ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 9, 122, 123, 124, and 125

[OW–2004–0002, FRL–7834–7]

RIN 2040–AD70

National Pollutant Discharge Elimination System—Proposed Regulations To Establish Requirements for Cooling Water Intake Structures at Phase III Facilities

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: Today's proposed rule would establish national categorical requirements under section 316(b) of the Clean Water Act for certain existing facilities that employ a cooling water intake structure and are designed to withdraw water above a certain design intake flow from certain waters of the United States for cooling purposes. Today's notice proposes three possible options for defining which existing facilities would be subject to uniform national requirements, based on design intake flow threshold and source waterbody type: The facility has a total design intake flow of 50 million gallons per day (MGD) or more, and withdraws from any waterbody; the facility has a total design intake flow of 200 MGD or more, and withdraws from any waterbody; or the facility has a total design intake flow of 100 MGD or more and withdraws water specifically from an ocean, estuary, tidal river, or one of the Great Lakes. Because the lowest co-proposed flow threshold option is 50 MGD, the proposed requirements would only apply to manufacturing facilities—as power producers with a flow greater than 50 MGD are regulated under the Phase II rule. This proposed rule would constitute Phase III of EPA's section 316(b) regulation development and would establish national requirements, and procedures for implementing those requirements, applicable to the location, design, construction, and capacity of cooling water intake structures at Phase III facilities. Today's proposed rule would also establish categorical section 316(b) requirements for new offshore oil and gas extraction facilities, which were specifically excluded from the scope of the Phase I new facility rule so that EPA could gather additional data on these facilities. The proposed rule would apply to both existing manufacturers and new offshore oil and gas extraction facilities that withdraw at least 25 percent of the water exclusively for cooling purposes.

The proposed national requirements, which would be implemented through National Pollutant Discharge Elimination System (NPDES) permits, are based on the best technology available to minimize the adverse environmental impact associated with the use of cooling water intake structures. For covered existing facilities, today's proposed rule would establish performance standards for reducing impingement mortality by 80 to 95 percent, or impingement mortality by 80 to 95 percent and entrainment by 60 to 90 percent. Today's proposal would allow existing facilities to select from five compliance alternatives consistent with those provided in the final Phase II rule for existing large flow electric power generators. Once finalized and implemented, the rule would minimize the adverse environmental impact of cooling water intake structures by reducing the number of aquatic organisms lost as a result of water withdrawals associated with these structures.

Today's proposed rule does not propose to alter the regulatory requirements for facilities subject to the Phase I or Phase II regulations, and EPA is not soliciting comment on those regulations. EPA is only seeking comment on the proposed regulations for Phase III existing facilities and new offshore oil and gas facilities, as reflected in the proposed regulatory text for subparts K and N. Depending on the options selected in the final section 316(b) regulation for Phase III facilities, EPA may decide to integrate the regulatory text for subparts K and N proposed today into the existing subparts I and J, for purposes of streamlining the number of pages for publication.

DATES: Comments must be received on or before March 24, 2005.

ADDRESSES: Submit your comments, identified by Docket ID No. OW–2004–0002, by one of the following methods:

I. Federal eRulemaking Portal: *http://www.regulations.gov*. Follow the on-line instructions for submitting comments.

II. Agency Web site: *http://www.epa.gov/edocket*. EDOCKET, EPA's electronic public docket and comment system, is EPA's preferred method for receiving comments. Follow the on-line instructions for submitting comments.

III. E-mail: *OW–Docket@epa.gov*.

IV. Mail: Water Docket, Environmental Protection Agency, Mailcode: 4101T, 1200 Pennsylvania Ave., NW., Washington, DC 20460, Attention Docket ID No. OW–2004–0002. Please include a total of 3 copies. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), Attn: Desk Officer for EPA, 725 17th St. NW., Washington, DC 20503.

V. Hand Delivery: Water Docket, EPA Docket Center, EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC, Attention Docket ID No. OW–2004–0002. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions: Direct your comments to Docket ID No. OW–2004–0002. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *http://www.epa.gov/edocket,* including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through EDOCKET, regulations.gov, or e-mail. The EPA EDOCKET and the regulations.gov websites are ''anonymous access'' systems, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through EDOCKET or regulations.gov, your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket visit EDOCKET on-line or see the **Federal Register** of May 31, 2002 (67 FR 38102). For additional instructions on submitting comments, go to section B of the **SUPPLEMENTARY INFORMATION** section of this document.

Docket: All documents in the docket are listed in the EDOCKET index at *http://www.epa.gov/edocket.* Although listed in the index, some information is not publicly available, *i.e.*, CBI or other

information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically in EDOCKET or in hard copy at the Water Docket, EPA/DC, EPA West, Room B102, 1301 Constitution Ave., NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Water Docket is (202) 566–2426.

FOR FURTHER INFORMATION CONTACT: For additional technical information contact Martha Segall at (202) 566–1041 or Paul Shriner at (202) 566–1076. For economic information, contact Erik Helm at (202) 566–1066. For biological information contact Ashley Allen at (202) 566–1012. The address for the above contacts is: Office of Science and Technology, Engineering Analysis Division (Mailcode 4303T), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460; fax number: (202) 566–1053; e-mail address: *rule.316b@epa.gov*.

SUPPLEMENTARY INFORMATION:

General Information

A. What Entities Are Regulated by This Action?

This proposed rule would apply to ''Phase III existing facilities''—*i.e.*, certain existing manufacturing and industrial facilities that are: (1) Point sources; (2) use or propose to use one or more cooling water intake structures; (3) are designed to withdraw water above a certain threshold from certain waters of the U.S. (the flow threshold would differ depending on the regulatory option selected in the final rule); and (4) use at least 25 percent of water withdrawn exclusively for cooling purposes. Depending on the regulatory option selected, the facility would be subject to these national requirements if it had a design intake flow of: (1) 50 MGD or more from any waterbody; (2) 200 MGD or more from any waterbody; or (3) 100 MGD or more from an ocean, estuary, tidal river, or one of the Great Lakes. This proposed rule would define ''existing facility'' as any manufacturing or industrial facility that commenced construction on or before January 17, 2002 (or [60 days from publication of the final rule] for an offshore oil and gas extraction facility), and any modification of, or any addition of a unit at such a facility that does not meet the definition of a new facility at § 125.83.

This proposed rule would also apply to new offshore and coastal oil and gas extraction facilities, which were specifically excluded from the Phase I new facility rule. An offshore and coastal oil and gas extraction facility is new if construction commenced after 60 days from publication of the final rule. Exhibit 1 provides examples of industrial facility types potentially regulated by this proposed rule.

EXHIBIT 1.—EXAMPLES OF INDUSTRIAL FACILITY TYPES POTENTIALLY REGULATED BY THIS PROPOSED RULE

Category	Examples of potentially regulated entities	Standard industrial classification codes	North American industry codes (NAIC)
Federal, State and local government.	Operators of steam electric generating point source dischargers that employ cooling water intake structures.	4911 and 493	221111, 221112, 221113, 221119, 221121, 221122
Industry	Operators of industrial point source dischargers that employ cooling water intake structures..	See below	See below
	Agricultural production	0133	111991, 11193
	Metal mining	1011	21221
	Oil and gas extraction	1311, 1321	211111, 211112
	Mining and quarrying of nonmetallic minerals	1474	212391
	Food and kindred products	2046, 2061, 2062, 2063, 2075, 2085.	311221, 311311, 311312, 311313, 311222, 311225, 31214
	Tobacco products	2141	312229, 31221
	Textile mill products	2211	31321
	Lumber and wood products, except furniture	2415, 2421, 2436, 2493	321912,321113, 321918, 321999, 321212, 321219
	Paper and allied products	2611, 2621, 2631, 2676	3221, 322121, 32213, 322121, 322122, 32213, 322291
	Chemical and allied products	28 (except 2895, 2893, 2851, and 2879).	325 (except 325182, 32591, 32551, 32532)
	Petroleum refining and related industries	2911, 2999	32411, 324199
	Rubber and miscellaneous plastics products	3011, 3069	326211, 31332, 326192, 326299
	Stone, clay, glass, and concrete products	3241	32731
	Primary metal industries	3312, 3313, 3315, 3316, 3317, 3334, 3339, 3353, 3363, 3365, 3366.	324199, 331111, 331112, 331492, 331222, 332618, 331221, 22121, 331312, 331419, 331315, 331521, 331524, 331525
	Fabricated metal products, except machinery and transportation equipment.	3421, 3499	332211, 337215, 332117, 332439, 33251, 332919, 339914, 332999
	Industrial and commercial machinery and computer equipment.	3523, 3531	333111, 332323, 332212, 333922, 22651, 333923, 33312
	Transportation equipment	3724, 3743, 3764	336412, 333911, 33651, 336416

EXHIBIT 1.—EXAMPLES OF INDUSTRIAL FACILITY TYPES POTENTIALLY REGULATED BY THIS PROPOSED RULE—Continued

Category	Examples of potentially regulated entities	Standard industrial classification codes	North American industry codes (NAIC)
	Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks.	3861	333315, 325992
	Electric, gas, and sanitary services	4911, 4931, 4939, 4961	221111, 221112, 221113, 221119, 221121, 221122, 22121, 22133
	Educational services	8221	61131
	Engineering, accounting, research, management and related services.	8731	54171

This exhibit is not intended to be exhaustive, but rather provides a guide for readers regarding entities that may be regulated by this action if they satisfy the final flow threshold and waterbody type criteria. This exhibit lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the exhibit could also be regulated. To determine whether your facility is regulated by this action, you should carefully examine the applicability criteria in § 125.101 and § 125.131 of this proposal. If you have questions regarding the applicability of this action to a particular entity, consult the persons listed for technical information in the **FOR FURTHER INFORMATION CONTACT** section.

B. What Should I Consider as I Prepare My Comments for EPA?

1. Submitting Confidential Business Information (CBI). Do not submit information that you consider to be CBI electronically through EPA's electronic public docket or by e-mail. Send information claimed as CBI by mail only to the following address, Office of Science and Technology, Mailcode 4303T, U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460, Attention: Ahmar Siddiqui /Docket ID No. OW–2004–0002. You may claim information that you submit to EPA as CBI by marking any part or all of that information as CBI (if you submit CBI on disk or CD ROM, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is CBI). Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR Part 2. In addition to one complete version of the comment that includes any information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket and EPA's electronic public docket. If you submit the copy that does not contain CBI on disk or CD ROM, mark the outside of the disk or CD ROM clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and EPA's electronic public docket without prior notice. If you have any questions about CBI or the procedures for claiming CBI, please consult the person identified in the **FOR FURTHER INFORMATION CONTACT** section.

2. Tips for Preparing Your Comments. When submitting comments, remember to:

I. Identify the rulemaking by docket number and other identifying information (subject heading, **Federal Register** date and page number).

II. Follow directions—The agency may ask you to respond to specific questions or organize comments by referencing a Code of Federal Regulations (CFR) part or section number.

III. Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.

IV. Describe any assumptions and provide any technical information and/or data that you used.

IV. If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.

V. Provide specific examples to illustrate your concerns, and suggest alternatives.

VI. Explain your views as clearly as possible, avoiding the use of profanity or personal threats.

VII. Make sure to submit your comments by the comment period deadline identified.

C. Supporting Documentation

The proposed regulation is supported by three major documents:

1. Economic Analysis for the Proposed Section 316(b) Rule for Phase III Facilities (EPA–821–R–04–016), hereafter referred to as the Economic Analysis (EA). This document presents the analysis of compliance costs, closures, energy supply effects, and benefits associated with the final rule.

2. Regional Benefits Assessment for the Proposed Section 316(b) Rule for Phase III Facilities (EPA–821–R–04–017), hereafter referred to as the Regional Analysis Document or the Regional Study(ies) Document. This document examines cooling water intake structure impacts and regulatory benefits at the regional level.

3. Technical Development Document for the Proposed Section 316(b) Rule for Phase III Facilities (EPA–821–R–04–015), hereafter referred to as the Technical Development Document. This document presents detailed information on the methods used to develop unit costs and describes the set of technologies that may be used to meet the final rule's requirements.

D. Table of Contents

I. Legal Authority, Purpose, and Background of Today's Regulation

A. Legal Authority

Today's proposed rule is issued under the authority of sections 101, 301, 304, 306, 308, 316, 401, 402, 501, and 510 of the Clean Water Act, 33 U.S.C. 1251, 1311, 1314, 1316, 1318, 1326, 1341, 1342, 1361, and 1370. Publication of this proposed rule fulfills an obligation of the U.S. Environmental Protection Agency (EPA) under a consent decree in *Riverkeeper, Inc.* v. *Leavitt,* No. 93 Civ. 0314, (S.D.N.Y).

B. Purpose of Today's Proposed Regulation

Section 316(b) of the Clean Water Act provides that any standard established pursuant to section 301 or 306 of the Clean Water Act and applicable to a point source must require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. Today's proposed rule would establish requirements reflecting the best technology available for minimizing adverse environmental impact, applicable to the location, design, construction, and capacity of cooling water intake structures at Phase III facilities (Phase I and Phase II are described in section I. C of today's preamble). Today's notice proposes the following three possible options for defining which existing facilities would be subject to categorical national requirements based on the design intake flow of cooling water intake structures at a facility and waterbody type: (1) The facility has a total design intake flow of 50 million gallons per day (MGD) or more and withdraws from any waterbody; (2) the facility has a total design intake flow of 200 MGD or more and withdraws from any waterbody; or (3) the facility has a total design intake flow of 100 MGD or more and withdraws water specifically from an ocean, estuary, tidal river, or one of the Great Lakes. Today's notice also proposes a design intake flow threshold of greater than 2 MGD for new offshore oil and gas extraction facilities consistent with the design intake flow threshold for new facilities in the Phase I rule. Under each of these co-proposed regulatory options, a Phase III facility must use at least 25 percent of the water withdrawn exclusively for cooling purposes and meet other specified criteria in order to be within the scope of the rule (*see* Section II—Scope and Applicability of Proposed Rule).

