

### 17. Options Which Provide Closed-Cycle Cooling as BTA

EPA solicits comment on regulatory options that establish closed-cycle cooling as BTA. EPA specifically requests comment on the regulatory options 2 and 3 included in today's proposal, which would establish closed-cycle cooling as BTA for EM at a DIF of 2 MGD and 125 MGD, respectively. See Section VI and VII. EPA further solicits comment and supporting data on alternative thresholds, including whether such alternative thresholds should be based on DIF or AIF. EPA also solicits comment and supporting data for alternative criteria that would establish closed-cycle cooling as BTA for some facilities.

### 18. Costs of Controls To Eliminate Entrapment

EPA assumes facilities with modified traveling screens including a fish handling and return system would meet the proposed requirements to eliminate entrapment of fish and shellfish. EPA believes those facilities with an offshore velocity cap leading to a forebay but without a fish return system would incur costs to meet the proposed requirements for entrapment. For facilities with closed-cycle cooling systems, EPA does not have data on the number of facilities that also have a fish handling and return system. Further, EPA does not have data on the number of facilities that have less than 0.5 feet per second intake velocity but have a cooling water intake system that may cause entrapment. EPA solicits comment and data on the types and numbers of facilities with a cooling water intake system that may cause entrapment, and the costs to eliminate entrapment.

### 19. Analysis of New Capacity

EPA requests comment on the number of new units and the amount of new capacity construction projected. See Section VII.

### 20. Monitoring Reports

EPA solicits comment on how frequently I&E mortality monitoring reports should be submitted. EPA further solicits comment on incorporating the monitoring reports into monthly DMRs, or whether less frequent reporting is appropriate. EPA also requests comment on whether minimum monitoring frequencies should be established in this rule or left to the discretion of the Director. See Section IX.

### 21. Seasonal Operation of Cooling Towers

EPA solicits comment on an option that would require cooling towers on some or all facilities but recognize the site-specific nature of EM by allowing seasonal operation of cooling towers during peak entrainment season. EPA also requests comment on including a similar provision for new units at existing facilities, which are required to achieve I&E reductions commensurate with closed cycle cooling in the proposed rule.

### 22. New Unit Provision

EPA solicits comment on the new unit provision. Specifically, EPA solicits comment on the clarity of the definition of new unit, and whether it should be expanded to include other units such as those that are repowered or rebuilt. EPA also solicits comment on whether the new unit provision should be deleted, therefore subjecting these units to the same site-specific entrainment BTA determination required of existing units.

### 23. Review Criteria To Guide Evaluation of Entrainment Feasibility Factors

EPA solicits comment on the criteria specified in the regulation for guiding the evaluation of closed-cycle cooling as BTA for EM. EPA further solicits comment on additional criteria that EPA should address, and whether such criteria should be developed in the regulation or provided in guidance.

### 24. Alternative Procedures for Visual or Remote Inspections

EPA requests comment on its proposal to permit the Director to establish alternative procedures for conducting visual or remote inspections during periods of inclement weather. EPA also requests comment on whether the rule should specify minimum frequencies for visual or remote inspections, or leave this to the determination of the permitting authority. See Section IX.F.

### 25. Threshold for In-Scope Facilities

EPA requests comment on the threshold of DIF greater than 2 MGD for identifying facilities in-scope of this rule.

### 26. Application Requirements

EPA requests comment on the burden and practical utility of all of the proposed application requirements. EPA is particularly interested in the burden of application requirements to facilities with DIF < 50 MGD. EPA also requests comment on its proposal to limit application requirements for facilities that have already installed closed-cycle

cooling, or opt to do so without a site-specific assessment of BTA, and whether there are additional requirements that could be relaxed for this group.

### 27. Comment From State and Local Officials

EPA specifically requests comment on this proposed rule from State and local officials. See Section X.E.

### 28. Comment From Tribal Officials

EPA specifically requests additional comment on this proposed action from Tribal officials. See Section X.F.

### List of Subjects

#### 40 CFR Part 122

Environmental protection, Administrative practice and procedure, Confidential business information, Hazardous substances, Reporting and recordkeeping requirements, Water pollution control.

#### 40 CFR Part 125

Environmental protection, Cooling water intake structure, Reporting and recordkeeping requirements, Waste treatment and disposal, Water pollution control.

Dated: March 28, 2011.

Lisa P. Jackson,  
Administrator.

For reasons set out in the preamble, Chapter I of Title 40 of the Code of Federal Regulations is proposed to be amended as follows:

### PART 122—EPA ADMINISTERED PERMIT PROGRAMS: THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

1. The authority citation for part 122 continues to read as follows:

**Authority:** The Clean Water Act, 33 U.S.C. 1251 *et seq.*

2. The suspension of 40 CFR 122.21(r)(1)(ii) and (r)(5), published on July 9, 2007 (72 FR 37109) is lifted.

3. Section 122.21 is amended as follows:

- a. Revising paragraph (r)(1)(ii).
- b. Revising paragraphs (r)(2) introductory text, (r)(2)(i) through (iii), and (r)(3) through (5).
- c. Adding paragraphs (r)(6) through (12).

#### § 122.21 Application for a permit (applicable to State programs, see § 123.25)

\* \* \* \* \*

(r) \* \* \*

(1) \* \* \*

(ii) *Existing facilities.* (A) The owner or operator of an existing facility as

defined in 40 CFR part 125, subpart J, with a cooling water intake structure that supplies cooling water exclusively for operation of a wet or dry cooling system and that meets the definition of closed cycle recirculating system at 40 CFR 125.92 must submit to the Director for review the information required under paragraphs (r)(2), (3), and (6) of this section. The owner or operator of all other existing facilities as defined in part 125, subpart J, of this chapter must also submit to the Director for review the information required under paragraphs (r) (5), (7), and (8) of this section as part of its permit application.

(B) The owner or operator of an existing facility as defined in 40 CFR part 125, subpart J, of this chapter that withdraws greater than 125 MGD actual intake flows (AIF) of water for cooling purposes must submit to the Director for review the information required under paragraphs (r)(9), (10), (11), and (12) of this section.

(C) *New units at existing facilities.* New units at existing facilities with cooling water intake structures as defined in part 125, subpart J, of this chapter must provide an update to the information required under paragraphs (r)(2), (3), and (6) of this section and § 125.95 of this chapter. Requests for alternative requirements under § 125.94(d)(4) of this chapter must be submitted with your permit application.

\* \* \* \* \*

(2) *Source water physical data.* The owner or operator of the facility must submit:

(i) A narrative description and scaled drawings showing the physical configuration of all source water bodies used by your facility, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports your determination of the water body type where each cooling water intake structure is located;

(ii) Identification and characterization of the source waterbody's hydrological and geomorphological features, as well as the methods you used to conduct any physical studies to determine your intake's area of influence within the waterbody and the results of such studies;

(iii) Locational maps; and

\* \* \* \* \*

(3) *Cooling water intake structure data.* The owner or operator of the facility must submit:

(i) A narrative description of the configuration of each of your cooling water intake structures and where it is located in the water body and in the water column;

(ii) Latitude and longitude in degrees, minutes, and seconds for each of your cooling water intake structures;

(iii) A narrative description of the operation of each of your cooling water intake structures, including design intake flows, daily hours of operation, number of days of the year in operation and seasonal changes, if applicable;

(iv) A flow distribution and water balance diagram that includes all sources of water to the facility, recirculating flows, and discharges; and

(v) Engineering drawings of the cooling water intake structure.

(4) *Source water baseline biological characterization data.* The owner or operator of each facility must submit the following information in order to characterize the biological community in the vicinity of the cooling water intake structure and to characterize the operation of the cooling water intake structures. This supporting information must include any available existing data. However, you may also supplement the data using newly conducted field studies. In the case of a new facility, the Director may also use this information in subsequent permit renewal proceedings to determine if your Design and Construction Technology Plan as required in § 125.86(b)(4) of this chapter should be revised. The information you submit must include:

(i) A list of the data in paragraphs (r)(4)(ii) through (vi) of this section that are not available and efforts made to identify sources of the data;

(ii) A list of species (or relevant taxa) for all life stages and their relative abundance in the vicinity of the cooling water intake structure;

(iii) Identification of the species and life stages that would be most susceptible to impingement and entrainment. Species evaluated must include the forage base as well as those most important in terms of significance to commercial and recreational fisheries;

(iv) Identification and evaluation of the primary period of reproduction, larval recruitment, and period of peak abundance for relevant taxa;

(v) Data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the cooling water intake structure;

(vi) Identification of all threatened, endangered, and other protected species that might be susceptible to impingement and entrainment at your cooling water intake structures;

(vii) Documentation of any public participation or consultation with

Federal or State agencies undertaken in development of the plan; and

(viii) If you supplement the information requested in paragraph (r)(4)(i) of this section with data collected using field studies, supporting documentation for the Source Water Baseline Biological Characterization must include a description of all methods and quality assurance procedures for sampling, and data analysis including a description of the study area; taxonomic identification of sampled and evaluated biological assemblages (including all life stages of fish and shellfish); and sampling and data analysis methods. The sampling and/or data analysis methods you use must be appropriate for a quantitative survey and based on consideration of methods used in other biological studies performed within the same source water body. The study area should include, at a minimum, the area of influence of the cooling water intake structure.

