers assigned to program areas and specific areas of inquiry are listed below:

1.0 Animal Health Research (use appropriate specific area of inquiry 1.1 through 1.7)
1.1 Beef Cattle
1.2 Dairy Cattle
1.3 Swine
1.4 Poultry
1.5 Sheep and Goats
1.6 Horses
1.7 Aquaculture
2.0 Aquaculture Research
2.1 Diet Formulation, Reproduction and Breeding, and Disease and Parasite Control
2.2 Water Quality for Production and Quality of Water Discharges.

**SUPPLEMENTARY INFORMATION:** The Special Research Grants Program is listed in the Catalog of Federal Domestic Assistance under No. 10.200. For reasons set forth in the final-rule related Notice to 7 CFR Part 3015, Subpart V (48 FR 29115, June 24, 1983), this program is excluded from the scope of Executive Order 12372 which requires intergovernmental consultation with State and local officials.

Under the provisions of the Paperwork Reduction Act of 1980 (44 U.S.C. 3504(h)), the collection of

information requirements contained in this Notice have been approved under OMB Document No. 0525–0001.

The award of any grants under the Special Research Grants Program during FY 1986 is subject to the availability of funds.

Done at Washington, DC, this 17th day of December 1985.

**John Patrick Jordan.**

*Administrator, Cooperative State Research Service.*

[FR Doc. 85–30175 Filed 12–19–85; 8:45 am]

BILLING CODE 3410-03-M

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**H.J. Res. 491/Pub. L. 99-184**

Making further continuing appropriations for fiscal year 1986. (Dec. 17, 1985; 1 page) Price: $1.00

**S. 1639/Pub. L. 99-185**

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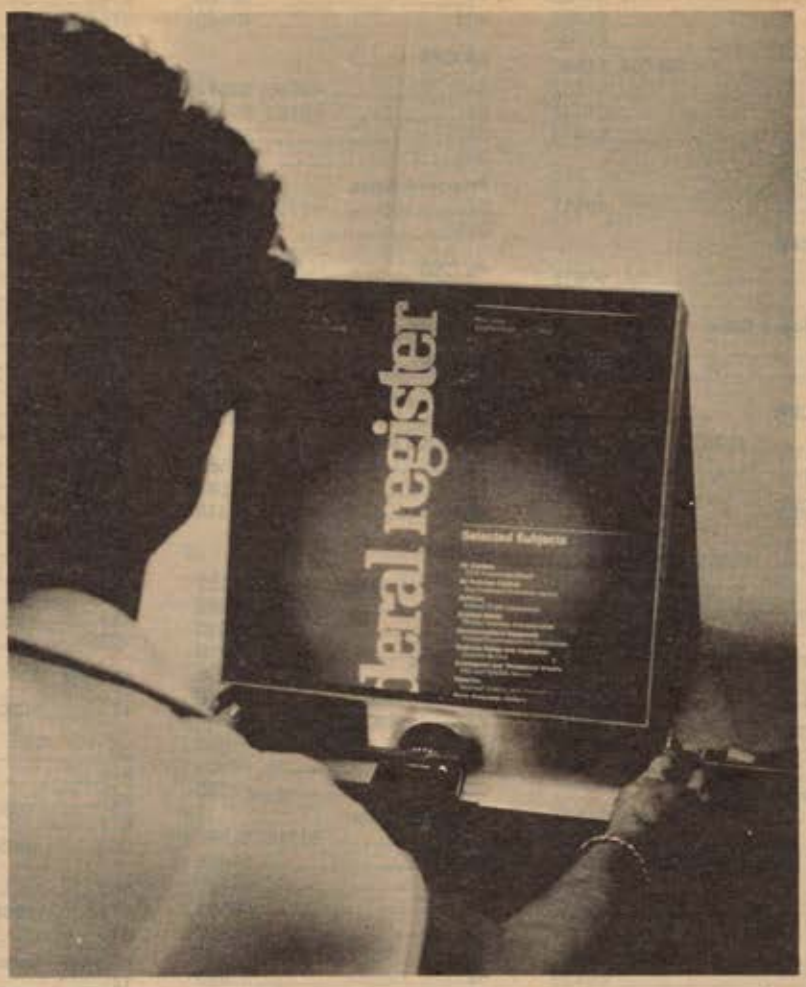


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