C. Background

1. The Clean Water Act

The Federal Water Pollution Control Act, also known as the Clean Water Act (CWA), 33 U.S.C. 1251 *et seq.*, seeks to ''restore and maintain the chemical, physical, and biological integrity of the nation's waters.'' 33 U.S.C. 1251(a). The Clean Water Act establishes a comprehensive regulatory program, key elements of which are: (1) A prohibition on the discharge of pollutants from point sources to waters of the United States, except as authorized by the statute; (2) authority for EPA or authorized States or Tribes to issue National Pollutant Discharge Elimination System (NPDES) permits that regulate the discharge of pollutants; and, (3) requirements for limitations in NPDES permits based on effluent limitations guidelines and standards and water quality standards.

Section 316(b) addresses the adverse environmental impact caused by the intake of cooling water, not discharges into water. Despite this special focus, the requirements of section 316(b) are closely linked to several of the core elements of the NPDES permit program established under section 402 of the Clean Water Act to control discharges of pollutants into navigable waters. For example, while effluent limitations apply to the discharge of pollutants by NPDES-permitted point sources to waters of the United States, section 316(b) applies to facilities subject to NPDES requirements that withdraw water from waters of the United States for cooling and that use a cooling water intake structure to do so.

Section 402 of the Clean Water Act provides authority for EPA or an authorized State or Tribe to issue an NPDES permit to any person discharging any pollutant or combination of pollutants from a point source into waters of the United States. Forty-five States and one U.S. territory are currently authorized under section 402(b) to administer the NPDES permitting program. NPDES permits restrict the types and amounts of pollutants, including heat, that may be discharged from various industrial, commercial, and other sources of wastewater. These permits control the discharge of pollutants primarily by requiring dischargers to meet effluent limitations established pursuant to section 301 or section 306. Effluent

limitations may be based on Federal effluent limitations guidelines, new source performance standards, or the best professional judgment of the permit writer. Limitations based on these guidelines, standards, or best professional judgment are known as technology-based effluent limits. Where technology-based effluent limits are inadequate to ensure attainment of water quality standards applicable to the receiving water, section 301(b)(1)(C) of the Clean Water Act requires permits to include more stringent limits based on applicable water quality standards. NPDES permits also routinely include monitoring and reporting requirements, standard conditions, and special conditions. In addition, NPDES permits contain conditions to implement the requirements of section 316(b). Section 301 of the Clean Water Act prohibits the discharge of any pollutant by any person, except in compliance with specified statutory requirements, including section 402.

Section 510 of the Clean Water Act provides that, except as provided in the Clean Water Act, nothing in the Act shall preclude or deny the right of any State or political subdivision thereof to adopt or enforce any requirement respecting control or abatement of pollution; except that if a limitation, prohibition or standard of performance is in effect under the Clean Water Act, such State or political subdivision may not adopt or enforce any other limitation, prohibition or standard of performance which is less stringent than the limitation, prohibition or standard of performance under the Act. EPA interprets this to reserve for the States authority to implement requirements that are more stringent than the Federal requirements under State law. *PUD No. 1 of Jefferson County. Washington Dep't of Ecology*, 511 U.S. 700, 705 (1994).

Sections 301, 304, and 306 of the Clean Water Act require that EPA develop technology-based effluent limitations guidelines and new source performance standards that are used as the basis for technology-based minimum discharge requirements in wastewater discharge permits. EPA issues these effluent limitations guidelines and standards for categories of industrial dischargers based on the pollutants of concern discharged by the industry, the degree of control that can be attained using various levels of pollution control technology, consideration of economics, as appropriate to each level of control, and other factors identified in sections 304 and 306 of the Clean Water Act (such as non-water quality environmental impacts including energy impacts). EPA has promulgated regulations setting effluent limitations guidelines and standards under sections 301, 304, and 306 of the Clean Water Act for more than 50 industries. See 40 CFR 405 through 471. EPA has established effluent limitations guidelines and standards that apply to most of the industry categories that use cooling water intake structures (*e.g.*, steam electric power generation, iron and steel manufacturing, pulp and paper manufacturing, petroleum refining, and chemical manufacturing).

Section 316(b) states, in full:

> Any standard established pursuant to section 301 or section 306 of [the Clean Water] Act and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

The phrase ''best technology available'' in Clean Water Act section 316(b) is not defined in the statute, but its meaning can be understood in light of similar phrases used elsewhere in the Clean Water Act. See *Riverkeeper* v. *EPA*, slip op. at 11 (2nd Cir. Feb. 3, 2004) (noting that the cross-reference in Clean Water Act section 316(b) to Clean Water Act section 306 ''is an invitation to look at section 306 for guidance in determining what factors Congress intended the EPA to consider in determining 'best technology available' for new sources.'').

In sections 301 and 306, Congress directed EPA to set effluent discharge standards for new sources based on the ''best available demonstrated control technology'' and for existing sources based on the ''best available technology economically achievable.'' For new sources, section 306(b)(1)(B) directs EPA to establish ''standards of performance.'' The phrase ''standards of performance'' under section 306(a)(1) is defined as being the effluent reduction that is ''achievable through application of the best available demonstrated control technology, processes, operating methods or other alternatives. * * *'' This is commonly referred to as ''best available demonstrated technology'' or ''BADT.'' For existing dischargers, section 301(b)(1)(A) requires the establishment of effluent limitations based on ''the application of best practicable control technology currently available.'' This is commonly referred to as ''best practicable technology'' or ''BPT.'' Further, section 301(b)(2)(A) directs EPA to establish effluent limitations for certain classes of pollutants ''which shall require the application of the best available technology economically achievable.'' This is commonly referred to as ''best available technology'' or ''BAT.'' Section 301 specifies that both BPT and BAT limitations must reflect determinations made by EPA under Clean Water Act section 304. Under these provisions, the limitations on the discharge of pollutants from point sources are based upon the capabilities of the equipment or ''control technologies'' available to control those discharges.

The phrases ''best available demonstrated technology'' and ''best available technology''—like ''best technology available'' in Clean Water Act section 316(b)—are not defined in the statute. However, section 304 of the Clean Water Act specifies factors to be considered in establishing the best practicable control technology currently available and best available technology.

For best practicable control technology currently available, the Clean Water Act directs EPA to consider:

> the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application, and shall also take into account the age of the equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact (including energy requirements), and such other factors as [EPA] deems appropriate.

33 U.S.C. 1314(b)(1)(b).

For ''best available technology,'' the Clean Water Act directs EPA to consider:

> the age of equipment and facilities involved, the process employed, the engineering aspects * * * of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impacts (including energy requirements), and such other factors as [EPA] deems appropriate.

33 U.S.C. 1314(b)(2)(B).

Section 316(b) expressly refers to section 301, and the phrase ''best technology available'' is very similar to ''best available technology'' in that section. These facts, coupled with the brevity of section 316(b) itself, prompted EPA to look to section 301 and, ultimately, section 304 for guidance in determining the ''best technology available to minimize adverse environmental impact'' of cooling water intake structures for existing Phase II facilities.

By the same token, however, there are significant differences between section 316(b) and sections 301 and 304. *See Riverkeeper, Inc.* v. *United States Environmental Protection Agency*, slip op. at 13 (2nd Cir. Feb. 3, 2004) (''not every statutory directive contained [in

sections 301 and 306] is applicable'' to a section 316(b) rulemaking). Section 316(b) requires that cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. In contrast to the effluent limitations provisions, the object of the ''best technology available'' is explicitly articulated by reference to the receiving water: To minimize adverse environmental impact in the waters from which cooling water is withdrawn. This difference is reflected in EPA's past practices in implementing sections 301, 304, and 316(b). While EPA has established effluent limitations guidelines based on the efficacy of one or more technologies to reduce pollutants in wastewater, considering costs, but without necessarily considering the impact on the receiving waters, EPA has previously considered the costs of technologies in relation to the benefits of minimizing adverse environmental impact in establishing section 316(b) limits. *In Re Public Service Co. of New Hampshire,* 10 ERC 1257 (June 17, 1977); *In Re Public Service Co. of New Hampshire,* 1 EAD 455 (Aug. 4, 1978); *Seacoast Anti-Pollution League* v. *Costle,* 597 F. 2d 306 (1st Cir. 1979).

For this Phase III rulemaking, EPA therefore interprets Clean Water Act section 316(b) as authorizing EPA to consider not only technologies but also their effects on and benefits to the water from which the cooling water is withdrawn. Based on these two considerations, today's proposed rule establishes national requirements for facilities to install technology, as appropriate, that is technically available, economically practicable, cost-effective, and justified by the benefits to the source waterbody.

At this time, EPA is co-proposing all three options discussed above because it sees advantages to each. EPA is also considering an alternative under which EPA would not promulgate, at this time, categorical requirements under section 316(b) for cooling water intake structures unregulated by Phase I and Phase II. Rather, EPA would continue to rely on the best professional judgment of the permitting authority to determine the best technology available to minimize adverse environmental impact, in order to allow these requirements to be better tailored to local conditions.

2. Consent Decree

Publication of this proposal fulfills one of EPA's obligations to comply with a consent decree, as amended. The Second Amended Consent Decree, which is relevant to today's proposed rule, was filed on November 25, 2002, in the United States District Court, Southern District of New York, in *Riverkeeper, Inc.* v. *Leavitt,* No. 93 Civ 0314 (AGS). That case was brought against EPA by a coalition of individuals and environmental groups. The original Consent Decree, filed on October 10, 1995, provided that EPA was to propose regulations implementing section 316(b) by July 2, 1999, and take final action with respect to those regulations by August 13, 2001. Under subsequent interim orders, the Amended Consent Decree filed on November 22, 2000, and the Second Amended Consent Decree, EPA divided the rulemaking into three phases. EPA took final action on a rule governing cooling water intake structures used by new facilities (Phase I) on November 9, 2001 (66 FR 65255, December 18, 2001). EPA took final action on a rule governing cooling water intake structures used by large existing power producers (Phase II) on February 16, 2004 (69 FR 41576, July 9, 2004). The consent decree further requires that EPA propose regulations applicable to, at a minimum, existing facilities using cooling water intake structures with intake flows above a minimum threshold to be determined by EPA, in the following categories: power producers not covered by the Phase II regulations, pulp and paper manufacturing, petroleum and coal products manufacturing, chemical and allied products manufacturing, and primary metal manufacturing (Phase III). EPA is required to propose regulations for Phase III facilities by November 1, 2004, and take final action by June 1, 2006.

3. What Other EPA Rulemakings and Guidance Address Cooling Water Intake Structures?

In April 1976, EPA published a final rule under section 316(b) that addressed cooling water intake structures. 41 FR 17387 (April 26, 1976), see also the proposed rule at 38 FR 34410 (December 13, 1973). The rule added a new § 401.14 to 40 CFR Chapter I that reiterated the requirements of Clean Water Act section 316(b). It also added a new part 402, which included three sections: (1) Section 402.10 (Applicability), (2) § 402.11 (Specialized definitions), and (3) § 402.12 (Best technology available for cooling water intake structures). Section 402.10 stated that the provisions of part 402 applied to ''cooling water intake structures for point sources for which effluent limitations are established pursuant to section 301 or standards of performance are established pursuant to section 306 of the Act.'' Section 402.11 defined the terms ''cooling water intake structure,'' ''location,'' ''design,'' ''construction,'' ''capacity,'' and ''Development Document.'' Section 402.12 included the following language:

> The information contained in the Development Document shall be considered in determining whether the location, design, construction, and capacity of a cooling water intake structure of a point source subject to standards established under section 301 or 306 reflect the best technology available for minimizing adverse environmental impact.

In 1977, fifty-eight electric utility companies challenged those regulations, arguing that EPA had failed to comply with the requirements of the Administrative Procedure Act (APA) in promulgating the rule. Specifically, the utilities argued that EPA had neither published the Development Document in the **Federal Register** nor properly incorporated the document into the rule by reference. The United States Court of Appeals for the Fourth Circuit agreed and, without reaching the merits of the regulations themselves, remanded the rule. *Appalachian Power Co.* v. *Train,* 566 F.2d 451 (4th Cir. 1977). EPA later withdrew part 402. 44 FR 32956 (June 7, 1979). The regulation at 40 CFR 401.14, which reiterates the statutory requirement, remains in effect.

Since the Fourth Circuit remanded EPA's section 316(b) regulations in 1977, NPDES permit authorities have made decisions implementing section 316(b) on a case-by-case, site-specific basis. EPA published draft guidance addressing section 316(b) implementation in 1977. *See Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: Section 316(b) Pub. L. 92–500* (U.S. EPA, 1977). This draft guidance described the studies recommended for evaluating the impact of cooling water intake structures on the aquatic environment and recommended a basis for determining the best technology available for minimizing adverse environmental impact. The 1977 section 316(b) draft guidance states, ''The environmental-intake interactions in question are highly site-specific and the decision as to best technology available for intake design, location, construction, and capacity must be made on a case-by-case basis.'' (Section 316(b) Draft Guidance, U.S. EPA, 1977, p. 4). This case-by-case approach was also consistent with the approach described in the 1976 Development Document referenced in the remanded regulation.

The 1977 section 316(b) draft guidance suggested a general process for developing information needed to

support section 316(b) decisions and presenting that information to the permitting authority. The process involved the development of a site-specific study of the environmental effects associated with each facility that uses one or more cooling water intake structures, as well as consideration of that study by the permitting authority in determining whether the facility must make any changes for minimizing adverse environmental impact. Where adverse environmental impact is present, the 1977 draft guidance suggested a stepwise approach that considers screening systems, size, location, capacity, and other factors.

Although the draft guidance described the information that should be developed, key factors that should be considered, and a process for supporting section 316(b) determinations, it did not establish uniform technology-based national standards for best technology available for minimizing adverse environmental impact. Rather, the guidance left the decisions on the appropriate location, design, capacity, and construction of cooling water intake structures to the permitting authority. Under this framework, the Director determined whether appropriate studies have been performed, whether a given facility has minimized adverse environmental impact, and what, if any, technologies may be required.