(ix) Identification of protective measures and stabilization activities that have been implemented, and a description of how these measures and activities affected the baseline water condition in the vicinity of the intake.

(5) *Cooling water system data.* The owner or operator of the facility must provide the following information for each cooling water intake structure used:

(i) A narrative description of the operation of the cooling water system and its relationship to cooling water intake structures; the proportion of the design intake flow that is used in the system including a distribution of water used for contact cooling, non-contact cooling, and process uses; a distribution of water reuse (to include cooling water reused as process water, process water reused for cooling, and the use of gray water for cooling); description of reductions in total water withdrawals including cooling water intake flow reductions already achieved through minimized process water withdrawals; description of any cooling water that is used in a manufacturing process either before or after it is used for cooling, including other recycled process water flows; the proportion of the source waterbody withdrawn (on a monthly basis); the number of days of the year the cooling water system is in operation and seasonal changes in the operation of the system, if applicable;

(ii) Design and engineering calculations prepared by a qualified professional and supporting data to support the description required by paragraph (r)(5)(i) of this section;

(iii) Description of existing impingement and entrainment



technologies or operational measures and a summary of their performance, including but not limited to reductions in entrainment mortality due to intake location and reductions in total water withdrawals and usage.

(6) *Impingement Mortality Reduction Plan.* The Impingement Mortality Reduction Plan must identify the approach the owner or operator of the facility will use to meet the BTA standards for impingement mortality at 40 CFR 125.94(b), including:

(i) Identification of the method of intended compliance with the BTA standards for impingement mortality for each intake by either conducting a direct measure of impingement mortality through sampling, by demonstrating that the maximum design intake velocity is equal to or less than 0.5 feet per second, or by measuring the intake velocity and demonstrating that the actual intake velocity is equal to or less than 0.5 feet per second.

(ii) If you plan to comply with the BTA standards for impingement mortality requirements by conducting a direct measure of impingement mortality through sampling, you must provide a description of the study area including the area of influence of each cooling water intake structure and a taxonomic identification of the sampled or evaluated biological assemblages including all life stages of fish and shellfish that may be susceptible to impingement.

(iii) If you plan to comply with the BTA standards for impingement mortality requirements by conducting a direct measure of impingement mortality through sampling, you must also provide a description of any sampling or monitoring approach to be used in measuring impingement mortality, including:

(A) The duration and frequency of monitoring, subject to the minimum monitoring requirements established by the Director under 40 CFR 125.96 but in no case less frequently than a biweekly basis;

(B) The monitoring locations;

(C) The organisms to be monitored, and

(D) The method in which naturally moribund organisms are identified and taken into account.

(iv) If you plan to comply with the BTA standards for impingement mortality requirements by demonstrating that the design intake velocity is equal to or less than 0.5 feet per second, documentation including:

(A) A demonstration that the maximum design intake velocity is equal to or less than 0.5 feet per second;

(B) A description of technologies or operational measures to keep any debris from blocking the intake at no more than 15 percent of the opening of the intake; and

(C) A description of technologies or operational measures to prevent entrapment of fish or shellfish by the cooling water intake system.

(v) If you plan to comply with the BTA standards for impingement mortality by measuring the intake velocity to demonstrate the intake velocity is equal to or less than 0.5 feet per second, documentation including:

(A) Velocity monitoring to demonstrate that the actual intake velocity is equal to or less than 0.5 feet per second;

(B) Documentation of the technologies and operational measures taken to ensure the actual intake velocity will not exceed 0.5 feet per second; and,

(C) A description of technologies or operational measures to prevent entrapment of impingeable fish or shellfish by the cooling water intake system.

(vi) For intakes that withdraw from oceans and tidal waters, a description of the measures and technologies to reduce impingement mortality of shellfish to a level comparable to that achieved by properly deployed and maintained barrier nets, including but not limited to cylindrical wedgewire screens, seasonal deployment of barrier nets, intake location, and/or an appropriate handling and return system.

(vii) You must demonstrate that the cooling water intake structure does not lead to entrapment. This demonstration must include documentation that organisms are excluded from entering any portion of the intake where there is not an opportunity for them to escape. If your cooling water intake structure results in entrapment and the only way for fish to escape is by being impinged upon the screens or to pass through the facility (in the case of open intakes), you must document that additional protective measures will be deployed such as, for example, modification of traveling screens with collection buckets designed to minimize turbulence to aquatic life, addition of a guard rail or barrier to prevent loss of fish from the collection bucket, replacement of screen panel materials with smooth woven mesh, a low pressure wash to remove fish prior to any high pressure spray to remove debris on the ascending side, and a fish return with adequate flow to ensure fish return to the source water body. If you cannot document these additional protective measures, you must count all entrapment of organisms as mortality.

(viii) Documentation of all methods and quality assurance/quality control procedures for sampling and data analysis. The proposed sampling and data analysis methods must be appropriate for a quantitative survey.

(7) *Performance studies.* If the owner or operator has conducted studies, or chooses to use previously conducted studies obtained from other facilities, you must submit a description of those biological survival studies conducted, together with underlying data, and a summary of any conclusions or results, including but not limited to:

(i) Site-specific studies addressing technology efficacy, through-plant entrainment survival, and other impingement and entrainment mortality studies;

(ii) Studies conducted at other locations including an explanation as to why the data from other locations is relevant and representative of conditions at your facility;

(iii) Studies older than 10 years must include an explanation of why the data is still relevant and representative of conditions at your facility.

(8) *Operational status.* The owner or operator of the facility must submit a description of its operational status for each generating, production, or process unit, including but not limited to:

(i) Descriptions of individual unit operating status including age of each unit, capacity utilization (or equivalent) for the previous 5 years, and any major upgrades completed within the last 15 years, including but not limited to boiler replacement, condenser replacement, turbine replacement, or changes to fuel type;

(ii) Descriptions of completed, approved, or scheduled uprates and NRC relicensing status of each unit at nuclear facilities;

(iii) Descriptions of plans or schedules for decommissioning or replacement of units;

(iv) Descriptions of current and future production schedules at manufacturing facilities; and

(v) Descriptions of plans or schedules for any new units planned within the next 5 years.

(9) *Entrainment characterization study.* For all species and life stages identified under the requirements of paragraph (r)(4) of this section, the owner or operator of the facility must:

(i) Develop and submit an entrainment mortality data collection plan for review and comment by the Director. The entrainment mortality data collection plan must include, at a minimum:

(A) The duration and frequency of monitoring;



(B) The monitoring locations, including a description of the study area and the area of influence of the cooling water intake structure(s);

(C) A taxonomic identification of the sampled or evaluated biological assemblages;

(D) Identification of all life stages of fish and shellfish, including identification of any surrogate life stages used, and identification of data representing both motile and non-motile life-stages of organisms;

(E) The organisms to be monitored, including species of concern and threatened or endangered species;

(F) Any other organisms identified by the Director;

(G) The method by which latent mortality would be identified;

(H) Documentation of all methods and quality assurance/quality control procedures for sampling and data analysis. The proposed sampling and data analysis methods must be appropriate for a quantitative survey.

(ii) Obtain peer review of the entrainment mortality data collection plan. You must select peer reviewers in consultation with the Director, including that the Director may require additional peer reviewers. The Director may consult with EPA and Federal, State and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by the cooling water intake structure(s) to determine which peer review comments must be addressed by the final plan. You must provide an explanation for any significant reviewer comments not accepted. Peer reviewers must have appropriate qualifications in biology, engineering, hydrology, or other fields and their names and credentials must be included in the peer review report.

(iii) Implement the entrainment mortality data collection plan no later than 6 months after submission of the entrainment mortality data collection plan to the Director.

(iv) The Entrainment Characterization Study must include all of the following components:

(A) Taxonomic identifications of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species) that are in the vicinity of the cooling water intake structure(s) and are susceptible to entrainment;

(B) Characterization of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species), including a description of the abundance and

temporal and spatial characteristics in the vicinity of the cooling water intake structure(s), based on sufficient data to characterize annual, seasonal, and diel variations in entrainment, and including but not limited to variations related to climate and weather differences, spawning, feeding and water column migration. These may include historical data that are representative of the current operation of your facility and of biological conditions at the site; and,

(C) Documentation of the current entrainment of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species). The documentation may include historical data that are representative of the current operation of your facility and of biological conditions at the site. Entrainment samples to support the facility's calculations must be collected during periods of representative operational flows for the cooling water intake structure and the flows associated with the samples must be documented. Data for specific organism mortality or survival that is applied to other life-stages or species must be identified. The owner or operator of the facility must identify and document all assumptions and calculations used to determine the total entrainment and entrainment mortality for that facility.

(D) Information collected to meet paragraphs (r)(4) and (r)(7) of this section may be used in developing the Entrainment Characterization Study.

