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Recreation Area will be adversely affected, with seven of its 10 campgrounds being lost. (61 pages) Comments made by: (Fish and Wildlife Order No. 0676-A) (NTIS Order No. ESI 72 4764P) Final, June 20.

U.S. Attorney, county: Shawnee. The statement refers to the proposed construction of 1.5 miles of highway, between the villages of Wauneta and Pallasee. Channel work will be required upon the Frenchman River because of the project, with possible adverse effects upon riparian wildlife resulting. One resident and an unspecified amount of land will be taken for right-of-way. (48 pages) Comments made by: USDA, USGS, COE, EPA, HUD, and GAO. (EIS Order No. 04764) (NTIS Order No. ESI 72 4764P) U.S. 6 Nebraska, county: Chase, Hayes, and Hitchcock. The statement refers to the proposed reconstruction of 15 miles of highway, between the villages of Wauneta and Pallasee. Channel work will be required upon the Frenchman River because of the project, with possible adverse effects upon riparian wildlife resulting. One resident and an unspecified amount of land will be taken for right-of-way. (48 pages) Comments made by: USDA, USGS, COE, EPA, and DOE. (EIS Order No. 04764) (NTIS Order No. ESI 72 4764P) BRIAN P. JENNYF, Acting General Counsel. [FB Doc.70-10283 Filed 7-0-72; 8:45 am]

ENVIRONMENTAL PROTECTION AGENCY

Consolidated DDT Hearings

Opinion and Order of the Administrator

Published herewith is my opinion and order issued June 14, 1972, concerning the registrations of products containing the insecticide DDT.

Done this 30th day of June 1972.

WILLIAM D. BRUCKELEAU

OPINION OF THE ADMINISTRATOR

Before the Environmental Protection Agency: In re: Stevens Industries, Inc. et al. (Consolidated DDT Hearings), 42 Fed. Docket No. 63 et al.

This hearing represents the culmination of approximately 5 years of intensive administrative inquiry into the uses of DDT. Part I of this opinion contains the findings and conclusions reached by the Administrative Law Judge and Part II contains a discussion of the evidence and my factual conclusions. I am persuaded for reasons set forth in Part III of this opinion that the long-range risks of continued use of DDT for use on cotton and most other crops is unacceptable and outweighs any benefits. Cancellation for all uses of DDT for crop production and nonhealth purposes is hereby recommended and will be effective December 31, 1972, in accordance with Part V of this opinion and the accompanying order, except that certain uses, for green peppers, onions, and sweet potatoes in storage nurseries and conditions set forth in Part V of this opinion and the accompanying order.

Background. DDT is the familiar abbreviation for the chemical (1,1,1-trichloroacetophenone ethane), which was, for many years the widely used chemical pesticide in this country. DDT’s insecticidal properties were originally discovered, apparently by accident, in 1939, and during World War II it was used extensively for typhus control.

Since 1945, DDT has been used for general control of mosquitoes, bed-annel infestations in cottonfields, and a variety of other uses. Few uses of DDT occurred at the end of the 1960s and precautionary domestic uses of DDT appear to have been estimated at 6,000 tons per year. According to Adm. No. 7, in public opinion the record, approximately 8 percent or $2,572,000 pounds of domestically used DDT is applied to cotton crops. The Administrator indicates that 603,056 pounds and $2,572,000, or approximately 8 percent and 8 percent of the total formulated by all the petitioners in these hearings are used respectively on soybean and peanut crops. All other uses of the 11,056,156 pounds amount to 158,053 pounds of the total, or little over 1 percent.

The Council for the Agency has called to our attention publication of the Department of Agriculture, the Pesticide Review of 1971, which estimates a "domestic disappearance" rate of 25,670,000 pounds for DDT in 1970. See p. 26. The motion to incorporate this publication is granted, as is the motion to reporter the record for the nearer future. I do not believe, however, that the Pesticide Review figure can be accepted on its face, without further investigation. Since the result I reach today would, if anything, only be reinforced by the higher figure, I see no need to remark on it.

For the above uses it appears that DDT is sold in four different formulations: Emulsifiable spray; dust; wettable powder; and granular form. Public concern over the widespread use of pesticides was stirred by Rachel Carson's book, "Silent Spring," and a natural outgrowth was the investigation of this popular and widely sprayed chemical. DDT, which for many years had been used with apparent safety, was, the critics alleged, a highly dangerous substance which killed beneficial insects, upset the natural ecological balance, and collected in the food chain, thus possibly harming man and other forms of advanced aquatic and avian life. In 1959, the U.S. Department of Agriculture commenced a review of the possible and environmental hazards attendant to the use of DDT. Certain uses of DDT were canceled by the Department of Agriculture in 1963 and informal review of remaining uses continued through 1970. In early 1971, this Agency commenced formal administrative review of DDT registrations by the cancellation of all registrations for DDT products and uses pursuant to section 4(c) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) 7 U.S.C. §136 (1970).