4. Phase I New Facility Rule

On November 9, 2001, EPA took final action on regulations governing cooling water intake structures at new facilities. 66 FR 65255 (December 18, 2001). On December 26, 2002, EPA made minor changes to the Phase I regulations. 67 FR 78947. The final Phase I new facility rule (40 CFR 125, Subpart I) establishes requirements applicable to the location, design, construction, and capacity of cooling water intake structures at new facilities that withdraw greater than two (2) million gallons per day (MGD) and use at least twenty-five (25) percent of the water they withdraw solely for cooling purposes. In the new facility rule, EPA adopted a two-track approach. Under Track I, for facilities with a design intake flow more than 10 MGD, the intake flow of the cooling water intake structure is restricted, at a minimum, to a level commensurate with that which could be attained by use of a closed-cycle, recirculating cooling system. For facilities with a design intake flow greater than 2 MGD, the design through-screen intake velocity is restricted to 0.5 feet per second and the total quantity of intake is restricted to a proportion of the mean annual flow of a freshwater river or stream, or to maintain the natural thermal stratification or turnover patterns (where present) of a lake or reservoir except in cases where the disruption is beneficial, or to a percentage of the tidal excursions of a tidal river or estuary. If certain environmental conditions exist, an applicant with intake capacity greater than 10 MGD must select and implement appropriate design and construction technologies for minimizing impingement mortality and entrainment. (Applicants with 2 to 10 MGD flows are not required to reduce intake flow to a level commensurate with a closed-cycle, recirculating cooling system, but must install technologies for reducing entrainment at all locations.) Under Track II, the applicant has the opportunity to demonstrate to the Director that the technologies he employs will reduce the level of adverse environmental impact to a comparable level to what would be achieved by meeting the Track I requirements for restricting intake flow and velocity. As part of this demonstration, EPA initially had allowed the applicant to employ control measures other than reducing impingement mortality and entrainment, including restoration measures that would result in increases in fish and shellfish, comparable to the reduction in impingement mortality and entrainment it would achieve were it to implement the Track I intake flow and velocity requirements. However, in February 2004, the 2nd Circuit Court of Appeals issued a decision in response to several petitions challenging the final Phase I rule. The Court found that EPA exceeded its authority by allowing new facilities to comply with section 316(b) through restoration methods, and remanded that aspect of the rule to EPA. *Riverkeeper, Inc.* v. *EPA*, 358 F.3d 174, 191 (2nd Cir., 2004).

Directors may establish less stringent alternative requirements for a facility if compliance with the Phase I standards would result in compliance costs wholly out of proportion to those EPA considered in establishing the requirements at issue or would result in significant adverse impacts on local air quality, water resources, or local energy markets.

With the new facility rule, EPA promulgated national minimum requirements for the location, design, capacity, and construction of cooling water intake structures at new facilities. The final new facility rule establishes a reasonable framework that creates certainty for permitting of new facilities, while providing significant flexibility to take site-specific factors into account.

EPA specifically excluded new offshore oil and gas extraction facilities from the Phase I new facility rule, but committed to consider establishing requirements for such facilities in the Phase III rulemaking. 66 FR 65338 (December 18, 2001).

5. Phase II Existing Facility Rule

On February 16, 2004, EPA took final action on regulations governing cooling water intake structures at certain existing power producing facilities. 69 FR 41576 (July 9, 2004). The final Phase II rule applies to existing facilities that are point sources; that, as their primary activity, both generate and transmit electric power or generate electric power for sale or transmission; that use or propose to use a cooling water intake structure with a total design intake flow of 50 MGD or more to withdraw water from waters of the United States; and that use at least 25 percent of the withdrawn water exclusively for cooling purposes.

Under the Phase II rule, EPA established performance standards for the reduction of impingement mortality and, when appropriate, entrainment (*see* 40 CFR 125.94). The performance standards consist of ranges of reductions in impingement mortality and/or entrainment (*e.g.*, reduce impingement mortality by 80 to 95 percent and/or entrainment by 60 to 90 percent). These performance standards reflect the best technology available for minimizing adverse environmental impacts. The type of performance standard applicable to a particular facility (*i.e.*, reductions in impingement mortality only or impingement mortality and entrainment) is based on several factors, including the facility's location (*i.e.*, source waterbody), rate of use (capacity utilization rate), and the proportion of the waterbody withdrawn. In most cases, EPA believes that these performance standards can be met using design and construction technologies or operational measures. The performance standards also can be met, in whole or in part, by using restoration measures, following consideration of design and construction technologies or operational measures, and provided such measures meet certain specified requirements. (*See* 40 CFR 125.94(c)).

The Phase II rule identifies five alternatives to achieve compliance with the requirements for best technology available for minimizing adverse environmental impacts associated with cooling water intake structures. A facility must demonstrate to the Director one of the following: (1) That it has already reduced its flow commensurate with a closed-cycle recirculating system

(to meet performance standards for impingement and entrainment), or that it has already reduced its design intake velocity to 0.5 feet per second or less (to meet the impingement performance standard only); (2) that its current cooling water intake structure configuration meets the applicable performance standards; (3) that it has selected design and construction technologies, operational measures, and/or restoration measures that, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet the applicable performance standards; (4) that it meets the applicability criteria and has installed and is properly operating and maintaining a rule-specified and/or State-specified approved design and construction technology (*i.e.*, submerged cylindrical wedgewire screen) in accordance with 40 CFR 125.99(a) or an alternative technology that meets the appropriate performance standards and is approved by the Director in accordance with 40 CFR 125.99(b); or (5) that its costs of compliance would be significantly greater than the costs considered by the Administrator for a like facility to meet the applicable performance standards, or than the benefits of meeting the applicable performance standards at the facility. A discussion of the legal authority and basis for the use of the cost test is found in section VI of this preamble.

During the first permit term and subsequent permit terms, a facility that chooses compliance alternatives two (2) through five (5), as described above, may request that compliance with the requirements of the rule be determined based on the implementation of a Technology Installation and Operation Plan (TIOP), indicating how the facility will install and ensure the efficacy, to the extent practicable, of design and construction technologies and/or operational measures, and/or a Restoration Plan. Adaptive management practices must be employed to ensure compliance during subsequent permit terms. The TIOP must be developed and submitted to the Director in accordance with 40 CFR 125.95(b)(4)(ii). The Restoration Plan must be developed in accordance with 40 CFR 125.95(b)(5).

6. Public Participation

EPA worked extensively with stakeholders from the industry, public interest groups, State agencies, and other Federal agencies in the development of this proposed rule. EPA included industry groups, environmental groups, and other government entities in the development, testing, refinement, and completion of the section 316(b) survey, which was used as a primary source of data for the Phase III proposed rule. As discussed in section III of today's preamble, the survey, ''Information Collection Request, Detailed Industry Questionnaires: Phase II Cooling Water Intake Structures & Watershed Case Study Short Questionnaire,'' was initiated in 1997, and was used to collect data during 1998. EPA conducted two public meetings on section 316(b) issues. In June of 1998, EPA conducted a public meeting focused on a draft regulatory framework for assessing potential adverse environmental impact from impingement mortality and entrainment. 63 FR 27958 (May 21, 1998). A second public meeting was held in September of 1998, and focused on technology, cost, and mitigation issues. 63 FR 40683 (July 30, 1998). In addition, in September of 1998, and April of 1999, EPA participated in technical workshops sponsored by the Electric Power Research Institute on issues relating to the definition and assessment of adverse environmental impact. EPA also participated in other industry conferences, and has met with representatives of industry and environmental groups.

In the months leading up to publication of the proposed Phase I rule, EPA conducted a series of stakeholder meetings to review the draft regulatory framework for the proposed rule and invited stakeholders to provide their recommendations. Participants included representatives of the electric power industry, as well as the petroleum refining, pulp and paper, and iron and steel industries. EPA also met with environmental groups, States, and interstate groups. After publication of the proposed Phase I rule, EPA continued to meet with stakeholders. Summaries of these meetings are in the docket. EPA also received many comments on the Phase I proposed rule (65 FR 49059, August 10, 2000) and Notice of Data Availability (NODA). (66 FR 28853, May 25, 2001). These comments informed the development of the Phase II rule and this Phase III proposed rule.

In January 2001, EPA attended technical workshops organized by the Electric Power Research Institute and the Utilities Water Act Group. These workshops focused on key issues associated with different regulatory approaches considered under the Phase I proposed rule and alternatives for addressing section 316(b) requirements.

On May 23, 2001, EPA held a day-long forum to discuss specific issues associated with the development of regulations under section 316(b) of the Clean Water Act. 66 FR 20658 (April 24, 2001). At the meeting, 17 experts from industry, public interest groups, States, and academia reviewed and discussed the Agency's preliminary data on cooling water intake structure technologies that are in place at existing facilities and the costs associated with the use of available technologies for reducing impingement mortality and entrainment. Over 120 people attended the meeting.

On August 21, 2001, EPA participated in a technical symposium sponsored by the Electric Power Research Institute in association with the American Fisheries Society on issues relating to the definition and assessment of adverse environmental impact under section 316(b) of the Clean Water Act.

During development of the Phase I and Phase II rules, EPA coordinated with the Nuclear Regulatory Commission (NRC) to ensure that there would not be a conflict with NRC safety requirements. NRC reviewed the proposed Phase II rule and did not identify any apparent conflict with nuclear plant safety. NRC licensees would continue to be obligated to meet NRC requirements for design and reliable operation of cooling systems. NRC recommended that EPA consider adding language which states that in cases of conflict between an EPA requirement and an NRC safety requirement, the NRC safety requirement takes precedence. EPA added language to address this concern in the Phase II final rule and this proposed rule.

EPA sponsored a *Symposium on Cooling Water Intake Technologies to Protect Aquatic Organisms,* on May 6–7, 2003. This symposium brought together professionals from Federal, State, and Tribal regulatory agencies; industry; environmental organizations; engineering consulting firms; science and research organizations; academia; and others concerned with mitigating harm to the aquatic environment by cooling water intake structures. Efficacy and costs of various technologies to mitigate impacts to aquatic organisms from cooling water intake structures, as well as research and other future needs, were discussed.

During the development of this proposed regulation, EPA met several times with trade associations whose members would be subject to the Phase III requirements. EPA also conducted Phase III-specific data collection activities, including a study of entrainment at manufacturing facilities, contacting Phase III facilities to request

biological studies and conducted an industry survey of offshore oil and gas extraction facilities and seafood processing vessels.

Finally, EPA convened a Small Business Advocacy Review (SBAR) panel (in accordance with the Regulatory Flexibility Act section 609(b) as amended by the Small Business Regulatory and Enforcement Fairness Act) to provide information to small entities and receive feedback during the Phase III rulemaking process. EPA hosted a pre-panel outreach meeting for small entities potentially subject to Phase III on January 22, 2004. The SBAR panel held an outreach meeting with small entity representatives (SERs) on March 16, 2004. Based on the information gathered from the participating small entities during these outreach meetings and subsequent correspondence, the SBAR panel produced a final report to the EPA Administrator on April 27, 2004. Results of the final report were considered in the development of this proposed Phase III rule.

These coordination efforts and all of the meetings described in this section, as well as the comments submitted on the Phase I and II section 316(b) rules and EPA's response to these comments, are documented or summarized in the dockets for these three rules. The Administrative Record for today's proposal includes all materials from the Phase I, Phase II, and Phase III section 316(b) rule dockets.

II. Scope and Applicability of the Proposed Rule

Based on the co-proposed flow thresholds based options in today's proposed rule, the proposed national categorical requirements would apply to two groups of facilities: (1) Existing manufacturing facilities (including but not limited to chemical, metal, pulp and paper, and petroleum refining facilities), and (2) new offshore oil and gas extraction facilities. In today's proposed rule, the term ''new offshore oil and gas extraction facility'' is defined to include facilities in both the offshore and the coastal subcategories of EPA's Oil and Gas Extraction Point Source Category for which effluent limitations are established at 40 CFR part 435. Although the term ''offshore'' denotes only one of these two subcategories for purposes of the effluent guidelines, EPA decided that it was more efficient to use the term ''offshore'' to denote facilities in either subcategory for purposes of today's rule because the proposed requirements are the same for both offshore and coastal facilities and the term ''offshore'' is commonly understood to include any facilities not located on land. EPA requests comment on whether this definition is likely to cause confusion over the scope of covered facilities. In order to be covered by today's proposed rule, these facilities would need to use cooling water intake structures to withdraw water from waters of the U.S. and meet all other applicability criteria, described below.

Existing facilities that meet all of the following criteria would be subject to today's proposed rule, if promulgated as proposed (*see* § 125.101).

- The facility is a point source that has or is required to have an NPDES permit under section 402 of the Clean Water Act;
- The facility is an existing facility not subject to the Phase II regulation;
- The facility uses at least 25 percent of water withdrawn exclusively for cooling purposes, measured on an average annual basis; and
- The facility uses, or proposes to use, cooling water intake structures, including a cooling water intake structure operated by an independent supplier (other than a public water system), with a total design intake flow equal to or greater than a certain threshold to withdraw cooling water from waters of the United States.

Today's proposed rule co-proposes three options based on design intake flow and source waterbody type for defining which existing facilities are Phase III existing facilities subject to categorical national requirements:

- The facility has a total design intake flow of 50 MGD or more, and withdraws from any waterbody type (''50 MGD All Waterbodies'');
- The facility has a total design intake flow of 200 MGD or more, and withdraws from any waterbody type (''200 MGD All Waterbodies'');
- The facility has a total design intake flow of 100 MGD or more and withdraws water from an ocean, estuary, tidal river, or one of the Great Lakes (''100 MGD Certain Waterbodies'').

A facility meeting the above criteria, including any flow threshold EPA adopts after considering comments on the three co-proposed options, would be referred to as a ''Phase III existing facility.'' If an existing facility does not meet the relevant Phase II or Phase III cooling water use and intake flow thresholds by itself, and is co-located with an existing facility that is not subject to the Phase II regulation (*e.g.*, a power producing facility below the Phase II flow threshold, or a manufacturing facility), both facilities would still be subject to Phase III requirements if the cooling water used collectively by the co-located facilities meets the applicable thresholds (and the facilities meet the other requisite Phase III criteria). Co-located facilities adjoin each other and are under common ownership, operation, or management. If a facility is a point source that uses a cooling water intake structure and has, or is required to have, an NPDES permit, but does not meet the proposed applicable design intake flow/source waterbody threshold or the 25 percent cooling water use threshold, it would continue to be subject to permit conditions implementing CWA section 316(b) set by the permit director on a case-by-case, best professional judgment basis.