(10) *Comprehensive technical feasibility and cost evaluation study.* The owner or operator of the facility must submit an engineering study of the technical feasibility and incremental costs of candidate entrainment mortality control technologies. The study must include the following:

(i) *Technical feasibility.* At a minimum, the owner or operator of the facility must conduct a study to evaluate the technical feasibility of closed-cycle recirculating systems (cooling towers) and fine mesh screens with a mesh size of 2mm or smaller. This study must include:

(A) A description of all technologies and operational measures considered (including alternative designs of closed-cycle recirculating systems—such as natural draft cooling towers, mechanical draft cooling towers, hybrid designs, and compact or multi-cell arrangements);

(B) A discussion of land availability, including an evaluation of adjacent land and acres potentially available due to generating unit retirements, production unit retirements, other buildings and

equipment retirements, and ponds, coal piles, rail yards, transmission yards, and parking lots, and

(C) Documentation of factors other than cost that may make a candidate technology impractical or infeasible for further evaluation.

(ii) *Other entrainment mortality control technologies.* Following submission of the engineering study, the Director may require evaluation of additional technologies for reducing entrainment mortality.

(iii) *Cost evaluations.* The study must include engineering cost estimates of all technologies considered in paragraphs (r)(10)(i) and (ii) of this section. All costs must be presented as the net present value (NPV) of the social costs and the corresponding annual value. In addition to the required social costs, you may choose to provide facility level compliance costs, however you must separately discuss facility level compliance costs and social costs. You must discuss and provide documentation for:

(A) Any outages, downtime, or other impacts to facility revenue. Depreciation schedules, interest rates and related assumptions must be identified.

(B) Costs and explanation of any additional facility modifications necessary to support construction and operation of technologies considered in paragraphs (r)(10)(i) and (ii) of this section, including but not limited to relocation of existing buildings or equipment, reinforcement or upgrading of existing equipment, and additional construction and operating permits. Depreciation schedules, interest rates, useful life of the technology considered, and any related assumptions must be identified.

(C) Costs and explanation for addressing any non-water quality impacts identified in paragraph (r)(12) of this section. The cost evaluation must include a discussion of all reasonable attempts to mitigate each of these impacts.

(iv) *Peer review.* Obtain peer review of the comprehensive technical feasibility and cost evaluation study. You must select peer reviewers in consultation with the Director, including that the Director may require additional peer reviewers. The Director may consult with EPA and Federal, State and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by the cooling water intake structure(s) to determine which peer review comments must be addressed by the final study. You must provide an explanation for any significant reviewer comments not accepted. Peer reviewers must have



appropriate qualifications in biology, engineering, hydrology, or other fields and their names and credentials must be included in the peer review report.

(11) *Benefits valuation study.* The owner or operator of the facility must submit an evaluation of the magnitude of water quality benefits, both monetized and non-monetized, of the candidate entrainment mortality reduction technologies and operational measures evaluated in paragraph (r)(10) of this section, including but not limited to:

(i) Incremental changes in the numbers of fish and shellfish, for all life stages, lost due to impingement mortality and entrainment mortality as defined in 40 CFR 125.92;

(ii) Identification of basis for any monetized values you assigned to changes in commercial and recreational species, forage fish, and shellfish, and to any other ecosystem or non-use benefits;

(iii) Discussion of recent mitigation efforts already completed;

(iv) Identification of other benefits to the environment and local communities, including but not limited to improvements for mammals, birds, and other organisms and aquatic habitats.

(v) Peer review. Obtain peer review of the benefits valuation study. You must select peer reviewers in consultation with the Director, including that the Director may require additional peer reviewers. The Director may consult with EPA and Federal, State and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by the cooling water intake structure(s) to determine which peer review comments must be addressed by the final study. You must provide an explanation for any significant reviewer comments not accepted. Peer reviewers must have appropriate qualifications in biology, engineering, hydrology, or other fields and their names and credentials must be included in the peer review report.

(12) *Non-water Quality and Other Environmental Impacts Study.* The owner or operator of the facility must submit a detailed site-specific discussion of the changes in non-water quality factors and other environmental impacts attributed to each technology and operational measure considered in paragraph (r)(10) of this section, including but not limited to both increases and decreases of each factor. The study must include the following:

(i) Estimates of changes to energy consumption, including but not limited to parasitic load and turbine backpressure energy penalties;

(ii) Estimates of changes to thermal discharges, including an estimate of any

increased facility capacity, operations, and reliability that may be possible due to relaxed permitting constraints related to thermal discharges;

(iii) Estimates of air pollutant emissions and of the human health and environmental impacts associated with such emissions;

(iv) Estimates of changes in noise;

(v) Discussion of impacts to safety, including documentation of the potential for plumes, icing, and availability of emergency cooling water;

(vi) Impacts to grid reliability for the facility and for each power generating unit, including an estimate of changes to facility capacity, operations, and reliability due to cooling water availability;

(vii) Facility reliability, including but not limited to facility availability, production of steam, and impacts to production based on process unit heating or cooling;

(viii) Significant changes in consumption of water, including a site-specific comparison of the evaporative losses of both once-through cooling and closed cycle recirculating systems, and documentation of impacts attributable to changes in water consumption;

(ix) A discussion of all reasonable attempts to mitigate each of these factors.

(x) Peer review. Obtain peer review of the non-water quality and other environmental impacts study. You must select peer reviewers in consultation with the Director, including that the Director may require additional peer reviewers. The Director may consult with EPA and Federal, State and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by the cooling water intake structure(s) to determine which peer review comments must be addressed by the final study. You must provide an explanation for any significant reviewer comments not accepted. Peer reviewers must have appropriate qualifications in biology, engineering, hydrology, or other fields and their names and credentials must be included in the peer review report.

#### **PART 125—CRITERIA AND STANDARDS FOR THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

4. The authority citation for part 125 continues to read as follows:

**Authority:** Clean Water Act, 33 U.S.C. 1251 *et seq.*; unless otherwise noted.

##### **Subpart I—[Amended]**

5. Section 125.84 is amended as follows:

a. In the heading of paragraph (c) by removing the words “equal to or greater than 2 MGD” and adding in their place the words “greater than 2 MGD.”

b. By revising paragraph (d)(1).

**§ 125.84 As an owner or operator of a new facility, what must I do to comply with this subpart?**

\* \* \* \* \*

(d) \* \* \*

(1) You must demonstrate to the Director that the technologies employed will reduce the level of adverse environmental impact from your cooling water intake structures to a comparable level to that which you would achieve were you to implement the requirements of paragraphs (b)(1) and (2) of this section. This demonstration must include a showing that the impacts to fish and shellfish, including important forage and predator species, within the watershed will be comparable to those which would result if you were to implement the requirements of paragraphs (b)(1) and (2) of this section. The Director may consider information provided by any fishery management agency(ies) along with data and information from other sources.

\* \* \* \* \*

6. Section 125.86 is amended as follows:

a. Revise paragraph (b)(3) introductory text.

b. Revise paragraph (b)(4)(iii).

b. Remove and reserve paragraph (c)(2)(iv)(C).

c. Remove and reserve paragraph (c)(2)(iv)(D)(2).

**§ 125.86 As an owner or operator of a new facility, what must I collect and submit when I apply for my new or reissued NPDES permit?**

\* \* \* \* \*

(b) \* \* \*

(3) *Source waterbody flow information.* You must submit to the Director the following information to demonstrate that your cooling water intake structure meets the flow requirements in § 125.84(b)(3) or (c)(2).

\* \* \* \* \*

(4) \* \* \*

(iii) The owner or operator of a new facility required to install design and construction technologies and/or operational measures must develop a plan explaining the technologies and measures selected that is based on information collected for the Source Water Biological Baseline Characterization required by 40 CFR 122.21(r)(4). (Examples of appropriate technologies include, but are not limited to, wedge wire screens, fine mesh

screens, fish handling and return systems, barrier nets, aquatic filter barrier systems, etc. Examples of appropriate operational measures include, but are not limited to, seasonal shutdowns or reductions in flow, continuous operations of screens, etc.) The plan must contain the following information:

7. Section 125.87 is amended by revising paragraph (a) introductory text and paragraph (a)(2) to read as follows:

**§ 125.87 As an owner or operator of a new facility, must I perform monitoring?**

(a) *Biological monitoring.* You must monitor both impingement and entrainment of the commercial, recreational, and forage base fish and shellfish species identified in either the Source Water Baseline Biological Characterization data required by 40 CFR 122.21(r)(4) or the Comprehensive Demonstration Study required by § 125.86(c)(2), depending on whether you chose to comply with Track I or Track II. The monitoring methods used must be consistent with those used for the Source Water Baseline Biological Characterization data required in 40 CFR 122.21(r)(4) or the Comprehensive Demonstration Study required by § 125.86(c)(2). You must follow the monitoring frequencies identified below for at least two (2) years after the initial permit issuance. After that time, the Director may approve a request for less frequent sampling in the remaining years of the permit term and when the permit is reissued, if the Director determines the supporting data show that less frequent monitoring would still allow for the detection of any seasonal and daily variations in the species and numbers of individuals that are impinged or entrained.

(2) *Entrainment sampling.* You must collect samples at least biweekly to monitor entrainment rates (simple enumeration) for each species over a 24-hour period during the primary period of reproduction, larval recruitment, and peak abundance identified during the Source Water Baseline Biological Characterization required by 40 CFR 122.21(r)(4) or the Comprehensive Demonstration Study required in § 125.86(c)(2). You must collect samples only when the cooling water intake structure is in operation.