Admission 6 shows that domestic shipments of DDT by its sole manufacturer, Montrose Chemical Co., totaled 8,073,000 pounds between January 1, 1967, and August 1, 1971. Total domestic sales in 1970 were 11,066,184, as stipulated in Admission No. 7. The examiner found, apparently based on Admission 7, that domestic use in 1970 was just under 18 million pounds. Exem Report at 92.

Some discrepancy in the figures exists since the administration of use of this category total 11,077,005 pounds, slightly more than the 187,005 pounds for the 27 formulators who supplied the figures.

Public Notice 67-1. Among the canceled uses were applications to use DDT as control of Dutch elm disease, tobacco, hemp, cucurbits, and aquatic uses. 24 Fed. Reg. 1527 (1959).

Environmental Protection Fund v. Ruckelshaus, 446 U.S. 561 (1979). In the court of appeal held that cancellation proceedings should be commenced whenever a registration of a pesticide nixes a "substantial question of public interest" which warrants further study. On Jan. 10, 1971. all uses of DDT not canceled in 1969 were canceled.

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PB Notice 71-1. On Jan. 10, 1971, all uses of DDT not cancelled in 1969 were canceled.

PB Notice 71-5. Under FIFRA a registrant is entitled to either a public hearing or a scientific advisory committee or both to review his registration. Pending completion of a public hearing, the registrant is allowed to continue shipment of his product.

No action is necessary here in view of the action in PB Notice 71-1.

If there have been claims concerning cancellation of its registration within 20 days as required by section 4(c) of FIFRA. For the purposes of this case I believe they should be accorded status as petitioners.

If there have been claims concerning cancellation of its registration within 20 days as required by section 4(c) of FIFRA. For the purposes of this case I believe they should be accorded status as petitioners.

The following uses are involved: For cotton; for military use on clothing; for peppers and plums; for fresh market corn; for pasture plants; for soybeans, cotton, peanuts, and corn; for cotton; for vegetables; for coffee, cocoa, and cocoa beans; for tomatoes; for lettuce; for potatoes; for sweet potatoes in storage (Southern States only); for use in commercial greenhouses and nurseries; for beans (dry, Lima, snap); for root and rodent control; for emergency use in agriculture, health or environmental Division, has appeared as an intervenor.

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The Pesticides Office and Environmental Defense Fund (EDF), in presenting their cases at a hearing for candidature on the basis of the most heavily on evidence which they contend, establishes: (1) That DDT and its metabolites are persistent which persist in soil and the aquifer; (2) that once unleased, DDT is an uncontrollable chemical which can be transported by leaching, erosion, runoff, and volatilization; (3) That DDT is not water soluble and collects in fat that the body stores; (4) That organisms tend to collect and concentrate DDT; (5) that these qualities result in accumulations of DDT in wildlife and humans; and (6) that these actually is owing from DDT usage are marginal, given the availability of alternative insecticides and pest-management programs, and also the fact that crops produced with DDT are in ample supply. The testimony and exhibits include numerous reports of expert scientists who have described observed effects of DDT in the environment and the laboratory. Group Petitioners and the U.S. Department of Agriculture (USDA) seek to discredit the Agency's case by citing the record of safety DDT has compiled throughout the years, and point to the absence of epidemiological and human feeding studies carried out by the years on industrial workers and volunteers exposed to concentrated levels of DDT, which could have been subject to which the average individual is exposed. Proponents of continued registration have also introduced expert testimony that DDT has chronic toxicity to man or animals has not been established by adequate proof. The registrants have attacked the assumption that livestock, as the effects of case, guinea pigs DDT, can provide a meaningful basis for extrapolating effects on man or the environment. In the alternative, Group Petitioners contend that whatever harm to the environment might be attributed to DDT, it results from misuse and overuse that occurred in years past. Lastly, Group Petitioners and USDA have attempted to prove that DDT is effective and that its use is more desirable than the organophosphates which are more acutely toxic and costly to DDT.

On April 25, the Hearing Examiner issued an opinion with proposed findings, conclusions and orders recommending that all "essential" uses of DDT. The latter cancellation be lifted. The Examiner's report which has findings, conclusions, and an opinion, is attached below. The Examiner apparently accepted in his report the Agency's proof that DDT is a hazard to aquatic and terrestrial wildlife and substitutes exist. He found, as a "matter of fact," DDT can have adverse effects on beneficial animals; that it is transferred through the food chain; that DDT is fat soluble. He concluded, however, as a "matter of law," that DDT is neither a carcinogen nor teratogen.

There is some confusion as to what the term "essential" means. By Admission No. 2, the parties stipulated that certain uses were "essential" in the view of USDA. No stipulation exists that these uses are, in fact, essential. In that no alternatives exist or that a shortage of a crop would result without DDT.

While the language of the statute, taken literally, requires only a finding of injury to make contaminants, it, however, with and with a simplistic application of the plain statutory language, both judicial and administrative interpretation has become less strict. Congress intended the application of a balancing test, which considered the risk the beneficial use of a chemical against its benefits. If a product is "misbranded" within the meaning of the Act, i.e., if it bears a label for use that does not meet the criteria of section 2, it may no longer be shipped in interstate commerce and stocks in hand in the original package may be seized. U.S.C. § 156 (g) (1972).