Today's notice also proposes requirements for new offshore oil and gas extraction facilities, which were specifically excluded from the Phase I new facility rule. (40 CFR 125 Subpart I). Section II.B of the preamble discusses what constitutes a ''new'' offshore oil and gas extraction facility for purposes of the section 316(b) proposed Phase III rule. Requirements for new offshore oil and gas extraction facilities are proposed in 40 CFR Subpart N. EPA is seeking comment on the requirements contained in this subpart. EPA is not seeking comment on the Phase I rule that EPA promulgated in 2001.

Finally, under today's proposed rule a seafood processing vessel or an offshore liquefied natural gas import terminal would not be subject to national categorical requirements. Such a facility could be subject to permit conditions implementing CWA section 316(b) set by the permit director on a case-by-case, best professional judgment basis where the facility is a point source that uses a cooling water intake structure and has, or is required to have, an NPDES permit.

A. What Is a ''New'' Offshore Oil and Gas Extraction Facility for Purposes of the Section 316(b) Proposed Phase III Rule?

For purposes of this proposed rule, new offshore oil and gas extraction facilities are those facilities that are subject to the Oil and Gas Extraction Point Source Category Effluent Guidelines (*i.e.*, 40 CFR 435.10 Offshore Subcategory or 40 CFR 435.40 Coastal Subcategory); that commence construction more than 60 days after publication of the final rule; and that meet all other aspects of the ''new facility'' definition in § 125.83 (other than the date for commencing construction). In other words, in order to be covered by today's proposed rule, a new offshore oil and gas extraction facility would have to be a new source or new discharger per 40 CFR 122.2 and 122.29, a greenfield or stand-alone

facility, and use either a newly constructed cooling water intake structure, or an existing cooling water intake structure whose design capacity is increased to accommodate the intake of additional cooling water.

B. What Is an ''Existing Facility'' for Purposes of the Section 316(b) Proposed Phase III Rule?

In today's proposed rule, the definition of ''existing facility'' is the same as in the Phase II rule except for additional language addressing new offshore oil and gas extraction facilities: any facility that commenced construction on or before January 17, 2002 (or 60 days after publication of the final rule for an offshore oil and gas extraction facility), as described in 40 CFR 122.29(b)(4).[1] January 17, 2002 is the effective date of the Phase I new facility rule and, therefore, the date for distinguishing new facilities from existing ones. However, offshore oil and gas extraction facilities were not subject to the Phase I new facility rule, but rather, would be subject to requirements under this proposed Phase III rule. Therefore, the effective date of the final Phase III rule would be the date for distinguishing new offshore oil and gas extraction facilities from existing ones. An ''existing facility'' under this proposed rule would include modifications and additions to existing facilities, that do not meet the definition of a new facility under the Phase I rule (40 CFR 125.83). That definition states:

New facility means any building, structure, facility, or installation that meets the definition of a ''new source'' or ''new discharger'' in [other NPDES regulations] and is a greenfield or stand-alone facility; commences construction after January 17, 2002; and uses either a newly constructed cooling water intake structure, or an existing cooling water intake structure whose design capacity is increased to accommodate the intake of additional cooling water. New facilities include only ''greenfield'' and ''stand-alone'' facilities. A greenfield facility is a facility that is constructed at a site at which no other source is located or that totally replaces the process or production equipment at an existing facility (*see* 40 CFR 122.29(b)(1)(i) and (ii)). A stand-alone facility is a new, separate facility that is constructed on property where an existing facility is located and whose processes are substantially independent of the existing facility at the same site (*see* 40 CFR 122.29(b)(1)(iii). New facility does not include new units that are added to a facility for purposes of the same general industrial operation (for example, a new peaking unit at an electrical generating station).[2]

The definition in today's proposed regulation is intended to be consistent with EPA's definition of new facility in the Phase I rule (§ 125.83) and to ensure that sources excluded from the definition of new facility in the Phase I rule are captured by the definition of existing facility.

The determination of whether a facility is ''new'' or ''existing'' is focused on the point source discharger—not on the cooling water intake structure. In other words, modifications or additions to the cooling water intake structure (or even the total replacement of an existing cooling water intake structure with a new one) does not convert an otherwise unchanged existing facility into a new facility, regardless of the purpose of such changes. Rather, the determination as to whether a facility is new or existing focuses on the point source itself, *i.e.*, whether it is a greenfield facility or a stand-alone facility.

Under this proposed rule, an existing manufacturing facility that replaces or modifies an existing generating or manufacturing unit would remain subject to regulation as a Phase III existing facility, unless (1) the existing facility were completely demolished and another facility constructed in its place (a ''greenfield'' facility), or a separate facility with substantially independent processes were constructed on the property (a ''stand-alone'' facility) and (2) the new facility used either a new intake structure or the existing structure with an increased design capacity. To illustrate, an existing facility that undertook the following facility modifications or additions would continue to be characterized as an existing facility—not a new facility—under today's proposed rule:

- An existing manufacturing facility undergoes a modification of its process short of total replacement of the process and concurrently increases the design capacity of its existing cooling water intake structures;
- An existing manufacturing facility builds a new process at its site for purposes of the same industrial operation and concurrently increases the design capacity of its existing cooling water intake structures;
- An existing manufacturing facility completely rebuilds its process but uses the existing cooling water intake structure with no increase in design capacity.

Phase III existing facilities subject to today's proposed rule would also include point sources that are new users of cooling water intake structures, but do not meet the definition of new facility under § 125.83. For example, an existing facility may have historically withdrawn its cooling water from a municipal or other source, but then begins to withdraw cooling water from a water of the United States. This facility would be considered an existing facility because it is not a ''greenfield'' or ''stand alone'' facility within the meaning of the new facility rule. Similarly, a facility that previously relied on unit processes that do not require cooling water, and then adds or modifies a unit process for purposes of the same industrial operation such that cooling water is subsequently required, would also be regulated as an existing facility, not a new facility, under 316(b).

C. What Is ''Cooling Water'' and What Is a ''Cooling Water Intake Structure?'

Today's proposed rule would adopt for Phase III facilities the same definition of a ''cooling water intake structure'' that applies to new facilities under the final Phase I rule and existing facilities under the final Phase II rule. A cooling water intake structure would be defined as the total physical structure and any associated constructed waterways used to withdraw cooling

[1] Construction is commenced if the owner or operator has undertaken certain installation and site preparation activities that are part of a continuous on-site construction program, and it includes entering into certain specified binding contractual obligations as one criterion (40 CFR 122.29(b)(4)).

[2] The Phase I rule also listed examples of facilities that would be ''new'' facilities and facilities that would ''not be considered a 'new facility' '' in two numbered paragraphs. These read as follows:

''(1) Examples of 'new facilities' include, but are not limited to: the following scenarios:

''(i) A new facility is constructed on a site that has never been used for industrial or commercial activity. It has a new cooling water intake structure for its own use.

''(ii) A facility is demolished and another facility is constructed in its place. The newly-constructed facility uses the original facility's cooling water intake structure, but modifies it to increase the design capacity to accommodate the intake of additional cooling water.

''(iii) A facility is constructed on the same property as an existing facility, but is a separate and independent industrial operation. The cooling water intake structure used by the original facility is modified by constructing a new intake bay for the use of the newly constructed facility or is otherwise modified to increase the intake capacity for the new facility.

''(2) Examples of facilities that would not be considered a 'new facility' include, but are not limited to, the following scenarios:

''(i) A facility in commercial or industrial operation is modified and either continues to use its original cooling water intake structure or uses a new or modified cooling water intake structure.

''(ii) A facility has an existing intake structure. Another facility (a separate and independent industrial operation), is constructed on the same property and connects to the facility's cooling water intake structure behind the intake pumps, and the design capacity of the cooling water intake structure has not been increased. This facility would not be considered a 'new facility' even if routine maintenance or repairs that do not increase the design capacity were performed on the intake structure.''

water from waters of the Unites States. Under this definition, the cooling water intake structure extends from the point at which water is withdrawn from the surface water source up to and including the intake pumps. Today's proposed rule also would adopt the definition of ''cooling water'' used in the Phase I and Phase II rules: water used for contact or noncontact cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content. The definition specifies that the intended use of cooling water is to absorb waste heat rejected from the processes used or auxiliary operations on the facility's premises. The definition also indicates that water used in a manufacturing process either before or after it is used for cooling is process water and would not be considered cooling water for purposes of determining whether the facility was using 25 percent or more of the water withdrawn for cooling purposes. This clarification is necessary because cooling water intake structures typically bring water into a facility for numerous purposes, including use in industrial processes; use as circulating water, service water, or evaporative cooling tower makeup water; dilution of effluent heat content; equipment cooling; and air conditioning. This is particularly true for manufacturers addressed under this proposed rule, who often seek to reduce water use and increase efficiency through water reuse. EPA does not wish to create a disincentive to such improved efficiency and recognizes that to do so could result in other forms of environmental impacts. Consequently, and consistent with the Phase I and Phase II rules, only the water used exclusively for cooling purposes would be counted when determining whether the 25 percent threshold in § 125.101(a)(4) or § 125.131(a)(2) is met.

This proposed definition of ''cooling water intake structure'' differs from the definition provided in the 1977 *Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: Section 316(b) Pub. L. 92–500* (U.S. EPA, 1977). The proposed rule definition would clarify that the cooling water intake structure includes the physical structure that extends from the point at which water is withdrawn from the surface water up to and including the intake pumps. Inclusion of the term ''associated constructed waterways'' in today's proposed rule is intended to clarify that the definition includes those canals, channels, connecting waterways, and similar structures that may be built or modified to facilitate the withdrawal of cooling water. The explicit inclusion of the intake pumps in the definition reflects the key role pumps play in determining the capacity (*i.e.,* dynamic capacity) of the intake. These pumps, which bring in water, are an essential component of the cooling water intake structure since without them the intake structure could not work as designed.

D. Would My Facility Be Covered if It Withdraws From Waters of the United States?

The requirements proposed today would apply to cooling water intake structures that have the design capacity to withdraw amounts of water equal to or greater than the specified proposed intake flow thresholds from ''waters of the United States.'' Waters of the United States include the broad range of surface waters that meet the regulatory definition at 40 CFR 122.2, which includes lakes, ponds, reservoirs, nontidal rivers or streams, tidal rivers, estuaries, fjords, oceans, bays, and coves. These potential sources of cooling water may be adversely affected by impingement mortality and entrainment.

Some facilities discharge heated water to cooling ponds, then withdraw water from the ponds for cooling purposes. EPA recognizes that cooling ponds may, in certain circumstances, constitute part of a closed-cycled cooling system. See, *e.g.,* § 125.102. However, EPA does not intend that this proposed rule would change the regulatory status of cooling ponds. Cooling ponds are neither categorically included nor categorically excluded from the definition of ''waters of the United States'' at 40 CFR 122.2. EPA interprets 40 CFR 122.2 to give permit writers discretion to regulate cooling ponds as ''waters of the United States'' where cooling ponds meet the definition of ''waters of the United States.'' The determination of whether a particular cooling pond is a water of the United States is to be made by the permit writer on a case-by-case basis, informed by the discussions in *Solid Waste Agency of Northern Cook County (SWANCC)* v. *U.S. Army Corps of Engineers,* 531 U.S. 159 (2001), and subsequent case law. Therefore, facilities that withdraw cooling water from cooling ponds that are waters of the United States and that would meet today's other proposed criteria for coverage (including the requirement that the facility has or will be required to obtain an NPDES permit) would be subject to today's proposed rule. The EPA and the U.S. Army Corps of Engineers have jointly issued jurisdictional guidance concerning the term ''waters of the United States'' in light of the Supreme Court's decision in *Solid Waste Agency of Northern Cook County* v. *U.S. Army Corps of Engineers,* 531 U.S. 159 (2001) (SWANCC). A copy of that guidance was published as an Appendix to an Advanced Notice of Proposed Rulemaking on the definition of the phrase ''waters of the U.S.,'' see 68 FR 1991 (January 15, 2003), and may be obtained at *http://www.epa.gov/owow/wetlands/ANPRM–FR.pdf.* Proposed § 125.101(d) also provides, similar to the Phase I and Phase II rules, that facilities that obtain cooling water from a public water system or use treated effluent are not deemed to be using a cooling water intake structure for purposes of this proposed rule.

E. Would My Facility Be Covered if It Is a Point Source Discharger?

Today's proposed rule would apply only to facilities that are point sources (*i.e.,* have an NPDES permit or are required to obtain one) because they discharge or might discharge pollutants, including storm water, from a point source to waters of the United States. This is the same requirement EPA included in the Phase I and Phase II final rules (*see,* 40 CFR 125.81(a)(1), and 40 CFR 125.91(a)(1), respectively). Requirements for complying with section 316(b) will continue to be applied through NPDES permits.

Based on the Agency's review of potential Phase III facilities that employ cooling water intake structures, the Agency anticipates that most Phase III facilities that would be subject to this proposed rule control the intake structure that supplies them with cooling water, and discharge some combination of their cooling water, wastewater, and storm water to a water of the United States through a point source regulated by an NPDES permit. In this scenario, the requirements for the cooling water intake structure would be specified in the facility's NPDES permit. In the event that a Phase III facility's only NPDES permit is a general permit (*e.g.,* for oil and gas production) or a general permit for storm water discharges, the Agency anticipates that the Director may want to write an individual NPDES permit containing requirements for the facility's cooling water intake structure. Alternatively, requirements applicable to cooling water intake structures could be incorporated into general permits. If requirements are placed into a general permit, they must meet the criteria set out at 40 CFR 122.28.

The Agency also recognizes that some facilities that have or are required to have an NPDES permit might not own

and operate the intake structure that supplies their facility with cooling water. For example, manufacturing facilities operated by separate entities might be located on the same, adjacent, or nearby property(ies); one of these facilities might take in cooling water and then transfer it to other facilities prior to discharge of the cooling water to a water of the United States. Proposed § 125.101(c) of today's proposed rule would address such a situation. It provides that 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 supplier withdraws water from waters of the United States but is not itself subject to regulations under 316(b). This provision is intended to prevent facilities from circumventing the requirements of today's proposed rule by creating arrangements to receive cooling water from an entity that is not itself subject to national categorical requirements (*e.g.,* a facility that is not a point source).

For facilities that have or are required to have NPDES permits that do not directly control the intake structures that supply their facilities with cooling water, proposed § 125.101(d) also provides, similar to the Phase I and II rules, that facilities that obtain cooling water from a public water system or use treated effluent are not deemed to be using a cooling water intake structure for purposes of this proposed rule.