8. Section 125.89 is amended by revising paragraph (b)(1)(ii) to read as follows:

**§ 125.89 As the Director, what must I do to comply with the requirements of this subpart?**

- (b) \* \* \*
- (1) \* \* \*
- (ii) For a facility that chooses Track II, you must review the information submitted with the Comprehensive Demonstration Study required in § 125.86(c)(2), evaluate the suitability of the proposed design and construction technologies and operational measures to determine whether they will reduce both impingement mortality and entrainment of all life stages of fish and shellfish to 90 percent or greater of the reduction that could be achieved through Track I. In addition, you must review the Verification Monitoring Plan in § 125.86(c)(2)(iv)(D) and require that the proposed monitoring begin at the start of operations of the cooling water intake structure and continue for a sufficient period of time to demonstrate that the technologies and operational measures meet the requirements in § 125.84(d)(1). Under subsequent permits, the Director must review the performance of the additional and/or different technologies or measures used and determine that they reduce the level of adverse environmental impact from the cooling water intake structures to a comparable level that the facility would achieve were it to implement the requirements of § 125.84(b)(1) and (2).

9. The suspension of 40 CFR 125.90(a), (c), and (d), published on July 9, 2007 (72 FR 37109) is lifted.

10. The suspension of 40 CFR 125.91 through 125.99, published on July 9, 2007 (72 FR 37109) is lifted.

11. Subpart J to part 125 is revised to read as follows:

**Subpart J—Requirements Applicable to Cooling Water Intake Structures for Existing Facilities Under Section 316(b) of the Clean Water Act**

Sec.

- 125.90 Purpose of this subpart.
- 125.91 Applicability.
- 125.92 Special definitions.
- 125.93 Compliance.
- 125.94 As an owner or operator of an existing facility, what must I do to comply with this subpart?
- 125.95 Permit application and supporting information requirements.
- 125.96 Monitoring requirements.
- 125.97 Other permit reporting and recordkeeping requirements.
- 125.98 Director requirements.
- 125.99 [Reserved]

**Subpart J—Requirements Applicable to Cooling Water Intake Structures for Existing Facilities Under Section 316(b) of the Clean Water Act**

**§ 125.90 Purpose of this subpart.**

(a) This subpart establishes the section 316(b) requirements that apply to cooling water intake structures at existing facilities that are subject to this subpart. These requirements include a number of components. These include standards for minimizing adverse environmental impact associated with the use of cooling water intake structures and required procedures (e.g., permit application requirements, information submission requirements) for establishing the appropriate technology requirements at certain specified facilities as well as required monitoring, reporting, and recordkeeping requirements to demonstrate compliance. In combination, these components represent the best technology available for minimizing adverse environmental impact associated with the use of cooling water intake structures. These requirements are to be established and implemented in National Pollutant Discharge Elimination System (NPDES) permits issued under authority of sections 301, 308, and 402 of the Clean Water Act (CWA).

(b) Cooling water intake structures not subject to requirements under this or another subpart of this part must meet requirements under section 316(b) of the CWA established by the Director on a case-by-case, best professional judgment (BPP) basis.

(c) Nothing in this subpart shall be construed to preclude or deny the right of any State or political subdivision of a State or any interstate agency under section 510 of the CWA to adopt or enforce any requirement with respect to control or abatement of pollution that is more stringent than those required by Federal law.

**§ 125.91 Applicability.**

(a) An existing facility, as defined in § 125.92, is subject to this subpart if it meets each of the following criteria:

- (1) It is a point source;
- (2) It uses or proposes to use cooling water intake structures with a total design intake flow (DIF) of greater than 2 million gallons per day (MGD) to withdraw water from waters of the United States; and
- (3) Twenty-five percent or more of the water it withdraws is used exclusively for cooling purposes, measured on an average annual basis for each calendar year.



(b) Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with one or more independent suppliers of cooling water if the independent supplier withdraws water from waters of the United States but is not itself a new or existing facility as defined in subparts I or J of this part, except as provided in paragraph (d) of this section. An owner or operator of an existing facility may not circumvent these requirements by creating arrangements to receive cooling water from an entity that is not itself a facility subject to subparts I or J of this part.

(c) Notwithstanding paragraph (b) of this section, obtaining cooling water from a public water system, using reclaimed water from wastewater treatment facilities or desalination plants, or recycling treated effluent as cooling water does not constitute use of a cooling water intake structure for purposes of this subpart.

(d) This subpart does not apply to seafood processing facilities, offshore liquefied natural gas terminals, and offshore oil and gas extraction facilities that are existing facilities as defined in § 125.92. The owners and operators of such facilities must meet requirements established by the Director on a case-by-case, best professional judgment (BPJ) basis.

#### § 125.92 Special definitions.

In addition to the definitions provided in § 122.2 of this chapter, the following special definitions apply to this subpart:

**Actual Intake Flow (AIF)** means the average volume of water withdrawn on an annual basis by the cooling water intake structures over the past three calendar years.

**All life stages** means eggs, larvae, juveniles, and adults. All life stages of fish and shellfish does not include members of the infraclass Cirripedia in the subphylum Crustacea (barnacles), green mussels (*Perna viridis*), or zebra mussels (*Dreissena polymorpha*). The Director may determine that all life stages of fish and shellfish does not include specified invasive species and naturally moribund species.

**Closed-cycle recirculating system** means a system designed, using minimized make-up and blowdown flows, to withdraw water from a natural or other water source to support contact or noncontact cooling uses within a facility, or a system designed to include cooling ponds that are not themselves a waters of the U.S. and that does not rely upon continuous intake flows of water. New source water (make-up water) is added to the system to replenish losses

that have occurred due to blowdown, drift, and evaporation. **Closed-cycle recirculating system** includes, but is not limited to, wet or dry cooling towers. For cooling towers where the source for make-up water is freshwater or has a salinity equal to or less than 0.5 parts per thousand, minimized make-up and blow down means operating at a minimum cycles of concentration of 3.0. For cooling towers where the source for make-up water is saltwater, brackish water, or has a salinity of greater than 0.5 parts per thousand, minimized make-up and blow down means operating at a minimum cycles of concentration of 1.5. For facilities with a closed-cycle recirculating system other than a cooling tower, minimized make-up and blowdown flows means a reduction in actual intake flow of 97.5 percent for freshwater, and 94.9 percent for salt water or brackish water.

**Contact cooling water** means water used for cooling which comes into direct contact with any raw material, product, or byproduct. Examples of contact cooling water may include but are not limited to quench water at iron and steel plants, cooling water in a cracking unit, and cooling water directly added to food and agricultural products processing.

**Cooling pond** means a man-made canal, channel, lake, pond or other impoundment designed and constructed to provide cooling for a nearby electric generating or manufacturing unit. A cooling pond may comprise a closed-cycle recirculating system when waters of the U.S. are withdrawn only for the purpose of replenishing losses of cooling water due to blowdown, drift, and evaporation.

**Cooling water** means water used for contact or noncontact cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content. The intended use of the cooling water is to absorb waste heat rejected from the process or processes used, or from auxiliary operations on the facility's premises. Cooling water obtained from a public water system, reclaimed water from wastewater treatment facilities or desalination plants, treated effluent from a manufacturing facility, or cooling water that is used in a manufacturing process either before or after it is used for cooling as process water, is not considered cooling water for the purposes of calculating the percentage of a facility's intake flow that is used for cooling purposes in § 125.91(a)(3).

**Cooling water intake structure** means the total physical structure and any associated constructed waterways used to withdraw cooling water from waters

of the United States. The cooling water intake structure extends from the point at which water is withdrawn from the surface water source up to, and including, but not limited to, the intake pumps.

**Design intake flow (DIF)** means the value assigned during the cooling water intake structure design to the maximum volume of water the cooling water intake system is capable of withdrawing from a source waterbody over a specific time period. The facility's DIF may be adjusted to reflect permanent changes to the maximum capabilities of the cooling water intake system to withdraw cooling water, including but not limited to pumps permanently removed from service, flow limit devices, and physical limitations of the piping. DIF does not include values associated with emergency and fire suppression capacity or redundant pumps (*i.e.*, back-up pumps).

**Entrainment** means the incorporation of any life stages of fish and shellfish with the intake water flow entering and passing through a cooling water intake structure and into a cooling water system. Entrainable organisms includes any organisms potentially subject to **entrainment**. For purposes of this subpart, **entrainment** includes those organisms that pass through a  $\frac{3}{8}$  inch sieve, and excludes those organisms collected or retained on a  $\frac{3}{8}$  inch sieve.

**Entrainment mortality** means death as a result of entrainment through the cooling water intake structure, or death as a result of exclusion from the cooling water intake structure by fine mesh screens or other protective devices intended to prevent the passage of entrainable organisms through the cooling water intake structure.

**Entrapment** means the condition where impingeable fish and shellfish lack the means to escape the cooling water intake system. Entrapment includes but is not limited to: organisms caught in the bucket of a traveling screen and unable to reach a fish return; organisms caught in the forebay of a cooling water intake system without any means of being returned to the source waterbody without experiencing mortality; or cooling water intake systems where the velocities in the intake pipes or in any channels leading to the forebay prevent organisms from being able to return to the source waterbody through the intake pipe or channel.