II. Risk and benefits. It follows from the statutory scheme and this Agency's decisions that evidence of each alleged risk must be reviewed and a conclusion reached as to whether or not, and in what degree, such risk is incident to the direct use of a particular product. The text, however, is complicated in the case of a "persistent" pesticide by its possible chronic effects. The degree of persistence, extent of overall usage and mobility all bear on the amplitude or indeed the existence of the risk curve.23 I believe, however, it is useful to isolate the alleged risk; and evaluate each on the assumption that they are unaffected by overall levels of use, and defer to Part IV the discussion of the relationship between risk and benefit.

III. Analysis of evidence. I. Risk. a. Health effects and environmental properties. There is no dispute on this record that DDT is a nonpersistent pesticide. It is nonpersistent to plants it will have little or no effect on target and nontarget species in the immediate area of application. Few chemicals, however, do not result in some injury to "nontarget" species. We must therefore focus on evidence bearing on "risk" and the "benefit" from using DDT.

I am convinced by a preponderance of the evidence that, once dispersed, DDT is uncontrollable, durable chemical that persists in the aquatic and terrestrial environments. Given its insidious in water and its tendency to be stored in the food chain it is passed up to higher forms of aquatic and terrestrial life. There is ample evidence to show that under certain conditions DDT or its metabolites can persist in soil for many years, 24 that it will volatilize or move along with wind and water. 25 While the degree of transportability is unknown, evidence of record shows that it is 23 See EDF v. EPA (opinion of Judge Leventhal), supra; EDF v. Recklinghaus (opinion of Judge Bazelon), supra; Statement of Reasons, supra; see also Statement of Reasons Underlying the Cancellation of Products Containing Mercury, 37 F.R. 6119 (Mar. 29, 1972).
24 Other factors bearing on risk may include the geographical location of application, e.g., Statement of Reasons Underlying the Cancellation of Products Containing Mercury, 37 F.R. 5119 (Mar. 29, 1972).
25 Method of application and type of soil and climate can affect persistence in soil and likewise run into aquatic environments.

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Group Petitioners argue that the testimony is in conflict and fasten on to the testimony of the Surgeon General that Drs. Loomis and Butler. The Surgeon General’s statement was, however, cautious and, by no means, carries the burden that the Group Petitioners seek to place on it. In very general terms the Surgeon General stated: “We have no information on which to induce DDT either as a tumorigen or as a carcinogen for man and on the basis now available, I cannot conclude DDT represents an imminent health hazard.” (Tr. 1290.) This testimony, however, could not have meaning without some evaluation of effects of DDT, nor did the Surgeon General express a view on what uses, apart from health, might justifiably continue in the use of DDT. Indeed, the entire thrust of the Surgeon General’s testimony was only that use for human health purposes was not sanctioned by the data of the DDT Commission. It is possible long-range effects of DDT on human beings other than farmers, Drs. Loomis and Butler, while men of stature in their fields—oncology and pathology—and knowledgeable about cancer research and diagnosis, are not specialists in cancer research and diagnosis. Indeed, Dr. Butler disclaimed such expertise. Group Petitioners also take refuge under a broad canary on data—human feeding studies and epidemiological studies—and

It is particularly difficult to anticipate the long-range effects of exposure to a low dose of a chemical. It may take many years between the time cancer would take place. Diseases like cancer have an extended latency period. Mutagenic effects will be apparent only in future generations. Lastly, it may be impossible to relate observed pathology in man to a particular chemical because of the difficulty to isolate control groups which are not exposed in the same degree as the rest of the population.

Tumorigenic effects have been noted in a number of laboratory experiments. The monkey, the rat, the mouse, the hamster, the dog, the rabbit, the pigeon, the chicken, the quail, the quail, and the quail. The tests conducted by the National Cancer Institute fed 120 compounds to two strains of mice. DDT was one of 11 compounds to produce an increased incidence of tumors. The Lyon and Mills Studies of the International Agency for Research of the World Health Organization is a multinational study (still in progress) of 6,000 mice of in- and outbred strains. Increased hepatomas were noted in male and female mice fed DDT at 250 p.p.m. Malignant tumors in the lungs or liver has been recorded in five instances.

Witnesses testifying to the positive correlation between exposure and cancer are: Dr. Umberto Saffo, Associate Scientist, Department of Biostatistics, National Cancer Institute; Dr. Martin Schneiderman, Associate Scientist, Biostatistics Branch, National Cancer Institute; Dr. Samuel Epstein, Senior Research Associate in Pathology, Children’s Cancer Research Foundation, Inc., Boston.

Group Petitioners and USDA argue that the laboratory feeding studies, conducted with exaggerated doses of DDT and under stressing conditions, provide no basis for extrapolation to the human population. They note that the results of these studies are contradictory and place particular emphasis on studies made by the Surgeon General. The Surgeon General’s testimony is brought out on deposition. The testimony of Group Petitioners also contend that the observed phenomena of eggshell thinning and DDT residue data are cited by a statement that too slender to connect the two in any meaningful way. Viewing the evidence as a whole, a preponderance supports the conclusion that DDT does cause eggshell thinning. Whether or not the laboratory data above would sustain this conclusion is beside the point. For here there is laboratory data and observational data, and in addition, a scientific hypothesis, which might explain the phenomenon.