As stated in the preamble to the final Phase I rule (66 FR 65256, December 18, 2001), the Agency would encourage the Director to closely examine scenarios in which a facility withdraws significant amounts of cooling water from waters of the United States but is not required to obtain an NPDES permit. As appropriate, under this proposed rule, the Director would apply other legal requirements, such as section 404 or 401 of the Clean Water Act, the Coastal Zone Management Act, the National Environmental Policy Act, the Endangered Species Act, or similar State or Tribal authorities to address adverse environmental impact caused by cooling water intake structures at those facilities.

F. What Are the Cooling Water Use and Design Intake Flow Thresholds in This Proposed Rule?

This proposed rule would apply to existing facilities that meet the following thresholds: (1) Use at least twenty-five (25) percent of the water withdrawn exclusively for cooling purposes (measured on an average annual basis), and (2) have a total design intake flow equal to or greater than one of the three proposed thresholds , but are not subject to the Phase II rule. As previously discussed, EPA is proposing three possible flow threshold-based options in today's proposed rule (*i.e.,* 50 MGD, 200 MGD, and 100 MGD [3]). The facility would also have to meet the other applicability criteria defined in § 125.101.

The 25 percent exclusive cooling use threshold is the same as employed in the Phase I and II regulations. As in the Phase I and Phase II rules, water used for both cooling and non-cooling purposes would not count towards the 25 percent threshold. Thus, the proposed rule would not discourage the reuse of cooling water as process water or vice versa. Water that serves as cooling water but is either previously or subsequently used as process water would not be considered cooling water for purposes of determining whether the 25 percent threshold is met. Water withdrawn for non-cooling purposes would include water withdrawn for warming by liquified natural gas facilities, water used to power hydro-electric plants, and water withdrawn for public water systems by desalinization facilities.

Today's notice proposes three different options for defining which existing facilities are Phase III existing facilities subject to categorical national requirements. These options include existing facilities having a total design intake flow of: 50 MGD or more; 200 MGD or more; or 100 MGD or more if the facility withdraws water from an ocean, tidal river, estuary, or Great Lake. EPA is co-proposing these options because EPA believes that all three reflect potentially viable alternatives for balancing the many factors EPA considers in establishing best technology available for minimizing adverse environmental impact. These factors include the percentage of cooling water flow subject to national requirements, costs, benefits, cost-effectiveness, permitting burden and the need for flexibility in implementation, projected closures, and potential impacts on small businesses. Each of these factors are permissible for consideration under the CWA and each of these co-proposed options will fulfill CWA requirements. For example, considerations of costs, benefits, economically practicability and cost-effectiveness are appropriate factors under CWA sections 301 and 304 (*e.g.,* see discussion of Agency authority in section I). In addition, EPA is required to consider small business impacts under the Regulatory Flexibility Act as amended by the Small Business Regulatory Enforcement Fairness Act. Accordingly, the discussion below focuses on the relative advantages and disadvantages of these co-proposed options and the proposed regulatory language reflects all three options.

i. Total Design Intake Flow of 50 MGD or More

Under this co-proposed option, facilities with a design intake flow of 50 MGD or greater, and that meet the other criteria in § 125.101, would be subject to the performance standards and compliance alternatives proposed in today's rule discussed below. Under this option, section 316(b) permit conditions for existing facilities with a design intake flow of less than 50 MGD would continue to be established on a case-by-case, best professional judgment basis.

EPA is co-proposing the 50 MGD threshold based on several factors. With a 50 MGD flow threshold, the proposed rule would regulate 75 percent of the design intake capacity, and 23 percent of the facilities (155 facilities) potentially covered by the Phase III rule,[4] thus subjecting the majority of design intake flows potentially included within the scope of the Phase III existing facility rule to national performance requirements. Use of a 50 MGD threshold would focus national section 316(b) requirements on those Phase III existing facilities with moderate to large design intake flows. These facilities pose a greater potential for causing significant adverse environmental impacts than those withdrawing less than 50 MGD. Assuming full implementation of the Phase II rule and today's proposed rule, at the co-proposed 50 MGD threshold, section 316(b) program requirements would regulate more than 97 percent of the total cooling water withdrawals associated with existing facilities. In addition, EPA estimates that use of a 50 MGD threshold would avoid facility closures under this proposed rule, and would reduce the cost of the proposed rule to permittees compared with the costs of a lower threshold.

[3] **Note:** the 100 MGD flow threshold also specifies withdrawal from certain source waterbody types. The other proposed flow thresholds are not linked to source waterbody types.

[4] Facilities ''potentially covered by the Phase III rule'' include all existing manufacturing and power producing facilities greater than 2 MGD that were not covered by the Phase II rule. There are an estimated 683 manufacturing and electric generating facilities (survey weighted) potentially covered by the Phase III rule, with a total design intake flow of 40,441 MGD.

EPA estimates this option would cost $47.3 to $50.1 million [5] or $348,000 to $368,000 on average annually per facility. Quantified benefits are $1.5 million to $1.9 million (annualized use value). Because this option covers the most facilities, it may also have the greatest ecological protection benefits, which EPA was not able to quantify. EPA estimates that this option would provide the highest quantified and monetized benefits of the co-proposed options but would also have the highest annualized costs, resulting in the lowest quantified benefits-to-cost ratio and the lowest (greatest negative) quantified net benefits among these options. See section X of this preamble for further discussion of benefits and costs.

Finally, the co-proposed 50 MGD threshold would exclude small businesses from national rule requirements. This is consistent with the recommendations of the Small Business Advocacy Review Panel final report that EPA analyze a range of potential thresholds, particularly those between 20 MGD and 50 MGD, as a means of reducing potential economic impacts on small businesses while still achieving desired environmental benefits under the rule. See section XI.C for additional information. EPA estimates that setting an applicability threshold at 50 MGD would exclude all existing small entities potentially subject to the Phase III rule.

ii. Total Design Intake Flow of 200 MGD or More

Under this co-proposed option, facilities with a design intake flow of 200 MGD or greater and that meet the other criteria in § 125.101, would be subject to the performance standards and compliance alternatives proposed in today's notice and discussed above. Under this option, section 316(b) permit conditions for existing facilities not covered under the Phase II rule, with a design intake flow of less than 200 MGD, would continue to be established on a case-by-case, best professional judgment basis.

EPA is co-proposing the 200 MGD threshold based on several factors. With a 200 MGD flow threshold, the proposed rule would regulate 45 percent of the design intake capacity and approximately 5% of the facilities potentially covered by the Phase III rule. Assuming full implementation of the Phase II rule and today's proposed rule, at the co-proposed 200 MGD threshold, section 316(b) program requirements would regulate more than 94 percent of the total cooling water withdrawals associated with existing facilities withdrawing greater than 2 MGD.

EPA estimates this option would cost $22.8 to $24.1 million or $912,000 to $964,000 on average annually per facility. Quantified benefits are $0.98 to $1.26 million (annualized use value). The option would have a higher benefit-to-cost ratio yielding 66 percent of the quantified benefits at 48% of the costs and greater (lower negative) quantified net benefits compared to the 50 MGD option.

EPA estimates that use of a 200 MGD threshold would avoid facility closures under this proposed rule and would exclude all existing small entities.

iii. Facility Has a Total Design Intake Flow of 100 MGD or More and Withdraws Water From an Ocean, Tidal River, Estuary, or Great Lake

Under this co-proposed option, facilities located on estuaries, oceans, tidal rivers or streams, or one of the Great Lakes, with a design intake flow of 100 MGD or greater, and that meet the other criteria in § 125.101, would be subject to the performance standards and compliance alternatives proposed in today's rule and discussed below. Under this regulatory option, section 316(b) permit conditions for all existing facilities not covered under the Phase II rule, and located on freshwater rivers and streams or lakes and reservoirs, or with a design intake flow of less than 100 MGD would continue to be established on a case-by-case, best professional judgment basis.

Under this co-proposed option, 4 percent of the facilities potentially subject to regulation under Phase III would be subject to national requirements, and 18 percent of total design intake capacity associated with potential Phase III facilities would be addressed by such national requirements. Assuming full implementation of the Phase II rule and today's proposed rule, at the co-proposed 100 MGD threshold, section 316(b) program requirements would regulate more than 91 percent of the total cooling water withdrawals associated with existing facilities.

EPA estimates this option would cost $17.6 to $18.2 million or $926,000 to $958,000 on average annually per facility. Quantified benefits are $1.1 to 1.4 million (annualized use value). EPA estimates that this option would provide the second highest quantified benefits of the co-proposed options, and would have the lowest annualized costs when compared with the other two options, resulting in the highest quantified benefits-to-costs ratio and highest (least negative) quantified net benefits among the three options. This option would provide about 75 percent of the quantified benefits of the 50 MGD flow threshold option at about 36 percent of the cost by focusing the rule requirements on the most sensitive waterbodies.

EPA estimates that use of a 100 MGD threshold would avoid facility closures under this proposed rule and would exclude all existing small entities.

EPA requests comment on all aspects of each of these co-proposed options, including whether lower (*e.g.,* 20 MGD) or higher (*e.g.,* 250 MGD) thresholds should be considered, as well as whether different conditions (*e.g.,* related to waterbody type) should be combined with these or other thresholds. EPA also solicits comment on the resource implications for State permitting agencies associated with each of these options.

G. When Would a Phase III Existing Facility and New Offshore Oil and Gas Extraction Facility Be Required To Comply With Any New 316(b) Requirements?

If EPA were to promulgate today's proposed rule, the final rule would become effective sixty (60) days after the date of publication in the **Federal Register**. After the effective date of any such final regulation, existing manufacturers and new offshore oil and gas extraction Phase III facilities, including existing facilities not currently subject to cooling water intake requirements under 40 CFR 125, would need to comply when an NPDES permit containing requirements consistent with the final rule is issued to the facility (*see* § 125.100 and § 125.132). Under current NPDES program regulations, this will occur when a new NPDES permit is issued or when an existing NPDES permit is issued, reissued, or modified or revoked and reissued. As in Phase II, the proposed rule for Phase III existing facilities includes special provisions to allow sufficient time to complete a Comprehensive Demonstration Study during the first permit renewal following promulgation of the Phase III rule (*see* § 125.104(a)(2)(ii)).

A discussion of the timing of implementation of this proposed rule, if promulgated, is provided in section VII.

H. What Special Definitions Apply to This Proposal?

EPA is proposing specialized definitions to clarify which facilities are subject to national categorical requirements. For the new oil and gas extraction facility requirements in

[5] Unless otherwise noted, cost and benefit ranges reflect the use of alternative discount rates (3% and 7%) in annualized 2003 dollars.

Subpart N, EPA is proposing five new definitions to clarify those facilities subject to the requirements. These definitions are set forth in the proposed regulations at § 125.133 and include ''new offshore oil and gas extraction facilities,'' ''offshore liquified natural gas import terminals,'' ''seafood processing vessels,'' ''sea chest'' and ''fixed facility''). The remainder of the proposed definitions are the same as those found in the final Phase I regulations; however, not all of the definitions from Phase I regulations have been used as they are not all applicable to these proposed Subpart N regulations.

EPA is also proposing definitions for Phase III existing facilities in Subpart K at § 125.102. All of these definitions are borrowed from both Phase I and Phase II and remain unchanged, except for the cutoff date in the definition of ''existing facility'' for new versus existing offshore oil and gas extraction facilities. Similar to the definitions for subpart N described above, not all of the definitions from Phase II regulations have been used as they are not all applicable to these proposed Subpart K regulations.

EPA solicits comment on these regulatory definitions.

III. Summary of Data Collection Activities

For the Phase III proposed rule, EPA focused its data collection activities on section 316(b) survey data supplemented by available existing data sources including the data developed for the Phase I and Phase II rules.

A. Survey Questionnaires

As discussed in the preamble to the Phase II final rule (69 FR 41576), EPA's industry survey effort consisted of a two-phase process. EPA administered a screener questionnaire focused on nonutility and manufacturing facilities as the first phase of this data collection process. The screener questionnaire provides information on cooling water intake capacity, sources of the water, intake structure types, and technologies used to minimize adverse environmental impacts. It also provides data on facility and parent firm employee numbers and revenues. This information was used to design a sampling plan for the subsequent detailed questionnaire. Following the screener survey, the Agency administered either a short technical or a detailed questionnaire to utility, nonutility, and manufacturing facilities, as described below. The two-phase survey was designed to collect representative data from a sample group of those categories of facilities potentially subject to section 316(b) regulation for use in rule development.

In 1997, EPA estimated that over 400,000 facilities could potentially be subject to a cooling water intake regulation. Given the large number of facilities potentially subject to regulation, EPA decided to focus its data collection efforts on six industrial categories that, as a whole, were estimated to account for over 99 percent of all cooling water withdrawals. These six sectors were: Utility Steam Electric, Nonutility Steam Electric, Chemicals & Allied Products, Primary Metals Industries, Petroleum & Coal Products, and Paper & Allied Products. At the time of the survey, there were about 48,500 facilities in these six categories. EPA believes that this approach provided a sound basis for assessing best technologies available for minimizing adverse environmental impacts.

The screener survey focused on nonutility and manufacturing facilities. EPA developed the sample frame (list of facilities) for the screener questionnaire using public data sources as described in the Information Collection Request (DCN 3–3084-R2 in Docket W–00–03). Facilities chosen for the screener questionnaire represented a statistical sample of the entire universe of nonutility and manufacturing facilities potentially subject to cooling water intake regulations. EPA did not conduct a census of all facilities (*i.e.* send a survey to all facilities) for the screener questionnaire because of the burden associated with surveying a large number of facilities. Rather, EPA refined the industry data using industry-specific sources to develop sample frames and mailing lists. EPA believes the sample frame was sufficient to characterize the operations of each industrial category. EPA sent the screener questionnaire to 2600 facilities identified in the sample frame as follows: (1) All identified steam electric nonutility power producers, both industrial self-generators and nonindustrial generators (1050 facilities, of which 853 responded); and (2) a sample of manufacturers from the four non-steam electric industrial categories: paper and allied products, chemical and allied products, petroleum and coal products, and primary metals (1550 facilities, of which 1217 responded). EPA adjusted the sample frame for the screener questionnaire to account for several categories of non-respondents, including facilities with incorrect address information, facilities no longer in operation, and duplicate mailings. Through follow-up phone calls and mailings, EPA increased the response rate for the screener questionnaire to 95 percent. The screener questionnaire was not sent to utilities, all of which were believed to be identified accurately using the publicly-available data described above.