**Existing facility** means any facility that commenced construction as described in 40 CFR 122.29(b)(4) on or before January 17, 2002; and any modification of, or any addition of a



unit at such a facility that is not a new facility at § 125.83.

**Flow reduction** means any modification that serves to reduce the volume of cooling water withdrawn. Examples include, but are not limited to, variable speed pumps, seasonal flow reductions, wet cooling towers, dry cooling towers, hybrid cooling towers, and unit closures.

**Impingement** means the entrapment of any life stages of fish and shellfish on the outer part of an intake structure or against a screening device during periods of intake water withdrawal.

**Impingement** includes those organisms collected or retained on a  $\frac{3}{8}$  inch sieve, and excludes those organisms that pass through a  $\frac{3}{8}$  inch sieve.

**Impingement mortality** means death as a result of impingement.

**Independent supplier** means an entity, other than the regulated facility, that owns and operates its own cooling water intake structure and directly withdraws water from waters of the United States. The supplier provides the cooling water to other facilities for their use, but may also use a portion of the water itself. An entity that provides potable water to residential populations (e.g., public water system) is not a supplier for purposes of this subpart.

**Moribund** means dying; close to death.

**New unit** means any addition of an operating unit at an existing facility where the construction begins after [effective date of the final rule], including but not limited to a new unit added to a new or existing facility for the same general industrial operation, but that does not otherwise meet the definition of a new facility at § 125.83. **New unit** includes any additional unit where that unit is not subject to the requirements of Subpart I. For purposes of this subpart, new unit refers to newly built units added to increase capacity at the facility and does not include any

rebuilt, repowered or replacement unit, including any units where the generation capacity of the new unit is equal to or greater than the unit it replaces.

**Operational measure** means a modification to any operation that serves to minimize impact to all life stages of fish and shellfish from the cooling water intake structure. Examples of operational measures include, but are not limited to, more frequent rotation of traveling screens, use of a low pressure wash to remove fish prior to any high pressure spray to remove debris on the ascending side of a traveling screen, maintaining adequate volume of water in a fish return, and debris minimization measures such as air sparging of intake screens and/or other measures taken to maintain the design intake velocity.

#### § 125.93 Compliance.

(a) The owner or operator of a facility subject to this subpart must comply with the applicable BTA standards for impingement mortality in § 125.94(b) as soon as possible based on the schedule of requirements set by the Director, but in no event later than [date 8 years after the effective date of the final rule].

(b) The owner or operator of a facility subject to this subpart must comply with the applicable BTA standards for entrainment mortality in § 125.94(c) as soon as possible, based on the schedule of requirements set by the Director.

(c) The owner or operator of an existing facility subject to this subpart that commences construction of a new unit after [effective date of the final rule] must comply with the BTA standards with respect to the new unit in § 125.94(b) and § 125.94(d) upon commencement of the new unit's operation. With respect to the existing units at the existing facility, the owner or operator must comply with paragraphs (a) and (b) of this section.

#### § 125.94 As an owner or operator of an existing facility, what must I do to comply with this subpart?

(a) **Applicable BTA standards.** (1) The owner or operator of an existing facility with a design intake flow (DIF) greater than 2 MGD is subject to the impingement mortality standard under paragraph (b) of this section.

(2) The owner or operator of an existing facility with a design intake flow (DIF) greater than 2 MGD is subject to the BTA standards for entrainment mortality under paragraph (c) of this section. The owner or operator may choose instead to comply with the entrainment mortality standard at paragraph (d) of this section.

(3) New units at an existing facility that are not a new facility under § 125.83 and that have a design intake flow (DIF) greater than 2 MGD are subject to the BTA standards for impingement mortality at paragraph (b) of this section and the entrainment mortality standards at paragraph (d) of this section.

(b) **BTA Standards for Impingement Mortality.** By the dates specified in § 125.93, the owner or operator of an existing facility subject to this subpart must achieve the impingement mortality standards provided in paragraphs (b)(1), or (2), of this section:

(1) The owner or operator of an existing facility must:

(i) Achieve the following impingement mortality limitations for all life stages of fish that are collected or retained in a  $\frac{3}{8}$  inch sieve and held for a period of 24 to 48 hours to assess latent mortality. The annual average comprises the average for all measurements taken during the preceding 12-month period. The compliance period for the annual average will be established by the Director.

#### IMPINGEMENT MORTALITY NOT TO EXCEED

Regulated parameter	Annual average (percent)	Monthly average (percent)
Fish Impingement Mortality .....	12	31

(ii) The owner or operator of a facility that withdraws water from an ocean or tidal waters must also reduce impingement mortality of shellfish at a minimum to a level comparable to that achieved by properly deployed and maintained barrier nets. Passive screens such as cylindrical wedgewire screens, and through-flow or carry-over free

intake screens such as dual-flow screens and drum screens, will meet this requirement.

(iii) The owner or operator of a facility that employs traveling screens or equivalent active screens must:

(A) Count any fish that are included in carryover from a screen or removed

from a screen as part of debris removal as fish impingement mortality.

(B) Incorporate protective measures including but not limited to: modified traveling screens with collection buckets designed to minimize turbulence to aquatic life, addition of a guard rail or barrier to prevent loss of fish from the collection bucket,



replacement of screen panel materials with smooth woven mesh, a low pressure wash to remove fish prior to any high pressure spray to remove debris on the ascending side of the screens, and a fish handling and return system with sufficient water flow to return the fish to the source water in a manner that does not promote predation or re-impingement of the fish.

(iv) The owner or operator of the facility must ensure that there is a means for impingeable fish or shellfish to escape the cooling water intake system or be returned to the waterbody through a fish return system. Passive screens such as cylindrical wedgewire screens, and through-flow or carry-over free intake screens such as dual-flow screens and drum screens, will meet this requirement;

(2) The owner or operator of an existing facility must demonstrate to the Director that its cooling water intake system has a maximum intake velocity of 0.5 feet per second. In addition, you must meet the following criteria:

(i) The maximum velocity must be demonstrated as either the maximum actual intake velocity or the maximum design intake velocity as water passes through the structural components of a screen measured perpendicular to the screen mesh;

(ii) The maximum velocity limit must be achieved under all conditions, including during minimum ambient source water surface elevations (based on BPJ using hydrological data) and during periods of maximum head loss across the screens or other devices during normal operation of the intake structure. If the intake does not have a screen, the maximum intake velocity perpendicular to the opening of the intake must not exceed 0.5 feet per second during minimum ambient source water surface elevations.

(iii) Each intake must be operated and maintained to keep any debris blocking the intake at no more than 15 percent of the opening of the intake. A demonstration that the actual intake velocity is less than 0.5 feet per second through velocity measurements will meet this requirement;

(iv) The owner or operator of a facility that withdraws water from the ocean or tidal waters must also reduce impingement mortality of shellfish at a minimum to a level comparable to that achieved by properly deployed and maintained barrier nets. Passive screens such as cylindrical wedgewire screens, and through-flow or carry-over free intake screens such as dual-flow screens and drum screens, will meet this requirement.

(v) The owner or operator of a facility that employs traveling screens or equivalent active screens must:

(A) Count any fish that are included in carryover from a screen or removed from a screen as part of debris removal as fish impingement mortality.

(B) Incorporate protective measures including but not limited to: modified traveling screens with collection buckets designed to minimize turbulence to aquatic life, addition of a guard rail or barrier to prevent loss of fish from the collection bucket, replacement of screen panel materials with smooth woven mesh, a low pressure wash to remove fish prior to any high pressure spray to remove debris on the ascending side of the screens, and a fish handling and return system with sufficient water flow to return the fish to the source water in a manner that does not promote predation or re-impingement of the fish.

(vi) The owner or operator of the facility must ensure that there is a means for impingeable fish or shellfish to escape the cooling water intake system or be returned to the waterbody through a fish return system. Passive screens such as cylindrical wedgewire screens, and through-flow or carry-over free intake screens such as dual-flow screens and drum screens, will meet this requirement;

(c) *BTA standards for entrainment mortality for existing facilities.* The Director must establish BTA standards for entrainment mortality on a case-by-case basis. These standards must reflect the Director's determination of the maximum reduction in entrainment mortality warranted after consideration of all factors relevant for determining the best technology available at each facility, including the factors specified in § 125.98.

(d) *BTA standards for entrainment mortality for new units at existing facilities.* The owner or operator of a new unit at an existing facility must achieve the entrainment standards provided in either paragraph (d)(1) or (d)(2) of this section.

(1) The owner or operator of a facility must reduce actual intake flow (AIF) at a new unit, at a minimum, to a level commensurate with that which can be attained by the use of a closed-cycle recirculating system for the same level of cooling. The owner or operator of a facility with a cooling water intake structure that supplies cooling water exclusively for operation of a wet or dry cooling tower(s) and that meets the definition of closed cycle recirculating system at § 125.92 meets this entrainment mortality standard.

(2) The owner or operator of a facility must demonstrate to the Director that it has installed, and will operate and maintain, technologies for each intake at the new unit that reduce entrainment mortality of all stages of fish and shellfish that pass through a 3/4 inch sieve. The owner or operator of a facility must demonstrate entrainment mortality reductions equivalent to 90 percent or greater of the reduction that could be achieved through compliance with paragraph (d)(1) of this section.