B. Benefits—1. Cotton. I am convinced by the evidence that continued use of DDT is not necessary to insure a adequate supply of cotton at a reasonable cost. Only 38 percent of cotton-growing acreage is treated with DDT, although the approximately 1.772 million acres of cotton grown in the United States is the volume of DDT and DDD used in cotton agriculture. DDT is a valuable tool for crop protection and cotton yield. Cotton growers cannot do without DDT and, long-range, the viability of crop management methods, such as the insecticides, is dependent on DDT. Some crops, however, according to the testimony, which normally apply concentrated methyl parathion in a 4-pound mixture.

There is evidence that organophosphates would not rate as the farmer and might, indeed, be cheaper. Any suggestion that the cotton crop could not be economically viable cannot be maintained in face of the undisputed evidence that cotton continues to be a major crop in Arizona and Texas where DDT use has declined.

The chief witness introduced to rebut Dr. Bishbrock, Hidley, and Cady was a graduate student with limited training in statistical analysis. In view of the credentials of IDP’s witness—Dr. Hidley, Professor of Zoology at Cornell University—University of Wisconsin; Dr. Hidbrock, Associate Professor of Zoology at California at Berkeley; and Dr. Cady, Professor of Zoology at Cornell and Research Director of the Forestry and Wildlife Laboratory—I cannot credit this attempt at rebuttal. The Examiner apparently realized the conflict in the evidence and drew his conclusion that “there was no evidence that DDT was the only factor in a decline of bird populations.” * * * and that no evidence “focused its direct threat on damage to birds by the use of DDT that is permitted under the regulations in question.” Examiner’s Report, 70-71. In view of the paucity and mobility, evidence as to the causal effect of those used was not required.

At argument by Group Petitioners, and by the Examiner, Group Petitioners have offered additional evidence, some of which was not reviewed in the Examiner’s Report. They have made arguments to the effect that the Examiner’s Report did not consider all of the data.

The parties have referred neither in brief nor argument to testimony or exhibits describing in detail the economics of cotton production or subsistence. The general testimony that cotton producers receive a per bale subsidy and that this (Footnote 24 continued on next page)
also testimony in the record to the effect that methylichloroform costs less per application than carbon dioxide. It is based on the testimony and exhibits that show cotton insects develop resistance to carbonic acid and to carbon dioxide. The very nature of the exhibits make clear that DDT is also subject to resistance. 

Group Petitioners and USDA, while not disputing the lesser persistence of organophosphates, have stressed their demonstrated acute toxicity. While they are toxic to beneficial soil insects and non-target species, particularly birds sitting on treated fields, these organophosphates break down more readily than DDT. They are not apparently not transported in their toxic state to remote areas, unlike DDT which has been found far from fields. While areas, and supposits do not pose the same magnitude of risk to the aquaphere, both testimony and exhibits also demonstrate that organophosphates are less acute toxic to aquatic life, although different compounds have different toxicities. The effect of organophosphates on non-target terrestrial life can, unlike the effect of DDT, also be minimized by prudent use. Application in known nesting areas for rare or extinct birds can be avoided.

2. Substitution of use. The testimony of record, while sparse, shows that registered, primarily organophosphates, exist for all other crop and ornamental uses of DDT, except for storage uses. There is no control vector, or heavy, cornborer infestations of green peppers, or perhaps others.

3. Noncrop use. In addition to the registrations for use on crops and in nurseries, several other entries are made for use in public health. 11 lists "public health pests—dogs and rodents." Agricultural, Health and Quarantine Treatments in Emergencies as recommended by and under the direction of officials, and "fabrication" by the military.

The record is not, unfortunately, well developed as to the nature of application for these uses nor as to the overall volume applied for these purposes. While use for bat and mouse control is not characterized in Admission 11 as a "public health use," application for these purposes is not supervised by public health officials. The briefs suggest that use for control of bats and mice is a proprietary use by the military, even though a private pest control operator testified that use for bats was considered essential by private operators. With respect to "Agricultural and Quarantine" uses it is difficult to determine what respect, if any, are applicable to public health purposes or for nuisance abatement.

With respect to all of these uses, both for bats and mice, use of additional means, other than proposed DDT, is not considered by the witnesses.

C. Weight to be accorded the Examiner's opinion. In reaching the factual conclusions set forth in the preceding sections, I have been mindful of the Leviton's arguments. Stated in their brief and at oral argument, that the Examiner's findings are based on an overreaching of the opportunity to resolve contradictions in testimony based on obvious evidence. Nowhere does the Examiner state that his conclusions were based on credibility judgments of witnesses. What he stated, that "the facts" were "not known" was not a subject of the briefs.

IV. The application of the risk-benefit test to the facts of record is, by no means, simple. We have noted in our statement of March 18, 1971, that the variables are numerous. It should also be borne in mind that the variables are not stated in the record. As adduction of a chemical or it is detected in the environment, it may be that the same tendency of a chemical to persist or build up in the food chain is present but not known about substitute chemicals. It may also be that circumstances

The only evidence as to the amount of DDT used for these purposes was given by the Leviton. The use by the military for bat and mouse control is approximately 500-900 pounds.