A sample of manufacturing and nonutility facilities identified as in-scope (subject to regulation) by the screener questionnaire and all utilities then were sent either a short technical or a detailed questionnaire. A total of 878 utility facilities, 343 nonutility facilities and 191 manufacturing facilities received one of the two questionnaires (short technical or detailed) during the second phase of the survey. For utilities, nonutilities, and other manufacturing facilities, EPA selected a random sample of these eligible facilities to receive a detailed questionnaire. The sample included 282 utility facilities and 181 nonutility facilities. All 191 manufacturing facilities received a detailed questionnaire. For nonutilities and utilities, those facilities not selected to receive a detailed questionnaire were sent a Short Technical Questionnaire. EPA's approach in selecting a sample involved the identification of population strata, the calculation of sample sizes based on desired levels of precision, and the random selection of sites given the sample size calculations within each stratum. More detail is provided in the report entitled ''Statistical Summary for Cooling Water Intakes Structures Surveys'' (*See* DCN 3–3077 in Docket W–00–03).

Five questionnaires were distributed to different industrial groups. They were: (1) Detailed Industry Questionnaire: Phase II Cooling Water Intake Structures—Traditional Steam Electric Utilities; (2) Short Technical Industry Questionnaire: Phase II Cooling Water Intake Structures—Traditional Steam Electric Utilities (sent to both utilities and nonutilities); (3) Detailed Industry Questionnaire: Phase II Cooling Water Intake Structures—Steam Electric Nonutility Power Producers; (4) Detailed Industry Questionnaire: Phase III Cooling Water Intake Structures—Manufacturers; and, (5) Watershed Case Study Short Questionnaire. The questionnaires provided EPA with technical and financial data necessary for developing this proposed regulation. Specific details about the questions may be found in EPA's Information Collection Request (DCN 3–3084–R2 in Docket W–00–03) and in the questionnaires (*see* DCN 3–0030 and 3–0031 in Docket W–00–03 and Docket for today's proposal); these documents are also available on EPA's Web site

(*http://www.epa.gov/waterscience/316b/question/*).

EPA also conducted outreach to industry groups, environmental groups, and other government entities in the development, testing, and refinement of a second round of surveys, the section 316(b) Phase III Industry Technical and Economic Questionnaires, which have been used as an additional source of data for the Phase III rule. The Phase III surveys, published in September 2003, were sent to offshore oil and gas extraction facilities and seafood processing vessels. Specific details about the questions may be found in EPA's Information Collection Request (DCN 7–0007) and in the questionnaires (*see* DCN 7–0008) in the Docket for today's proposal); these documents are also available on EPA's Web site (*http://www.epa.gov/waterscience/316b/question/*). In addition, EPA utilized a survey conducted by the International Association of Drilling Contractors (IADC) in 2003 to access technical data on cooling water use by offshore oil and gas extraction facilities, including fixed platforms and mobile units.

B. Existing Data Sources

EPA collected data from multiple sources, both public and proprietary, in order to compile an accurate profile of the potentially regulated community. EPA reviewed information collected by other Federal agencies, as well as data compiled by private companies. In those instances where databases are considered confidential, or where raw data was unavailable for review, EPA did not consider the information. Summaries of the reviewed data sources are listed below.

1. Electric Generators

EPA collected a substantial amount of data on the electric power generating industry in the course of the Phase I, II, and III rulemakings. For example, EPA used data from the Federal Energy Regulatory Commission (FERC) (Forms 1 and 1–F), the Energy Information Administration (EIA) (Forms EIA–412, –767, –860, –861, –867), the Rural Utility Service (RUS) (Form 12), as well as information from the U.S. Nuclear Regulatory Commission (NRC), the Utility Data Institute (UDI), and the Edison Electric Institute (EEI). For detailed information about these data sources, refer to the proposed rule for Phase II (67 FR 17131).

While electric power generators do not meet the proposed flow thresholds and are therefore not subject to Phase III national requirements (refer to section VI for further details), EPA did use the aforementioned data on electric power generators in reaching this decision. Data was used to assess, for example, the cooling water intake flows and the amount of electricity generated, and as part of the determination of economic impacts of the various compliance alternatives that EPA considered in developing the proposed rule.

2. Manufacturers

In order to identify potential entrainment impacts at facilities with a design intake flow below 50 MGD, EPA conducted a field study of six manufacturers in the Spring of 2002. This study was conducted in the mid-Atlantic region, with particular focus on the Delaware River and its tributaries. Sampling sites were selected for three freshwater and three tidal river facilities. EPA conducted two 4-day sampling events at each facility and conducted measurements of the following variables: site location and sampling point, facility intake flow rate, sampling pump volume, sampling time and duration and sample chain of custody. Additional physicochemical variables were measured, including the following: temperature, dissolved oxygen (DO), pH, and conductivity. Taxonomic identification was conducted for all organisms collected and results are provided in the *Data Report for Small Facility Ichthyoplankton Entrainment Sampling for the Development of the 316(b) Phase III Rule for Cooling Water Intake Structures* (EPA, 2003) (DCN 7–0009).

In mid-June 2003, in order to supplement the biological data used for estimating baseline impingement mortality and entrainment rates, EPA compiled a list of facilities who had responded in their industry questionnaire that they had conducted a biological study. Some of these facilities were then requested to provide EPA with copies of these studies. The first data collection effort focused on facilities that are located on an inland waterbody and have a high average daily intake flow. Preference was given to facilities located on Lake Michigan and the Columbia River, as these waterbodies (and more broadly, these regions of the country) were identified as having inadequate data for future analysis of Phase III impingement mortality and entrainment rates. The second data collection effort focused on facilities located in particular U.S. Fish and Wildlife Service fish regions to be used by EPA in calculation of benefits for the rule. The last data collection effort focused specifically on Phase III facilities. In total, 90 facilities were contacted and these contacts resulted in collection of 63 biological studies (33 of which were from Phase III facilities) for use in estimation of baseline impingement mortality and entrainment rates.

3. Offshore Oil and Gas Extraction Facilities and Seafood Processing Vessels

EPA conducted extensive research on the use of cooling water by offshore oil and gas extraction facilities and seafood processing vessels to determine whether these industry sectors would be subject to regulation under the Phase III rule. Information sources included industry surveys (one administered by EPA in conjunction with the International Association of Drilling Contractors (IADC) and another solely by EPA); industry databases and other publicly available information, and meetings with government and industry representatives. The survey efforts are described in section III.A above.

In April and May of 2003, EPA conducted site visits and field interviews at offshore oil and gas extraction facilities and seafood processing vessels to evaluate technologies in use for reducing impingement mortality and/or entrainment at these facilities. EPA employed the services of a specialized naval engineer to conduct these site visits and field interviews. Site visits were conducted at platforms and vessels. In addition, field interviews were conducted with industry personnel. The data collected from these visits and interviews included geographic data, intake design and impingement and entrainment technologies in place, impingement and entrainment problems encountered as well as any methods utilized in resolving such problems (*See* DCN 7–0010).

Sources used by EPA to characterize the offshore seafood processing industry included the following:

- U.S. Food and Drug Administration (FDA), Center for Food Safety and Applied Nutrition, January 2003, which included a list of U.S. FDA-European Union (EU) Exporters, Processing Vessels.
- Alaska Department of Fish and Game 2002 Intent to Operate Listing.
- Water Discharge Permits (PCS) database searches by SIC codes 2091, 2092 and 2077.
- Department of Transportation Maritime Administration (MARAD) Web site: *http://www.marad.dot.gov/publications/index.html* and *http://www.marad.dot.gov/Marad_Statistics/index.html*.
- U.S. Coast Guard Merchant Vessels of the United States database.

- U.S. Coast Guard PSIX/MSIS databases.
- National Transportation Safety Board database.
- U.S. Army Corps of Engineers, Navigation Data Center, Waterborne Commerce Statistics Center.
- The Alaska Department of Fish and Game Division of Commercial Fisheries Web site: *http://www.cf.adfg.state.ak.us*.
- The At-Sea Processors Association Web site: *http://www.atsea.org/*.
- EPA Region 10 Database of seafood processors permitted in Alaska.
- Technical Development Document (TDD) for the Uniform National Discharge Standards (UNDS) program (found at *http://unds.bah.com/TDD.pdf*) (Appendix A: Seawater Cooling Overboard Discharge Report).
- National Marine Fisheries Service Web site, Restricted Access Management Program, *http://www.fakr.noaa.gov/ram/default.htm*.
- National Marine Fisheries Services Web site, link to American Fisheries Act (AFA) permits: *http://www.fakr.noaa.gov/ram/afa.htm#list*.
- Several vessel operators, naval architects, engineers and regulators.

C. Data Provided to EPA by Industrial, Trade, Consulting, Scientific or Environmental Organizations or by the General Public

Since 1993, EPA has been developing cooling water regulations as part of a collaborative effort with industry and environmental stakeholders, other Federal agencies, the academic and scientific communities, and the general public. As a result, EPA has reviewed and considered the many documents, demonstration studies, scientific analyses, and historical perspectives offered in support of each phase of the regulatory process. For example, during the early stages of data gathering, EPA created an internal library of reference documents addressing cooling water intake structure issues. This library currently holds over 2,800 documents, many of which were referenced in the rulemaking process and are contained in the record (*see* the following paragraph for further information on the record). The library contains a thorough collection of a wide variety of documents, including over 80 section 316(b) demonstration documents, over 300 impingement and entrainment studies, over 100 population modeling studies, over 500 fish biology and stock assessment documents, over 350 biological studies commissioned by power generators, over 80 NPDES decisions and NPDES or SPDES-related documents, over 120 intake technology reports, over 10 databases on the electric power industry, and documents from interagency committees such as the Ohio River Valley Water Sanitation Commission (ORSANCO).

In addition, the record for the Phase I new facility rule contains nearly 1,000 documents (research articles, databases, legal references, memorandums, meeting notes, and other documents), consisting of approximately 47,000 pages of supporting material available for public review. And the record for the Phase II existing facility rule contains over 2600 additional documents, comprising approximately 125,000 pages of supporting material.

Finally, EPA has worked extensively with stakeholders from industry, public interest groups, State agencies, and other Federal agencies in the development of this proposed rule. These public participation activities have focused on various section 316(b) issues, including general issues, as well as issues relevant to development of the Phase II rule and issues relevant to this proposed Phase III rule. *See* section I.C.6 of this preamble for a discussion of key public participation activities.

IV. Overview of Facility Characteristics (Cooling Water Systems & Intake Structures) for Industries Potentially Subject to Proposed Rule

Today's proposed rule would apply national categorical requirements to two groups of facilities that use cooling water intake structures to withdraw water from waters of the U.S.: existing manufacturing and industrial facilities and new offshore oil and gas extraction facilities.

A. Overview of Potentially Regulated Phase III Universe

EPA's data collection efforts largely focused on five industrial sectors: small flow electric power generators (both utilities and nonutilities withdrawing less than 50 MGD); chemicals and allied products (SIC Major Group 28); primary metals industries (SIC Major Group 33); paper and allied products (SIC Major Group 26); and petroleum and coal products (SIC Major Group 29). The latter four sectors use a significant portion of the cooling water withdrawn among all manufacturing industries. EPA also identified other industry sectors that use cooling water including: transportation equipment (SIC Major Group 37); lumber and wood products (SIC Major Group 24); rubber and plastics products (SIC Major Group 30); food and kindred products (SIC Major Group 20); tobacco products (SIC Major Group 21); and machinery (SIC Major Group 35) (see DCN 7–0011). A more comprehensive list of industries that use cooling water and their NAICS and SIC Codes can be found in section A of the Supplementary Information. Although EPA's survey data collection efforts were not designed to collect data from industries other than the five listed above, data were collected from the following industries: food processing; aircraft engines and engine parts; cutlery; sawmills and planing mills; finishers of broad woven fabrics of cotton; potash, soda and borate minerals; iron ores; and sugarcane and sugar beets. These data from other industries, while not a statistically derived sample, confirm that the five primary industry sectors discussed above account for the vast majority of Phase III cooling water use. The data also suggest that the intake structure design and construction at these industries were substantially similar to the industries for which EPA did collect data.

Of the estimated 683 manufacturing and electric generator facilities (survey weighted estimate, as described in the *Technical Development Document* EPA–821–R–04–015, DCN 7–0004) within the Phase III universe,[6] approximately 225 (33 percent) belong to the pulp and paper sector, 185 (27 percent) belong to the chemical sector, 88 (13 percent) belong to the metals sector, and 39 (6 percent) belong to the petroleum sector. EPA also surveyed 29 facilities in other industry sectors (discussed above, all of which are potentially subject to the Phase III rule) in the detailed questionnaire, and those data are also being considered in today's proposed rule. In addition, an estimated 117 (17 percent) electric generating facilities are included within the Phase III universe.

The information below is generally based on data collected from the Short Technical Industry Questionnaire, the Detailed Industry Questionnaire, and the Phase III Industry Technical and Economic Questionnaires. Additional detail discussing the entire Phase III universe as well as facilities subject to the uniform national standards and facilities subject to permitting based on best professional judgment can be found in the Technical Development Document.

As explained in section V of this preamble, there are five main categories of surface water used as sources of cooling water. The source of surface water withdrawn for cooling is an

[6] The entire Phase III universe includes facilities with a design intake flow greater than 2 MGD which use at least 25 percent of the water withdrawn exclusively for cooling, and are not covered by Phase II. Offshore oil and gas extraction facilities are not included in this estimate.

important factor in determining potential environmental impacts. An estimated 11 (2 percent) facilities withdraw cooling water from an ocean; an estimated 39 (6 percent) facilities withdraw cooling water from an estuary or tidal river; an estimated 496 (73 percent) facilities withdraw cooling water from a freshwater stream or river; an estimated 60 (9 percent) facilities withdraw cooling water from a lake or reservoir; and an estimated 77 (11 percent) facilities withdraw cooling water from one of the Great Lakes. EPA estimates a total design intake flow of 40,441 MGD and total actual intake flow of 21,624 MGD for the Phase III universe.