(3) This standard does not apply to:

(i) Process water, gray water, waste water, reclaimed water, or other waters reused as cooling water in lieu of water obtained by marine, estuarine, or freshwater intakes;

(ii) Cooling water used by manufacturing facilities for contact cooling purposes;

(iii) Portions of those water withdrawals for auxiliary plant cooling uses totaling less than two MGD;

(iv) Any volume of cooling water withdrawals used exclusively for make-up water at existing closed-cycle recirculating systems. For facilities with a combination of closed-cycle recirculating systems and other cooling water systems the entrainment mortality standard does not apply to that portion of cooling water withdrawn as make-up water for the closed-cycle recirculating system;

(v) Any quantity of emergency back-up water flows.

(4) The Director may establish alternative requirements if:

(i) The data specific to the facility indicate that compliance with the requirements of paragraphs (d)(1) or (2) of this section for the new unit would result in compliance costs wholly out of proportion to the costs EPA considered in establishing the requirements at issue or would result in significant adverse impacts on local air quality, significant adverse impacts on local water resources other than impingement or entrainment, or significant adverse impacts on local energy markets;

(ii) The alternative requirements must achieve a level of performance as close as practicable to the requirements of paragraphs (d)(1) or (2) of this section;

(iii) The alternative requirements will ensure compliance with other applicable provisions of the Clean Water Act and any applicable requirement of state law;

(iv) The burden is on the owner or operator of the facility requesting the alternative requirement to demonstrate that alternative requirements should be authorized for the new unit.

(5) For cooling water flows specified in paragraph (d) of this section that are



not subject to this standard, the Director may establish additional BTA standards for entrainment mortality on a case by case basis.

(e) *Nuclear facilities.* If the owner or operator of a nuclear facility demonstrates to the Director, upon the Director's consultation with the Nuclear Regulatory Commission, that compliance with this subpart would result in a conflict with a safety requirement established by the Commission, the Director must make a site-specific determination of best technology available for minimizing adverse environmental impact that would not result in a conflict with the Commission's safety requirement.

(f) *More stringent standards.* The Director may establish more stringent requirements as best technology available for minimizing adverse environmental impact if the Director determines that your compliance with the applicable requirements of this section would not meet the requirements of applicable State and Tribal law, or other Federal law.

(g) The owner or operator of a facility subject to this subpart must:

- (1) Submit and retain permit application and supporting information as specified in § 125.95;
- (2) Conduct compliance monitoring as specified in § 125.96; and
- (3) Report information and data and keep records as specified in § 125.97.

**§ 125.95 Permit application and supporting information requirements.**

(a) The Director may waive some or all of the information requirements of 40 CFR 122.21(r)(8), (9), (10), (11), and (12) in the first permit application submitted after [effective date of the final rule] if:

(1) The Director has already made a BTA determination requiring operation commensurate with a closed-cycle recirculating system;

(2) The owner or operator of the facility uses cooling water exclusively for operation of a wet or dry cooling system that meets the definition of closed cycle recirculating system at 40 CFR 125.92; or

(3) The Director determines substantially all of the information requirements specified at 40 CFR 122.21(r)(8), (9), (10), (11), and (12) have already been submitted by the owner or operator.

(b) *Permit application submittal timeframe for existing facilities.* The owner or operator of a facility subject to this subpart must submit to the Director the following according the following schedule:

(1) For existing power producers with a DIF of 50 MGD or above:

(i) Information required in 40 CFR 122.21(r)(2), (r)(3), (r)(4), (r)(5), (r)(6), (r)(7), and (r)(8) must be submitted to the Director no later than six months after [effective date of the final rule].

(ii) Results of the Impingement Mortality Reduction Plan as required in 40 CFR 122.21(r)(6) must be submitted to the Director no later than 3 years and six months after [effective date of the final rule].

(2) For existing power producers with an AIF of greater than 125 MGD:

(i) Information required in 40 CFR 122.21(r)(9)(i), including the Entrainment Mortality Data Collection Plan with peer reviewers identified must be submitted to the Director no later than six months after [effective date of the final rule].

(ii) Information required in 40 CFR 122.21(r)(9)(ii), including the peer reviewed Entrainment Mortality Data Collection Plan, must be submitted to the Director no later than 12 months after [effective date of the final rule].

(iii) Information required in 40 CFR 122.21(r)(9)(iii), including the completed Entrainment Characterization Study, must be submitted to the Director no later than 4 years after [effective date of the final rule].

(iv) Information required in 40 CFR 122.21(r)(10), including the Comprehensive Technical Feasibility and Cost Evaluation Study, 40 CFR 122.21(r)(11), including the Benefits Valuation Study, and 40 CFR 122.21(r)(12), including the Non-water Quality and Other Environmental Impacts Study, must be submitted to the Director no later than 5 years after [effective date of the final rule].

(3) For the owner or operator of all other existing facilities subject to this subpart, with the exception of those facilities identified in § 125.95(b):

(i) Information required in 40 CFR 122.21(r)(2), (r)(3), (r)(4), (r)(5), (r)(6), (r)(7), and (r)(8) must be submitted to the Director no later than three years after [effective date of the final rule].

(ii) Results of the Impingement Mortality Reduction Plan as required in 40 CFR 122.21(r)(6) must be submitted to the Director no later than 6 years after [effective date of the final rule].

(4) For the owner or operator of all other existing facilities subject to this subpart with an actual intake flow (AIF) of greater than 125 MGD, with the exception of those facilities identified in § 125.95(b)(2):

(i) Information required in 40 CFR 122.21(r)(9)(i), including the Entrainment Mortality Data Collection Plan, with peer reviewers identified, must be submitted to the Director no

later than three years after [effective date of the final rule].

(ii) Information required in 40 CFR 122.21(r)(9)(ii), including the peer reviewed Entrainment Mortality Data Collection Plan, must be submitted to the Director no later than three years and six months after [effective date of the final rule].

(iii) Information required in 40 CFR 122.21(r)(9)(iii), including the completed Entrainment Characterization Study, must be submitted to the Director no later than 6 years and six months after [effective date of the final rule].

(iv) Information required in 40 CFR 122.21(r)(10), including the Comprehensive Technical Feasibility and Cost Evaluation Study, 40 CFR 122.21(r)(11), including the Benefits Valuation Study, and 40 CFR 122.21(r)(12), including the Non-water Quality and Other Environmental Impacts Study, must be submitted to the Director no later than 7 years and six months after [effective date of the final rule].

(c) *Permit application submittal timeframe for new units.* For the owner or operator of any new units at existing facilities subject to this subpart:

(1) Information required in 40 CFR 122.21(r)(2), (r)(3), (r)(4) and (r)(6) specific to the new unit must be submitted to the Director 6 months prior to the commencement of operation of the new unit.

(2) *Application requirements.* To demonstrate compliance of the new unit with requirements in § 125.94(b) and (d), you must collect and submit to the Director the information in paragraphs (c)(2)(i), (ii), (iii) and (iv) of this section 6 months prior to the start of facility operations.

(i) *Impingement information.* If you choose to comply with the impingement mortality requirements in § 125.94(b)(1), you must submit a plan to implement a monitoring program as specified in § 125.96(a) upon the start of the new unit operation.

(ii) *Velocity information.* If you choose to comply with the impingement mortality requirements in § 125.94(b)(2), you must submit the following information 6 months prior to the start of facility operations:

(A) A narrative description of the design, structure, equipment, and operation used to meet the velocity requirement; and

(B) Design calculations showing that the velocity requirement will be met at minimum ambient source water surface elevations (based on best professional judgment using available hydrological data) and maximum head loss across the screens or other device.



(iii) *Flow reduction information.* If you choose to comply with the flow reduction requirements in § 125.94(d)(1), you must submit the following information to the Director to demonstrate that you have reduced your flow to a level commensurate with that which can be attained by a closed-cycle recirculating cooling water system:

(A) A narrative description of your system that has been designed to reduce your intake flow to a level commensurate with that which can be attained by a closed-cycle recirculating cooling water system and any engineering calculations, including documentation demonstrating that your make-up and blowdown flows have been minimized consistent with the definition of closed-cycle recirculating system at § 125.92; and

(B) If the flow reduction requirement is met entirely, or in part, by reusing or recycling water withdrawn for cooling purposes in subsequent industrial processes, you must provide documentation that the reused or recycled water, along with other technologies you employ, including additional flow reductions, meets the flow reduction requirement of § 125.94(d)(1) or the entrainment mortality reduction requirement of § 125.94(d)(2).