During oral counsel admitted that the Examiner's report did not purport to make findings based on credibility of witnesses, nor could he point to findings which might have been made by a credibility analysis. (Record, p. 96-97) The basic questions of fact in this case, the hazard to man and the environment, were cast and reviewed by the Examiner as "conclusions of law." The precedent, moreover, makes clear that the Agency is free to make its own findings and that the Examiner's findings are not to be considered a part of the record which a court will evaluate. See FOC v. Allentown Broadcasting Corp., 349 U.S. 390 (1959); United States v. General Camera Co., 340 U.S. 474 (1951). Even where an Examiner's findings are based on credibility, the Agency may reach a contrary conclusion. See FOC v. Allentown Broadcasting Corp., supra.

application of a chemical in limited quantities for these uses most necessary. DDT, used in smaller quantities so as to fill the scales directly than when we are calculating use for all purposes against aggregate benefits, the agency, in my opinion, EPA (opinion of Judge Leventhal), supra.

A. Burden of proof. The true of a cancellation proceeding is to decide the safety of the product when used as directed or in accordance with "commonly recognized practices." Stearns Phosphorous Fertilizer Co. v. EPA, supra. The Agency by its burden of going forward to establish those risks which it believes to require cancellation. In addition, an affirmative argument of the Agency's case shall be a demonstration of the availability of a substitute chemical or other means of control which this Agency's Proasides Office, and the Agency's burden is to substitute at this point in time, coupled with the Agency's proof on risk, makes out an affirmative case.

The burden of rebuttal then falls on registrant to counter the burden of proof on risk. In reviewing the record, this does not rebut the basic scientific data or by showing that a particular use of the product, in a particular way, is not harmful.

The legislative history of FIFRA, judicial decisions and Agency pronouncements about the word "burden of proof" remains a difficult concept to grasp. Although the burden of proof is not insurmountable, it is a substantial burden which requires a party to establish the existence of primary facts. It should not be confused with the burden of going forward which is generally a rule to establish the burden of persuasion. The burden of going forward may, however, have substantial consequences, whereas a party which has the burden of going forward fails to satisfy that burden, the facts will be decided against him, even though the other party may have been responsible for the burden of persuasion.

While in most legal proceedings the party which has the burden of persuasion is not necessarily the loser. On contributory negligence in some jurisdictions, it may be that once one party has introduced evidence of a particular fact, the burden of producing evidence of the other party bears the burden of persuasion on that point. In a FIFRA cancellation hearing, the proponent of cancellation bears the burden of going forward, but does not bear the burden of persuasion.

While a more careful presentation of high degree of risk would make out a prima facie case for cancellation, whereas the Agency is relying on the existence of an alternative rather than simply a showing of risk, it should, as here, present its own evidence.

This hearing was conducted under rules which have since been amended. (See 37 F.R. 19742 (May 11, 1972)). Under the former rules, registrants proceeded first at the hearing. The burden of going forward now stands at the point which is now being presented in this case.

The Agency more than discharged its burden to put on a prima facie case. Regurants had an ample opportunity for rebuttal. At worst, this inverted presentation necessarily proached the hearing.

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gender the risks from widespread use of the chemical. They can also seek to establish aggregate benefits. Where, as here, the existence of risks is based on the behavior of the chemical under review they may choose to show irreversibility of the risk for general substitution or in a particular geographical region. They may also seek to show the nonadditability (or risks) of the alternative if they disagree with the staff judgment of this Agency.

B. Application of risk-benefit to crop uses of DD'T. The Agency and EDPE have established that DD'T is toxic to non-target insects and animals, persistent, mobile, and trans- ferable and that it builds up in the food chain. No label directions for use can completely prevent these hazards. In short, they have established at the very least the risk of the unknown. That risk is compounded where, as is the case with DD'T, man and animals tend to accumulate the same store of chemical. These facts alone constitute risks that are unjustified where apparently safer alternatives exist to achieve the same benefit. Where, however, there is a demonstrated laboratory relationship between the chemical and toxic effects in man or animals, this risk is, generally speaking, rendered even more significant. In the case of DD'T, the risk to human health from using DD'T cannot be discounted to the same extent as a risk for which there was no evidence that it would be used. Where there was no evidence that DD'T would be used, we forced DD'T, the use of DD'T is not justified even if the evidence were insufficient to point out the use of organophosphates without providing a compelling argument.

C. Application of risk-benefit to noncrop uses. There remains the question of the disposition of the uses of DD'T in the Federal Government and uses for noncrop uses of DD'T. It is emphasized that these uses are not in the balance of other uses of the product. The Agency has emphasized that the DD'T is not justified in these uses because of the risk to the public that DD'T poses to human health. The Agency staff has concluded that the only way to control the use of DD'T is to control all uses of DD'T. The Agency has concluded that the only way to control the use of DD'T is to control the use of DD'T in all uses.