Of the facilities within the Phase III universe, 303 (44 percent) employ once-through cooling systems, 198 (29 percent) use closed-cycle recirculating cooling systems, 121 (18 percent) use ''combination'' systems, and 61 (9 percent) use an ''other'' type of system. An estimated 286 (42 percent) facilities have installed a cooling tower. Note that not all facilities that have installed a cooling tower are classified as using closed-cycle recirculating cooling systems, as some facilities with multiple cooling water systems may be ''combination'' systems that employ both closed-cycle and once-through cooling. Facilities may also list ''helper'' cooling towers, which are generally used to mitigate discharge temperatures and do not affect intake flows. Since facilities may have more than one cooling water system, these estimates are based on the predominant cooling water system at each facility.

Facilities within this universe also may have more than one cooling water intake structure configuration. Therefore, in providing the information on intake structures, a facility may be counted multiple times (as many times as it has distinct cooling water intake structure configurations). Thus, of the facilities within the Phase III universe, 683 facilities represent an estimated 747 total cooling water intake structure configurations. Of these, an estimated 359 (48 percent) have a shoreline intake, 216 (29 percent) have a submerged offshore intake, 123 (16 percent) withdraw cooling water through a canal or channel, 49 (7 percent) have an intake situated in a bay or cove, and 47 (6 percent) are estimated to have some other type of intake or provided no information.

B. Existing Manufacturers and Industrial Facilities Potentially Subject to Proposed National Requirements

This section presents the number of facilities that would be potentially subject to uniform national performance standards under each of the three co-proposed options. *See* section VI of this preamble and Chapter 4 of the Technical Development Document for details on the other options considered but not presented as part of today's proposal. Exhibit IV–1 provides the number of existing facilities by design intake flow and waterbody type. Throughout the rest of this section, tabulations of less than five facilities are combined to prevent disclosure of an individual facility's information.

EXHIBIT IV–1.—TOTAL NUMBER OF PHASE III MANUFACTURING FACILITIES POTENTIALLY SUBJECT TO THE REGULATIONS BY DESIGN INTAKE FLOW AND WATERBODY TYPE

Facility design intake flow	Waterbody		
	Freshwater rivers and streams, lakes, and reservoirs	Oceans, estuaries, tidal rivers and streams, and Great Lakes	All waterbodies
2 MGD or greater [1]	556	127	683
20 MGD or greater [1]	302	92	394
50 MGD or greater [2]	103	52	155
100 MGD or greater [2]	47	26	73
200 MGD or greater [2]	16	15	31

[1] Includes those electric generating facilities defined as part of the Phase III universe.
[2] Only includes manufacturing facilities.

1. National Requirements for Facilities With a Design Intake Flow of 50 MGD and Above

EPA's 50 MGD option would require an estimated 155 facilities to meet the uniform national standards that implement section 316(b) (facilities with a design intake flow of 50 MGD and above and meeting applicability criteria at § 125.101). These facilities are comprised of an estimated 56 (36 percent) within the chemical sector, 42 (27 percent) within the pulp and paper sector, 30 (19 percent) within the metals sector, 17 (11 percent) within the petroleum sector, and an estimated total of 10 facilities (7 percent) within the ''other'' category; no seafood processing vessels would meet the applicability criteria at § 125.101.

An estimated 6 (4 percent) facilities withdraw cooling water from an ocean; an estimated 15 (10 percent) facilities withdraw cooling water from an estuary or tidal river; an estimated 93 (60 percent) facilities withdraw cooling water from a freshwater stream or river; an estimated 10 (6 percent) facilities withdraw cooling water from a lake or reservoir; and an estimated 31 (20 percent) facilities withdraw from one of the Great Lakes.

EPA has estimated that these 155 facilities possess a total design intake flow of 30,136 MGD and an actual intake flow of 16,582 MGD.

Further, of the cooling water system types in use at these 155 facilities, 68 (44 percent) of these systems are once-through cooling systems, 6 (4 percent) are closed-cycle recirculating cooling systems, 56 (36 percent) are ''combination'' systems, and 25 (16 percent) use an ''other'' type of system. An estimated 52 (33 percent) facilities have installed a cooling tower. As noted above, not all facilities that have installed a cooling tower are classified as closed-cycle recirculating cooling system.

These 155 facilities possess an estimated 211 total cooling water intake structure configurations. Of these, an estimated 46 (23 percent) facilities withdraw cooling water through a canal or channel, 17 (11 percent) have an intake situated in a bay or cove, 89 (59 percent) have a shoreline intake, 31 (20 percent) have a submerged offshore intake, and 28 (5 percent) are estimated to have some other type of intake or provide no information.

2. National Requirements for Facilities With a Design Intake Flow of 200 MGD and Above

EPA's 200 MGD option would require an estimated 31 facilities to meet the uniform national standards that implement section 316(b) (facilities with a design intake flow of 200 MGD and above and meeting applicability criteria at § 125.101). These facilities are comprised of an estimated 15 (48 percent) within the metals sector, 7 (23 percent) within the chemical sector, and 9 (29 percent) within the petroleum sector, the pulp and paper sector, or the ''other'' industries category.

An estimated 5 (16 percent) facilities withdraw cooling water from an estuary or tidal river; an estimated 16 (50 percent) facilities withdraw cooling water from a freshwater stream or river, lake, or reservoir; and an estimated 10 (32 percent) facilities withdraw from one of the Great Lakes. EPA estimates that there are no manufacturing facilities with a design intake flow of 200 MGD or greater that withdraw from an ocean.

EPA has estimated that these 31 facilities possess a total design intake flow of 18,340 MGD and an actual intake flow of 11,472 MGD.

Further, of the cooling water system types in use at these 31 facilities, 17 (55 percent) of these systems are once-through cooling systems, and 14 (45 percent) are ''combination'' or ''other'' systems. An estimated 10 (32 percent) facilities have installed a cooling tower or closed-cycle recirculating system.

These 31 facilities possess an estimated 70 total cooling water intake structure configurations. Of these, an estimated 16 (23 percent) facilities withdraw cooling water through a canal or channel, 24 (34 percent) have a shoreline intake, and 30 (43 percent) have a submerged offshore intake.

3. National Requirements for Coastal and Great Lakes Facilities With a Design Intake Flow of 100 MGD and Above

EPA's third proposed option would establish national requirements for facilities with 100 MGD or more design intake flows when the intake is on coastal waters (including oceans, tidal rivers and streams, and estuaries) or one of the Great Lakes. This option would require an estimated 26 facilities to meet the uniform national standards. These facilities are comprised of an estimated 12 (46 percent) within the metals sector, 7 (27 percent) within the chemical sector, and the remaining 7 (27 percent) within the pulp and paper sector, the petroleum sector, or the ''other'' industries. EPA estimated that these 26 facilities possess a total design intake flow of 7,661 MGD and actual intake flow of 4,753 MGD.

Further, of the predominant system types in use at these 26 facilities, 13 (50 percent) of these systems are once-through cooling systems. The other estimated 13 facilities use a combination cooling system and have installed a cooling tower. These 26 facilities possess an estimated 47 total cooling water intake structure configurations. Of these, an estimated 11 (23.4 percent) facilities withdraw cooling water through a canal or channel, 21 (44.7 percent) have a shoreline intake, and 15 (31.9 percent) have a submerged offshore intake.

C. New Offshore Oil and Gas Extraction Facilities Subject to Proposed National Requirements

Today's proposed rule would also apply national requirements to new offshore (offshore includes coastal) oil and gas extraction facilities. EPA is presently considering new facilities within the offshore oil and gas extraction industry as classified under SIC Major Group 13. EPA projects that there will be an estimated 124 new offshore oil and gas extraction facilities over the next 20 years. Most of these facilities will withdraw less than 50 MGD estimated design intake flow and will include both mobile offshore drilling units (MODUs) and deepwater platforms in the Gulf of Mexico and Alaska. Only three new MODUs are projected to have a design intake flow of greater than 50 MGD within the period of analysis. EPA's projection of new oil and gas extraction facilities is based on historical refurbishment of old rigs including MMS data on new platform installations over the last 10 years. *See* Part C of the EA for more information. Note most new offshore and coastal oil and gas extraction facilities to which today's proposed rule would apply would not be operating in estuaries, except for those operating in Cook Inlet.

V. Environmental Impacts Associated With Cooling Water Intake Structures

Through the Phase III rulemaking, EPA intends to minimize the adverse environmental impacts of cooling water intake structures by reducing the number of aquatic organisms lost as a result of water withdrawals associated with these structures or through restoration measures that compensate for these losses. In the Phase I rule for new facilities and in the Phase II rule for certain existing facilities, EPA provided an overview of the magnitude and type of environmental impacts associated with cooling water intake structures, including several illustrative examples of documented environmental impacts at existing facilities (*see* 65 FR 49071–4; 66 FR 65262–5; 67 FR 17136–40; and 69 FR 41587–88).

For the same reasons set forth in the preamble to the rules for Phase I and Phase II facilities (66 FR 65256, 65291–65297 and 69 FR 41586–90), EPA has determined that there are multiple types of undesirable and unacceptable environmental impacts that may be associated with Phase III facilities, depending on conditions at the individual site. These types of impacts include entrainment and impingement which can contribute to reductions of threatened and endangered species; and ecologically critical aquatic organisms, including important elements of the food chain; diminishment of a population's compensatory reserve; losses to populations, including reductions of indigenous species populations, commercial and recreational fisheries; and stresses to overall communities and ecosystems as evidenced by reductions in diversity or other changes in system structure and function. Based on the analyses in and for the same reasons set forth in the preambles to the Phase I rule (66 FR 65256, 65291–65297) and Phase II rule (69 FR 41598–41601), EPA has selected reductions in impingement mortality and entrainment as a quick, certain, and consistent metric for comparing facility performance to applicable requirements for Phase III facilities. Further, EPA considered the non-water quality environmental impacts for this rule (*e.g.*, impacts on energy use and associated increases in emissions) and found them to be acceptable at a national level. This section describes the environmental impacts associated with cooling water withdrawals and why they are of concern to the Agency.

Impingement takes place when organisms are trapped against cooling water intake screens by the force of the water being drawn through the cooling water intake structure. The velocity of the water withdrawal by the cooling water intake structure may prevent proper gill movement, remove fish scales, and cause other physical harm or death of affected organisms through exhaustion, starvation, asphyxiation, and descaling. Death from impingement (''impingement mortality'') can occur immediately or subsequently as an individual succumbs to physical damage upon its return to the waterbody.

Entrainment occurs when organisms are drawn through the cooling water intake structure into the cooling system.

Organisms that become entrained are typically relatively small, aquatic organisms, including early life stages of fish and shellfish. Many of these small fragile organisms serve as prey for larger organisms higher on the food chain which are commercially and recreationally desirable species. As entrained organisms pass through a facility's cooling system they may be subject to mechanical, thermal, and at times, chemical stress. Sources of such stress include physical impacts in the pumps and condenser tubing, pressure changes caused by diversion of the cooling water into the plant or by the hydraulic effects of the condensers, sheer stress, thermal shock in the condenser and discharge tunnel, and chemical toxic effects from antifouling agents such as chlorine. Similar to impingement mortality, death from entrainment can occur immediately or subsequently as the individual succumbs to the damage from the stresses encountered as it passed through the cooling water system once it is discharged back into the waterbody.

EPA estimates that existing Phase III facilities withdraw, on average, approximately 23,000 million gallons a day from waters of the United States.[7] [8] The withdrawal of such large quantities of water has the potential to affect large quantities of aquatic organisms including phytoplankton (tiny, freefloating photosynthetic organisms suspended in the water column), zooplankton (small aquatic animals, including fish eggs and larvae, that may consume phytoplankton and other zooplankton), fish, and shellfish. Aquatic organisms drawn into cooling water intake structures are either impinged on components of the cooling water intake structure or entrained in the cooling water system itself. Other organisms, including reptiles, birds, and mammals are also sometimes drawn into cooling water intake structures.

The environmental impacts attributable to impingement mortality and entrainment at individual facilities include losses of early life stages of fish and shellfish, reductions in forage species, and decreased recreational and commercial fishery landings. EPA estimates that cooling water intake structures potentially within the scope of today's rule and with a cooling water intake designed to take in greater than 2 MGD of water kill more than 120 million age 1 equivalent fish annually through impingement and entrainment. Expressing impingement mortality and entrainment losses as age 1 equivalents is an accepted method for converting losses of all life stages into individuals of an equivalent age and provides a standard metric for comparing losses among species, years, and facilities. Although the number of age 1 equivalent fish killed by impingement and entrainment is large, precise quantification of the nature and extent of impacts to populations and ecosystems is difficult due in part to the complexity of population dynamics and the physical, chemical, and biological processes of ecosystems. While it is generally accepted as a simple and transparent method for modeling losses, the proportional methodology that EPA uses to estimate impingement mortality and entrainment nationwide involves uncertainties that may result in under or over estimating actual impingement mortality and entrainment rates.[9]

Decreased numbers of aquatic organisms can disrupt aquatic food webs and alter species composition and overall levels of biodiversity. For example, a model that examined the effect of large entrainment losses of forage fish, such as bay anchovy, predicted subsequent reductions in predator populations (including commercially and recreationally important species such as striped bass, weakfish, and blue fish) as high as 25 percent.[10] This is because forage species, which comprise a majority of entrainment losses at many facilities, are often a primary food source for predator species.

EPA is also concerned about the potential impacts of cooling water intake structures located in or near habitat areas that support threatened, endangered, or other species of concern (those species that might be in need of conservation actions, but are not currently listed as threatened or endangered under State or Federal law).[11] In the San Francisco Bay-Delta Estuary, California, in the vicinity of the Pittsburg and Contra Costa Power Plants several fish species (*e.g.*, Delta smelt, Sacramento splittail, chinook salmon, and steelhead) are now considered threatened or endangered by State and/or Federal authorities. EPA evaluated facility data on impingement mortality and entrainment rates for these species and estimated that potential losses of special status fish species at the two facilities may average 8,386 age 1 equivalents per year resulting from impingement and 169 age 1 equivalents per year due to entrainment.[12] In another example, EPA is aware that from 1976 to 1994, approximately 3,200 threatened or endangered sea turtles entered enclosed cooling water intake canals at the St. Lucie Nuclear Generating Plant in Florida.[13] The facility developed a capture-and-release program in response to these events. Most of the entrapped turtles were captured and released alive; however, approximately 160 turtles did not survive. An incidental take limit established by NOAA Fisheries in a 2001 biological opinion for this facility has been set at no more than 1,000 sea turtles captured in the intake, with less than one percent killed or injured as a result of plant operations.[14] Although the extent to which threatened, endangered, and other special status species are taken by cooling water intake structures more generally is yet to be determined, EPA is concerned about potential impacts to such species.