(iv) *Comprehensive Demonstration Study.* If you choose to comply with the entrainment mortality requirements in § 125.94(d)(2), you must perform and submit the results of a Comprehensive Demonstration Study (Study). This information is required to characterize the source water baseline in the vicinity of the cooling water intake structure(s), characterize operation of the cooling water intake(s), and to confirm that the technology(ies) proposed and/or implemented at your cooling water intake structure reduce the impacts to fish and shellfish to levels comparable to those you would achieve were you to implement the requirements in § 125.94(d)(1). To meet the "comparable level" requirement, you must demonstrate that:

(A) You have reduced entrainment mortality of all life stages of fish and shellfish to 90 percent or greater of the reduction that would be achieved through § 125.94(d)(1); and

(B) You must develop and submit a plan to the Director containing a proposal for how information will be collected to support the study. The plan must include:

(1) A description of the proposed and/or implemented technology(ies) to be evaluated in the Study;

(2) A list and description of any historical studies characterizing the

physical and biological conditions in the vicinity of the proposed or actual intakes and their relevancy to the proposed Study. If you propose to rely on existing source water body data, it must be no more than 5 years old, you must demonstrate that the existing data are sufficient to develop a scientifically valid estimate of potential entrainment impacts, and provide documentation showing that the data were collected using appropriate quality assurance/quality control procedures;

(3) Any public participation or consultation with Federal or State agencies undertaken in developing the plan; and

(4) A sampling plan for data that will be collected using actual field studies in the source water body. The sampling plan must document all methods and quality assurance procedures for sampling, and data analysis. The sampling and data analysis methods you propose must be appropriate for a quantitative survey and based on consideration of methods used in other studies performed in the source water body. The sampling plan must include a description of the study area (including the area of influence of the cooling water intake structure and at least 100 meters beyond); taxonomic identification of the sampled or evaluated biological assemblages (including all life stages of fish and shellfish); and sampling and data analysis methods.

(C) You must submit documentation of the results of the Study to the Director. Documentation of the results of the Study must include:

(1) *Source Water Biological Study.* If your new unit will use a new cooling water intake structure, you must update your Source Water Biological Study to include:

(i) A taxonomic identification and characterization of aquatic biological resources including: a summary of historical and contemporary aquatic biological resources; determination and description of the target populations of concern (those species of fish and shellfish and all life stages that are most susceptible to impingement and entrainment); and a description of the abundance and temporal/spatial characterization of the target populations based on the collection of multiple years of data to capture the seasonal and daily activities (e.g., spawning, feeding and water column migration) of all life stages of fish and shellfish found in the vicinity of the cooling water intake structure;

(ii) An identification of all threatened or endangered species that might be susceptible to entrainment by the

proposed cooling water intake structure(s); and

(iii) A description of additional chemical, water quality, and other anthropogenic stresses on the source waterbody.

(2) *Evaluation of potential cooling water intake structure effects.* This evaluation will include:

(i) Calculations of the reduction in entrainment mortality of all life stages of fish and shellfish that would need to be achieved by the technologies you have selected to implement to meet requirements under § 125.94(d)(1). To do this, you must determine the reduction in entrainment mortality that would be achieved by implementing the requirements of § 125.94(d)(1) at your site.

(ii) An engineering estimate of efficacy for the proposed and/or implemented technologies used to minimize entrainment mortality of all life stages of fish and shellfish. You must demonstrate that the technologies reduce entrainment mortality of all life stages of fish and shellfish to a comparable level to that which you would achieve were you to implement the requirements in § 125.94(d)(1). The efficacy projection must include a site-specific evaluation of technology(ies) suitability for reducing impingement mortality and entrainment based on the results of the Source Water Biological Study of this section. Efficacy estimates may be determined based on case studies that have been conducted in the vicinity of the cooling water intake structure and/or site-specific technology prototype studies.

(3) *Verification monitoring plan.* You must include in the Study the following: A plan to conduct, at a minimum, two years of monitoring to verify the full-scale performance of the proposed or implemented technologies, operational measures. The verification study must begin at the start of operations of the cooling water intake structure and continue for a sufficient period of time to demonstrate that the facility is reducing the level of entrainment to the level documented in paragraph (c)(2) of this section. The plan must describe the frequency of monitoring and the parameters to be monitored. The Director will use the verification monitoring to confirm that you are meeting the level of entrainment mortality reduction required in § 125.94(d), and that the operation of the technology has been optimized.

(d) After the initial submission of the 40 CFR 122.21(r) application studies, the owner or operator of a facility may, in subsequent permit applications, request to reduce the information



required, if conditions at the facility and in the waterbody remain substantially unchanged since the previous application so long as the relevant previously submitted information remains representative of current source water, intake structure, cooling water system, and operating conditions. The owner or operator of a facility must submit its request for reduced cooling water intake structure and waterbody application information to the Director at least one year prior to the expiration of its NPDES permit. The owner or operator's request must identify each element in this subsection that it determines has not substantially changed since the previous permit application and the basis for the determination. The Director has the discretion to accept or reject any part of the request.

(e) After issuance of the first permit pursuant to this subpart, the owner or operator of a facility must:

(1) Commence information collection activities pursuant to this subsection no later than eighteen months prior to permit expiration;

(2) Submit all required 40 CFR 122.21(r) application studies, or the reduced permit application studies if approved by the Director under § 125.95, to the Director no later than six months prior to permit expiration.

(f) The Director has the discretion to request or determine additional information to supplement the permit application process, including inspection of the facility.

(g) *Permit application records.* The owner or operator of a facility must keep records of all submissions that are part of its permit application for a minimum of 5 years to document compliance with the requirements of this section. If the Director approves a request for reduced permit application studies under § 125.95(d), the owner or operator of a facility must keep records of all submissions that are part of the previous permit application for an additional 5 years.

#### § 125.96 Monitoring requirements.

(a) *Monitoring requirements for impingement mortality.* The owner or operator of an existing facility subject to § 125.94(b) must monitor as follows:

(1) Permit compliance monitoring is required at each intake, or where appropriate other points of compliance as approved by the Director including but not limited to forebays, barrier nets, or fish handling and return systems, to demonstrate compliance with the impingement mortality limitations listed in § 125.94(b).

(2) You must collect samples to monitor impingement rates (simple enumeration) for each species over a 24-hour period and no less than once per month when the cooling water intake structure is in operation.

(3) If the Director has approved a compliance alternative provided under § 125.94(b)(2), the monitoring requirement in paragraphs (a)(1) and (a)(2) of this section is waived.

(4) *Compliance monitoring for intake velocity.* If your facility is subject to § 125.94(b)(2) and you cannot document a design intake flow for the intake equal to or less than 0.5 feet per second under all conditions, including during minimum ambient source water surface elevations (based on BPJ using hydrological data) and maximum head loss across the screens, compliance monitoring is required to demonstrate the intake velocity is consistent with the requirements of § 125.94(b)(2). The frequency of monitoring must be no less than twice per week.

(b) *Monitoring requirements for entrainment mortality for new units.* Monitoring is required to demonstrate compliance with the requirements of § 125.94(d).

(1) If you are required to demonstrate flow reductions consistent with the requirements of § 125.94(d)(1), the frequency of monitoring must be no less than once per week and must be representative of normal operating conditions. Flow monitoring must include measuring cooling water withdrawals, make-up water, and blowdown volume. The Director may require additional monitoring necessary to demonstrate compliance with § 125.94(d).

(2) If you are required to demonstrate reductions consistent with the requirements of § 125.94(d)(2), you must monitor entrainable organisms that pass through a 3/8-inch sieve at a proximity to the intake that is representative of the entrainable organisms in the absence of the intake structure. You must also monitor the latent entrainment mortality in front of the intake structure. Mortality after passing the cooling water intake structure must be counted as 100 percent mortality unless you have demonstrated to the approval of the Director that the mortality for each species of concern is less than 100 percent. Samples must be representative of the cooling water intake when the structure is in operation. In addition, sufficient samples must be collected to allow for calculation of annual average entrainment levels of all life stages of fish and shellfish. Specific sampling protocols and frequency of sampling will be determined by the Director. The

sampling must measure the total count of entrainable organisms or density of organisms, unless the Director approves of a different metric for such measurements. In addition, you must monitor the AIF for each intake. The AIF must be measured at the same time as the samples of entrainable organisms are collected. The Director may require additional monitoring necessary to demonstrate compliance with § 125.94(d).

(c) *Visual or remote inspections.* You must either conduct visual inspections or employ remote monitoring devices during the period the cooling water intake structure is in operation. You must conduct such inspections at least weekly to ensure that any technologies installed to comply with § 125.94 are maintained and operated to ensure that they will continue to function as designed. The Director may establish alternative procedures for use during periods of inclement weather.

#### § 125.97 Other permit reporting and recordkeeping requirements.

The owner or operator of an existing facility subject to this subpart is required to submit to the Director the following information:

(a) *Monitoring reports.* You must include the applicable impingement mortality and entrainment mortality monitoring reports with both your Discharge Monitoring Reports (DMRs) (or equivalent State reports) and your permit annual report to the Director.

(1) *Impingement mortality.* If you intend to comply with the Impingement Mortality requirements by biological measurements, your report must describe the compliance measurement location for each intake, the species of concern, the counts and percentage mortality of organisms sampled, the time period for evaluating latent mortality effects, and other information specified in the permit. If you intend to comply with the Impingement Mortality requirements by demonstrating an intake velocity of less than 0.5 feet per second, your report must describe the compliance measurement location for each intake, the method for velocity measurements, the intake velocity measurements and calculations, and other information specified in the permit.

(2) *Impingement mortality compliance monitoring.* Your report must contain impingement mortality compliance monitoring data to document compliance with the requirements of § 125.94(b) for each intake. If you intend to comply with the Impingement Mortality requirements by biological measurements, you must also



update and submit your calculated annual average for each month covered by the report. The annual average comprises the average for all measurements taken during the preceding 12-month period.