Registrants added considerable testimony on the effects of organophosphates on noncrop uses of DD'T. In general, the testimony was that of toxic to bees and most witnesses agreed that the organophosphates were toxic to non-target animals, unsafe to water, and insecticides, present when a field is sprayed. The present evidence demonstrates, however, that these organophosphates compounds are less "persistent," and thus do not leach or erode into waters or collect in the human food chain. While it may be that in time the problem of "familiarity breeds contempt" will be solved, until that time these compounds, they appear to present a long-range hazard to man and aquatic areas. Registrants have reported that the acute toxicity of methyl parathion which is the primary alternative chemical for many of the crop uses of DD'T. This fact does not, however, alter the long-term balance between the adverse effects. In view of the nonexistence of the organophosphates.

I cannot, however, be indifferent to the fact that the "waste and quarantine" uses have, in the past, apparently included proprietary uses by government. Nor can I be indifferent to the fact that noncrop uses for these purposes by private citizens would, accordingly, be limited to a label which will restrain indiscriminately use of DD'T for a wide variety of purposes under the rules of nonuse. That language is not forth in the order accompanying this opinion, and is designed to restrict shipment of DD'T only to U.S. Government officials and State health departments who will be knowledgeable as to, he, most effective means for control and mindful of the risks of using DD'T. Thus, on an application-by-application basis, for reasons shown, the stringent uses, the benefits will be maximized and outweigh the risks. 6. 42 U.S.C. sections 4323 (1971) which requires an environmental impact statement on ongoing official programs.

V. I turn now to the disposition of these docket in light of the foregoing principles. At the outset it should be noted that recent judicial decisions have urged this Agency to use its "flexibility, in final decisions and suspensions orders, between uses of the product." (See EDP v. EPA (opinion of Judge Leventhal), supra, at 408, and we read in the opinion of Judge Leventhal is the keynote of a workable regulatory process.


A. Disposition as to onions, stored sweet potatoes, and sweet peppers. There is evidence that these uses are now appreciated for controlling heat tolerance in store rooms and in store rooms. The recent studies show that, 10,000 pounds of DD'T are used regularly as a ground application for prophylactic purposes.

6. 42 U.S.C. sections 4323 (1971). It would seem that any chemist would control the use of DD'T to control curative is least clear. Apparently curative infections in the Northwest are specific and localized. Where it would appear that other chemicals could be used to control curative infections on

6. 42 U.S.C. sections 4323 (1971). The use of DD'T in Topo dole, a prescription drug, is regulated by both the Food and Drug Administration and this Agency. The alternative, Kwell, is a lindane product. I am, however, taking judicial notice of the fact that lindane registrations are presently underway under review by this Agency's Pesticides Office and several uses of lindane have, in the past, been subject of cancellation proceedings. See In Re Kurt Karl Linnane, supra.
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The evidence with respect to use of DDT as a "dike" or "sweet potato" insecticide against weevil infestation is even spottier. Neither counsel nor the writer's research pointed us to evidence of record showing the precise volume of DDT use for this purpose, its likely effect on the sweet potato crop, or the degree of loss that might be sustained by producers.

While it would be far easier simply to cancel or not cancel the registrations for these uses, I believe that environmental problems should be pared with a scalpel, not a hatchet. While DDT and any other staff urge restrictions on DDT, the amount of DDT in those few areas, taken in conjunction with aggregate volume of use for other purposes, like health, present no risk to the environment. Obviously much of the stress on the "global" environment is reduced by取消 evidence. However, I am not sure how one can estimate the impact of use, both on the environment as a whole, and on the local environment. Lastly, it may be rephrased here concerning the impact on overall supply of a commodity. Even though popcorn producers would presumably be able to continue producing popcorn, does this mean that we should be allowed to "staple" it? It may also be that the other acceptability standards for producing popcorn are these crops. In that event, this will be necessary to determine whether or not subsistence will satisfy demand, and whether or not a transitional period should be fixed to permit a market adjustment.

If it follows that additional evidence is required to determine the answers to these questions, then it is clear that the cancellation order will remain in effect, subject to registrants or users petitioning to present additional evidence. In that event, this stay order will issue pending the determination on remand. Petitions by these users or registrants will demonstrate that a produce shortage will result and their particular use of DDT, taken with other uses, does not create undue stress on the general or local environment, particularly the aquifer, abandonment should be lifted. If no produce shortage will result because other acreage is suitable for these crops, and if evidence is presented that a transitional period is required for switching to new crops. If the interdiction of use of DDT constitutes an environmental risk, final orders of cancellation for these uses will be deferred until the transition can be accomplished. In that event, the order reopens at the hearing that formulists and users be present. D. The switch to methyl parathion.

The need for a transition period arises also in connection with those uses that are being canceled based on the existence of methyl parathion.

The record before me leaves no doubt that the chief substitute for most uses of DDT, methyl parathion, is a highly toxic chemical and, if misused, is dangerous to applications.

It is a recognized policy of common law nuisance and also of Federal environmental legislation to afford affected producers a transition period for implementing new requirements.

Not all of the possible substitutes for DDT are equally potent. For example, chlorofluorocarbons, monocrotophos, methylat and malathion, are available to control many cotton pests; carbolin is a perfect chemical for most cotton pests. It is, however, important to note that methyl parathion will be widely used.

This was the virtually unanimous opinion of all the witnesses. The introduction into use of organophosphates has, in the past, caused distress to people who are untrained in their application and the testimony and exhibit of record point to the unmitigated and avoided use of the product. Other testimony noted the increase in non-fatal accidents and attributed almost one-thirds reported poisonings to the organophosphate group. A survey conducted after the organophosphates began to replace chlorinated hydrocarbons in Texas suggests a significantly increased incidence of poisonings.

That the skilled and trained user may apply organophosphates with complete safety and comfort only if there is an orderly transition from DDT to methyl parathion so as to train workers now untrained in the ways of proper use.

I am accordingly making this order effective as of December 31, 1971, as far as the cancellations of any particular use is predicated on the availability of methyl parathion as a substitute for the DDT. The Department of Agriculture and other federal and state agencies will provide the representatives of EPA will have time to be prepared to deal with恐怕 whose will have to use methyl parathion in the future are avoidable. Such a program can also introduce farmers to the less acutely toxic organophosphates, like disulfoton, which may be more durable for many uses.

Far from being inconsistent with the general congressional mandate of FIFRA, a period of adjustment to train users of methyl parathion is needed. A period of transition, where no substitutes exist is a logical outgrowth of a sensible application of risk-benefit analysis. While the legislative history does not address the specific problem before me—the timing of cancellation orders—the hearings that preceded the enactment of FIFRA indicate that congressional concern for safety of the farmer-user of pesticides was no less than Congress' solicitude for the environment.

While it has ultimately struck a balance that generally places the risk of negligence on the applicator, see Stearns v. EPA, supra, it did so in light of assurances that farmers are for their own safety as well as that of the environment being trained in proper methods of application. See Hearings before the Subcommittee on Departmental Oversight and Consumer Relations of the House Committee on Agriculture, supra, at 54, 68.

The risk-benefit equation is a dynamic one. Timing is a variable in that equation. That may, in the long run, be necessary to protect the environment could be a shorter-term threat to human health. That is exactly the case before me now. The benefits of using organophosphates are a long-range benefit.

At least two courts have given express recognition to the similarity between the regulatory schemes in FIFRA and the Food, Drug, and Cosmetic Act. See Welford v. Ruckelshaus, 439 F. 2d 608 (D.C. Cir. 1971); Noam v. Hardin, 385 F. 2d 1135 (5th Cir. 1970) (en banc). I believe that the trial Court intended me to follow is marked by its direct action in the Food, Drug, and Cosmetic Act, 21 U.S.C. section 360(e)(4)(B) (1971), which directs the Secretary to set an effective date for his orders. While similar language has not been expressly included in FIFRA, its omission can hardly be without intent in view of the legislative history. See S. Rep. No. 573 (88th Cong., 1st session 1963): H. Rep. No. 1126 (88th Cong., 1st session 1964). The purpose of the 1964 amendments was to eliminate registration under protest.

NOTICES

III. ACTIVITY IN FOOD CHAIN AND IMPACT ON NONTARGET ORGANISMS

A. Basic findings:
1. DDT affects phytoplankton species composition and the natural balance in aquatic ecosystems.
2. DDT is lethal to many beneficial aquatic insects.
3. DDT can have lethal and sublethal effects on useful aquatic freshwater invertebrates, including arthropods and molluscs.
4. DDT is toxic to fish.
5. DDT can affect the reproductive success of fish.
6. DDT can have a variety of sublethal physiological, growth, and behavioral effects on fish.
7. Birds can mobilize lethal amounts of DDT.
8. DDT can cause thinning of bird eggshells and thus impair reproductive success.
9. DDT is a potential human carcinogen.

A. Basic findings:
10. Many pollutants have been attributed to the use of methyl parathion.
11. Unintended uses of methyl parathion are frequently not sufficiently careful in its use despite label directions.
12. Methyl parathion can be used safely.
13. Training programs are useful in avoiding the negligent use of methyl parathion.
14. Methyl parathion is a substitute for methyl parathion uses of DDT.

B. Ultimate finding:
DDT presents a carcinogenic risk.

VII. CONTROL MEASURES

A. No directions for use of DDT, even if followed, can over the long run completely eliminate DDT’s injuries to man and other vertebrate animals.
B. No warning or caution for use of DDT, even if followed, can ever over the long run prevent injury to living man and other vertebrate animals and useful invertebrate animals.
C. The present total volume of use of DDT in this country for all purposes is an unacceptable risk to man and his environment.
D. The use of DDT in controlled situations in limited amounts may present less risk than usage in greater amounts, but still constitutes the environment.
E. The public health program and quarantine uses of DDT by officials, when deemed necessary, can be judged on an application-by-application basis by professionals.
F. A particular caution, in an isolated instance, may be important.