(3) *Entrainment mortality at existing facilities.* The Director will determine what (if any) other reporting requirements are necessary.

(4) *Entrainment mortality for new units at existing facilities.* The owner or operator of a facility complying with § 125.94(d) must describe the compliance measurement location for the facility, the species of concern, the counts and percentage mortality of organisms sampled, and other information specified in the permit.

(5) *Entrainment mortality compliance monitoring for new units at existing facilities.* The owner or operator of a facility must submit monthly reports containing compliance monitoring data to document compliance with the requirements of § 125.94(d)(1) or (d)(2).

(i) For compliance with § 125.94(d)(1), flow measurements of water withdrawn for make-up and blowdown.

(ii) For compliance with § 125.94(d)(2), measurements of entrainment mortality, and your monthly actual intake flow. You must also update and submit your calculated annual average of entrainment mortality. The annual average comprises the average for all measurements taken during the preceding 12-month period.

(b) *Status reports.* If you have a schedule established under § 125.93 you must submit a quarterly status report as to the progress of meeting the applicable standards. These reports may include updates on pilot study results, construction schedules, maintenance outages, or other appropriate topics.

(c) *Annual certification statement and report.* You must submit an annual certification statement signed by the responsible corporate officer as defined in 40 CFR 403.12(l) or 40 CFR 122.22. This statement must include, at a minimum the following information:

(1) An annual certification statement which indicates that each technology as approved by the Director is being maintained and operated as set forth in its permit, or a justification to allow modification of the practices listed in the facility's most recent annual certification.

(2) If your facility is subject to BTA standards for impingement mortality or entrainment mortality specified in § 124.94(b)(2) or (d)(2), you must include a statement in your annual certification that specifies the information submitted in your most recent annual certification is still valid

and appropriate or a justification to allow modification of the practices listed in the most recent annual certification.

(i) If you cannot document that you are operating a closed-cycle recirculating system, you must also submit data and information in the annual certification statement documenting compliance with the requirement in § 124.94(d)(1) that flow commensurate with a closed-cycle recirculating system is met.

(ii) If your facility is subject to the Impingement Mortality Standard specified in § 125.94(b)(2) and you cannot document a design intake velocity for the intake equal to or less than 0.5 feet per second, you must also submit data and information in the annual certification documenting compliance with the intake velocity requirements.

(3) If the information contained in the previous year's annual certification is still applicable, you may simply state as such in a letter to the Director, and the letter, along with any applicable data submission requirements specified in this section shall constitute the annual certification. However, if you have substantially modified operation of any unit at your facility that impacts cooling water withdrawals or operation of your cooling water intake structures, you must submit revisions to the information required in the permit application.

(d) *Permit reporting records retention.* You must keep records of all submissions that are part of the permit reporting requirements of this section for a period of at least five (5) years from the date of permit issuance.

(e) The Director has the discretion to require additional supplemental permit reporting when necessary to establish permit compliance and may provide for periodic inspection of the facility.

#### § 125.98 Director requirements.

(a) *Permit application.* The Director must review the materials submitted on a timely basis by the applicant under § 122.21(r) before each permit renewal or reissuance to determine compliance with all applicable requirements. The Director is encouraged to provide comments expeditiously so that the permit applicant may modify its information gathering activities and provide any necessary supplemental materials.

(b) *Alternate schedule.* When the Director establishes an alternate schedule under § 125.93, the schedule must provide for compliance as expeditiously as possible. In no event may the schedule provide for

compliance beyond the dates specified in § 125.93. In establishing the schedule, the Director is encouraged to consider the extent to which those technologies proposed to be implemented to meet the requirements of § 125.94(c) and/or (d) will be used, or may otherwise affect choice of technology(ies), to meet the requirements of § 125.94(b). When establishing a schedule for electric power generating facilities, the Director should consider measures to maintain adequate energy reliability and necessary grid reserve capacity during any facility outage. These may include establishing a staggered schedule for multiple facilities serving the same localities. The Director may consult with local and regional electric power agencies when establishing a schedule for electric power generating facilities. The Director may determine that extenuating circumstances (e.g., lengthy scheduled outages, future production schedules) warrant establishing a different compliance date for any manufacturing facility. In no event may the schedule provide for compliance beyond the dates specified in § 125.93.

(c) *Species of concern.* The Director must review and approve the species of fish and shellfish identified as species of concern, including but not limited to:

(1) Any species of concern identified using the source water baseline biological characterization data submitted under 40 CFR 122.21(r)(4);

(2) Any fish and shellfish identified for evaluation under § 125.94;

(3) Data submitted as part of the impingement mortality reduction plan under 40 CFR 122.21(r)(6);

(4) Data submitted as part of the site-specific entrainment mortality data collection plan under 40 CFR 122.21(r)(9);

(5) The Director may request additional information in determining the site-specific species of concern and any additional fish and shellfish to be included in the impingement mortality reduction plan and, where applicable, the entrainment mortality data collection plan;

(6) The Director may determine invasive species, naturally moribund species, and other specific species may be excluded from any monitoring, sampling, or study requirements of 40 CFR 122.21 and § 125.94.

(7) The Director may consider data submitted by other interested parties.

(d) *Site-specific impingement mortality reduction plan.* The Director must review and approve the site-specific Impingement Mortality Reduction Plan required under 40 CFR 122.21(r)(6). The plan must include, at a minimum, the duration and frequency



of required monitoring, the monitoring location, the organisms to be monitored and, where appropriate, the method in which naturally moribund organisms would be identified and taken into account.

(e) *Site-specific entrainment mortality controls.* The Director must establish case-by-case BTA standards for entrainment mortality for any facility subject to such requirements after reviewing the information submitted under 40 CFR 122.21(r) and § 125.95. These entrainment mortality controls must reflect the Director's determination of the maximum reduction in entrainment mortality warranted after consideration of factors relevant for determining the best technology available at each facility. Prior to any permit renewal, the Director must review the performance of the entrainment mortality technologies used and determine that they continue to meet the BTA requirements of § 125.94(c). The Director must provide a written explanation of the proposed BTA determination in the fact sheet pursuant to 40 CFR 124.8 (or statement of basis pursuant to 40 CFR 124.7) for the proposed permit. The written explanation must describe why the Director has rejected any entrainment mortality control technologies or measures that are better performing than the selected technologies or measures, and must reflect consideration of all reasonable attempts to mitigate any adverse impacts of otherwise available better performing entrainment technologies. The Director may reject an otherwise available technology as BTA standards for entrainment mortality if the social costs of compliance are not justified by the social benefits, or if there are adverse impacts that cannot be mitigated that the Director deems to be unacceptable. If all technologies

considered have social costs not justified by the social benefit, or have unacceptable adverse impacts that cannot be mitigated, the Director may determine that no additional control requirements are necessary beyond what the facility is already doing. At a minimum, the proposed determination in the fact sheet or statement of basis must be based on consideration of the following factors:

- (1) Numbers and types of organisms entrained;
- (2) Entrainment impacts on the waterbody;
- (3) Quantified and qualitative social benefits and social costs of available entrainment technologies, including ecological benefits and benefits to any threatened or endangered species;
- (4) Thermal discharge impacts;
- (5) Impacts on the reliability of energy delivery within the immediate area;
- (6) Impact of changes in particulate emissions or other pollutants associated with entrainment technologies;
- (7) Land availability inasmuch as it relates to the feasibility of entrainment technology; and
- (8) Remaining useful plant life; and
- (9) Impacts on water consumption.

(f) *Ongoing permitting proceedings.* Where ongoing permit proceedings have begun prior to [effective date of the final rule] and the Director has determined that the information already submitted by the owner or operator of the facility is substantially the same as required under 40 CFR 122.21(r)(9), (10), (11) and (12), the Director may proceed with any site-specific determination of BTA standards for entrainment mortality without requiring the owner or operator of the facility to resubmit the information required in 40 CFR 122.21(r)(9), (10), (11) and (12), and the Director may choose to address the factors specified in § 125.98(e). If the

Director has received permit application information from the owner or operator of the facility, and the Director has determined that the information is substantially the same as required under 40 CFR 122.21(r)(9), (10), (11) and (12) but the Director has not yet made a BTA standards for entrainment mortality determination, the Director must address the factors specified in § 125.98 (e). In all subsequently issued permits for that facility the Director must address the factors specified in § 125.98 (e).

(g) *Site-specific entrainment mortality data collection plan and studies.* The Director must review and approve the site-specific entrainment mortality data collection plan for new units at existing facilities. The plan must include, at a minimum, the duration and frequency of monitoring, the monitoring location, the organisms to be monitored, and the method in which latent mortality would be identified. The Director may require the owner or operator of a facility to include additional peer reviewers for the entrainment mortality data collection plan, the comprehensive technical feasibility and cost evaluation study, the benefits valuation study, and the non-water quality and other environmental impacts assessment.

(h) *Annual certification statement.* The Director must review and verify the Annual Certification Statement required under § 125.97(c).

(i) *Additional information.* In implementing the Director's responsibilities under this provision, the Director is authorized to request additional necessary information and to inspect the facility.

#### § 125.99 [Reserved]

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