CONCLUSIONS OF LAW

1. DDT formulations when labeled with directions for use in the production of theses crops named in finding (1) and for use on cotton, oats, rice, and soybeans, are “misbranded,” within the meaning of sections (2)(a) (2)(c), (3)(c), and (e) of FIFEA, 7 U.S.C. 608d.
2. DDT when labeled with directions for use by certified applicators for control of vector diseases, for use by and distribution to the Public Health Service officials or for distribution by or on approval by the U.S. Public Health Service to other health officials for control of vector diseases, for use by and distribution to the Public Health Service, USDAs, and military for quarantine uses, for use in prescription drugs; to be dispensed only on authorization by a recognized medical doctor along with the caution printed in bold type “use for any purposes except the use for which this label is authorized” is not misbranded.”

ADMINISTRATOR’S ORDER REQUIRING DDT ORDER

Order, Before the Environmental Protection Agency, in regard: Stevens Industries, Inc. et al. (Consolidated DDT Hearings), EF & B, Dockets No. 63 et al.

In accordance with the foregoing opinion, findings and conclusions of law, uses of DDT on cotton, beans (snap, lima, and dry), peanuts, soybeans, calves, cattle, buffalo, guinea hens, tomatoes, fresh market corn, garlic, plumofollic, and many commercial crops for malthoping and control of pests and rodents are hereby cancelled as of December 31, 1972. Uses of DDT for control of cotton and grass potatoes, green peppers in the Darien Project and for corn on cottons are cancelled unless within 30 days users or registrants move to supplement the record in accordance with Fort V of my opinion of today. In each event the order shall be stayed, pending the completion of the record, on terms and conditions set by the Hearing Examiner: Provided, That this stay may not be tolled if interested users or registrants do not present the required evidence in a expeditious fashion. At the conclusion of such proceedings, the final order shall be required to be rendered in accordance with my opinion today.

Concurrence for uses of DDT by public health officials in disease control programs and by USDAs and the military for health programs and uses in quarantine uses is lifted.

In order to implement this decision no DDT shall be shipped in interstate com-

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NOTICES

Finding and Order After Statutory Hearing

June 16, 1972.

Findings and order after statutory hearing issuing certificate of public convenience and necessity, amending orders issuable certificates, vacating order in part and redesignating rate schedule, redesignating rate schedules and proceedings, and substituting successor as respondent.

On January 17, 1972, HNG Oil Co. (applicant) pursuant to section 7(b) of the Natural Gas Act filed in Docket No. C--10181 et al., an application requesting authorization to continue sales of natural gas in interstate commerce previously made by Roden Oil Co. (Roden) under a small producer certificate and by Houston Natural Gas Production Co. (Houston) under certificate authorizations listed in Appendix A, as more fully set forth in the application in this proceeding.

Effective November 1, 1971, Roden, holder of a small producer certificate in Docket No. C690--53, was merged by Houston which changed its name to HNG Oil Co. concurrently with the merger.

Applicant requests that the certificates listed in Appendix A hereto issued under its former name be amended to reflect the new corporate name, that the related rate schedules be redesignated accordingly, that it be granted a certificate of public convenience and necessity authorizing a sale of natural gas to Northern Natural Gas Co. previously made by Roden under its small producer certificate, and that a certificate and rate schedule formerly authorizing a sale of natural gas to Natural Gas Pipeline Company of America by Roden be reinstated in the name of applicant by vacating in part the order terminating such certificate and rate schedule when Roden was issued a small producer certificate.

At the time Roden Oil Co. was responsible in the proceeding pending in Docket No. R170--1774. Accordingly, as successor, will be substituted as respondent in Docket No. R170--1774 and said proceeding will be redesignated.

The Commission's staff has reviewed the application and recommends each action ordered as consistent with all subsection C of the Natural Gas Act and required by the public convenience and necessity.

After due notice by publication in the Federal Register, no petition to intervene, notice of intervention, or protest to the granting of the application has been filed.

At a hearing held on June 31, 1972, the Commission, on its own motion received and made a part of the record in this proceeding all evidence including the application and exhibits thereto, submitted in support of the authorization sought herein, and upon consideration of the record, the Commission finds:

(1) The applicant, engaged in the sale of natural gas in interstate commerce for resale for ultimate public consumption subject to the jurisdiction of the Commission, and is, therefore, a "natural gas company" within the meaning of the Natural Gas Act as hereinafore found by the Commission.

(2) The sales of natural gas made by Roden, as hereinafore described and as more fully described in the applications in this proceeding, are made in interstate commerce subject to the jurisdiction of the Commission; and such sales by applicant, together with the construction and operation of any facilities subject to the jurisdiction of the Commission necessary therefore, all as hereinafore described and as more fully described in the applications and in the tabulation herein.

(3) The certificate granted in paragraph (A) above shall be effective only so long as applicant continues the acts or operations hereinafore authorized in accordance with the provisions of the Natural Gas Act and the applicable rules, regulations, and orders of the Commission.

(4) The proposed sales of natural gas are required by the public convenience and necessity, and certificates therefor should be issued hereinafter ordered and conditioned.

(5) It is necessary and appropriate in carrying out the provisions of the Natural Gas Act and the public convenience and necessity require that the orders hereafter granted be effective only so long as applicant continues the acts or operations hereinafore authorized in accordance with the provisions of the Natural Gas Act and the applicable rules, regulations, and orders of the Commission.

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