EPA is addressing the universe of existing facilities through two separate rulemakings. The Phase II final rule addressed power generation facilities with cooling water intake structures designed to take in water flows greater than or equal to 50 million gallons a day (MGD). For today's proposed rulemaking, EPA evaluated impacts from the remaining power generation facilities (those with cooling water intake structures designed to withdraw greater than 2 MGD and less than 50 MGD) and from manufacturing facilities withdrawing greater than 2 MGD. EPA divided the universe of existing facilities in this way in part because EPA initially had limited data on Phase III facilities with design capacities less than 50 MGD. Dividing the universe of existing facilities provided EPA with an

[7] EPA 1999. Detailed Industry Questionnaires: Phase II Cooling Water Intake Structures & Watershed Case Study Short Questionnaire. U.S. Environmental Protection Agency, Office of Wastewater Management, Washington, DC. OMB Control No. 2040–0213.

[8] EPA 2003. Industry Technical Questionnaire: Phase III Cooling Water Intake Structures. Offshore and Coastal Oil and Gas Extraction Facilities. U.S. Environmental Protection Agency, Office of Science and Technology, Washington DC. OMB Control No. 2030–0213.

[9] For more information, please *see* Chapter A2 of Part A of the Regional Analysis Document.

[10] Summers, J.K. 1989. Simulating the indirect effects of power plant entrainment losses on an estuarine ecosystem. Ecological Modeling, 49: 31–47.

[11] For more information, please *see* Chapter A9 of Part A of the Regional Analysis Document.

[12] Impingement and entrainment data were obtained from the 2000 Draft Habitat Conservation Plan for the Pittsburg and Contra Costa facilities. Please *see* EPA's Regional Studies for the Final Section 316(b) Phase II Existing Facilities Rule for detailed information on EPA's evaluation of impingement and entrainment at these facilities.

[13] Florida Power and Light Company. 1995. Assessment of the impacts at the St. Lucie Nuclear Generating Plant on sea turtle species found in the inshore waters of Florida.

[14] Florida Power and Light Company. 2002. Florida Power & Light Company St. Lucie Plant Annual Environmental Operating Report 2002.

opportunity to gather more information on Phase III facilities.

Though the magnitude of impacts EPA has quantified from the universe of Phase III facilities is substantially smaller than the magnitude of impacts EPA has quantified from the universe of Phase II facilities, the information EPA has gathered on individual Phase III facilities indicates that the types of impacts that large individual facilities have on aquatic organisms can be similar to individual Phase II facilities' impacts.[15] Like Phase II facilities, Phase III facilities withdraw water from all waterbody types: lake, reservoir, Great Lake, freshwater river and stream, tidal river, estuary, and ocean environments. A smaller percentage of the overall cooling water flow withdrawn by Phase III facilities comes from tidal river, estuary and ocean environments, however, which are some of the most sensitive waterbodies. Phase III facilities also reside in many of the same geographic areas of the country and on many of the same waterbodies as Phase II facilities.

Information available to the Agency also indicates that the range of configurations of Phase III cooling water intake structures is similar to that of Phase II intakes (*see* section VI), and that their size ranges broadly overlap (in terms of both design capacity and actual intake flow). The majority of facilities evaluated as part of the Phase III rulemaking, have cooling water intake structures designed to take in less than 50 MGD. However, the majority of total cooling water intake volume at Phase III facilities is associated with facilities designed to withdraw 50 MGD or more. The ten largest Phase III facilities have intakes designed to take in more than 500 MGD. Two of these facilities have cooling water intakes designed to take in more than 1,000 MGD. In Phase II, there were 257 facilities with cooling water intakes designed to take in more than 500 MGD and 112 cooling water intakes designed to take in more than 1,000 MGD.

The universe of Phase III facilities also differs from that of Phase II facilities in that it includes oil and gas extraction facilities operating in offshore marine environments. EPA knows of no studies that examine actual impingement mortality and entrainment by offshore oil and gas extraction facilities. However, offshore marine environments provide habitat for a number of species of fish, shellfish, and other aquatic organisms. Many species have life stages that are small and planktonic or of minimal swimming ability and are therefore vulnerable to entrainment by cooling water intake structures. Larger life stages are potentially vulnerable to impingement. Both types of organisms are found in the offshore marine environment and thus may be susceptible to impingement mortality and entrainment by offshore oil and gas extraction facilities. The densities of organisms in the vicinity of these facilities relative to densities in estuaries and other nearshore areas is not well characterized.

Offshore oil and gas extraction facilities have also been shown to attract and concentrate aquatic organisms in the immediate vicinity of the underwater portions of their structure. A variety of species of pelagic fish have been found to gather within relatively short time frames around the underwater portion of offshore oil and gas extraction facilities. If a facility remains in one place for a sufficient length of time, other species of aquatic organisms take up residence directly upon the underwater structure and form reef-like communities that support additional species of fish and shellfish. The increased number of organisms near the underwater portion of facilities where cooling water intake structures are located increases the potential for impingement mortality and entrainment of those organisms. The extent to which the increased numbers of aquatic organisms represents an overall increase in organism populations, rather than a simple concentration of organisms from surrounding areas, is not known. (For additional information, *see* DCN 7–0013.)

The Minerals Management Service (MMS) did attempt to estimate potential population level impacts from impingement mortality and entrainment associated with the future operation of the Liberty Island project located in the Beaufort Sea in Alaska. The final Environmental Impact Statement for the project states that the proposed seawater intake structure will likely harm or kill some young-of-the-year arctic cisco during the summer migration period and some eggs and fry of other species living in the immediate vicinity of the intake. MMS estimated that less than 1% of all arctic cisco in the Liberty Island area were likely to be harmed or killed by the intake structure and that there would not be a measurable effect on the young-of-the-year cisco in the migration corridor. However, MMS also did not expect measurable effects on populations of other fish species, including salmon, because of the widespread and low density distribution of those species' eggs and fry. Essential fish habitat for salmon will be adversely affected according to MMS because it is expected that prey species of zooplankton and fish in their early life stages (juveniles, eggs, and larvae) could be killed in the intake (*see* Section A of the Regional Study report).

EPA's analyses indicate that, on a national basis, Phase II existing facilities have a total actual cooling water intake flow (214,000 million gallons a day) greater than that of Phase III existing facilities (23,000 million gallons a day). As discussed in the preamble to the Phase II final rule (69 FR 41612), information in the record contains evidence to support the proposition that, in a given aquatic environment, entrainment is related to flow (see DCN 2–013L–R15 and 2–013) while impingement is related to a combination of flow, intake velocity, and fish swim speed (*see* DCN 2–029). Larger withdrawals of water may result in commensurately greater levels of entrainment because the eggs and larvae of some aquatic species are free-floating and may be drawn with the flow of cooling water into an intake structure. Impingement rates are also influenced by swim speeds of affected species and intake velocity. As described in section IX, the Agency estimates that 120 million age 1 equivalent fish are impinged and entrained annually by the universe of Phase III facilities. This number is lower than the 3.4 billion age 1 equivalent fish the Agency estimated to be impinged and entrained annually by Phase II facilities (69 FR 41656). The lower total flow partially explains why the impacts EPA quantified for Phase III facilities are lower than those EPA quantified for Phase II facilities. In addition, based on the studies EPA was able to collect from Phase II and Phase III facilities, even on a flow-weighted basis the number of organisms impinged and entrained by Phase III facilities is approximately one third of the number of organisms impinged and entrained by Phase II facilities.

The following discussion refers to studies from Phase II facilities which have been extensively studied in order to illustrate environmental impacts associated with cooling water intake structures. Because of the basic similarities in nature among Phase II and Phase III facilities, the Agency believes these case studies are useful for understanding the types of environmental impacts that may result from cooling water intake structures at Phase III facilities. EPA notes that Phase II facilities as a group withdraw more

[15] EPA 1999. Detailed Industry Questionnaires: Phase II Cooling Water Intake Structures & Watershed Case Study Short Questionnaire. U.S. Environmental Protection Agency, Office of Wastewater Management, Washington, DC. OMB Control No. 2040–0213.

cooling water than the Phase III facilities as a group and requests comment on the relevance of these Phase II facility studies for the Phase III rulemaking. EPA also requests any case studies or other available data on environmental impacts from Phase III facilities.

Examples of Environmental Impacts Caused by Phase II Cooling Water Intake Structures

1. Hudson River

The power generation facilities on the Hudson River in New York are some of the most extensively studied in the nation. The fish populations in the Hudson River have also been studied extensively to measure the impacts of these power plants. Studies of entrainment at five Hudson River power plants during the 1980s predicted year-class reductions ranging from six percent to 79 percent, depending on the fish species.[16] The combined design intake flow capacity of these five facilities is greater than 6,500 million gallons per day. The New York State Department of Environmental Conservation (NYSDEC) concluded that any ''compensatory responses to this level of power plant mortality could seriously deplete any resilience or compensatory capacity of the species needed to survive unfavorable environmental conditions.''[17]

The Final Environmental Impact Statement (FEIS) prepared for these three of these five facilities concludes that impacts are associated with the power plants and notes that these impacts are more like habitat degradation than the ''selective cropping'' of fish that occurs during regulated fishing because the entire community is impacted rather than specific species higher on the food chain.[18] The FEIS estimates, from samples collected between 1981 and 1987, that the average annual entrainment losses from these three facilities includes 16.9 million American shad, 303.4 million striped bass, 409.6 million bay anchovy, 468 million white perch, and 826.2 million river herring.[19] In addition, related studies have found a small long-term decline in both species richness and diversity within the resident fish community.[20]

The Hudson River, like many waterbodies in the nation, has undergone many changes in the past few decades. These changes, which have affected fish populations either positively or negatively, include improvements to water quality as a result of upgrades to sewage treatment plants, invasions by exotic species such as zebra mussels, chemical contamination by toxins such as PCBs and heavy metals, global climate shifts such as increases in annual mean temperatures and higher frequencies of extreme weather events (e.g., the El Niño-Southern Oscillation), and strict management of individual species stocks such as striped bass.[21] In addition, there are dramatic natural changes in fish populations on an annual basis and in the long term due to natural phenomena because the Hudson River, like many waterbodies, is a dynamic system with many fundamental, fluctuating environmental parameters-such as flow, temperature, salinity, dissolved oxygen, nutrients, and disease-that cause natural variation in fish populations each year.[22] The existence of these interacting variables makes it difficult to determine the impact of impingement and entrainment losses on a population's relative health. Nonetheless, as described later in this section, EPA is concerned about the potential for cumulative impacts resulting from multiple facility intakes that collectively impinge and/or entrain aquatic organisms within a specific waterbody.

2. Mount Hope Bay

Environmental impacts were also studied in another recent permit reissuance for the Brayton Point Station in Somerset, Massachusetts, where EPA is the permitting authority. EPA determined that, among other things, the facility's cooling water system had contributed to the collapse of the fishery and inhibited its recovery despite stricter commercial and recreational fishing limits and improved water quality due to sewage treatment upgrades. The facility currently withdraws nearly one billion gallons of water each day (1,000 MGD) and the average annual losses of aquatic organisms due to impingement and entrainment are estimated in the billions, including, among other species, 251 million winter flounder, 375 million windowpane flounder, 3.5 billion tautog and 11.8 billion bay anchovy.[23] A dramatic change in the fish populations in Mount Hope Bay is apparent after 1984 with finfish abundance decline by more than 87 percent, which coincides with a 45 percent increase in cooling water withdrawal from the bay due to the modification of Unit 4 from a closed-cycle recirculating system to a once-through cooling water system and a similar increase in the facility's thermal discharge.[24] [25] The relative contributions of cooling water withdrawal and increased thermal discharge to the observed population decline is not known, and some of decline may be due to factors other than cooling water. However, the downward trend of several species of finfish abundance in Mount Hope Bay is significantly greater than declines for the same species in adjacent Narragansett Bay that is not influenced by the operation of Brayton Point Station.[26] Despite fishing restrictions, fish stocks have not recovered.

3. Southern California Bight

At the San Onofre Nuclear Generating Station (SONGS) (3,300 MGD design intake capacity), in a normal (non-El Niño) year, an estimated 57 tons of fish were killed per year when all units were in operation.[27] The amount lost per year included approximately 350,000 juveniles of white croaker, a popular

[16] Boreman J. and P. Goodyear. 1988. Estimates of entrainment mortality for striped bass and other fish species inhabiting the Hudson River Estuary. American Fisheries Society Monograph 4:152–160.

[17] New York State Department of Environmental Conservation (NYSDEC). 2000. Internal memorandum provided to the U.S. EPA on NYDECs position on SPDES permit renewals for Roseton, Bowline Point 1 & 2, and Indian Point 2 & 3 generating stations.

[18] New York State Department of Environmental Conservation (NYSDEC). 2003. Final Environmental Impact Statement: Concerning the Applications to Renew NYSPDES Permits for the Roseton 1 & 2, Bowling 1 & 2 and Indian Point 2 & 3 Steam Electric Generating Stations, Orange, Rockland and Westchester Counties.

[19] Ibid.

[20] Henderson, P.A. and R.M. Seaby. 2000. Technical comments on the Draft Environmental Impact Statement for the State Pollution Discharge Elimination System Permit Renewal for Bowline Point 1 & 2, Indian Point 2 & 3, and Roseton 1 & 2 Steam Generating Stations. Pisces Conservation Ltd.

[21] Ibid.

[22] New York State Department of Environmental Conservation (NYSDEC). 2003. Final Environmental Impact Statement: Concerning the Applications to Renew NYSPDES Permits for the Roseton 1 & 2, Bowling 1 & 2 and Indian Point 2 & 3 Steam Electric Generating Stations, Orange, Rockland and Westchester Counties.

[23] Brayton Point Station, Somerset, MA. Final National Pollutant Discharge Elimination System (NPDES) Permit: Fact Sheet. October 2003.

[24] Ibid.

[25] Gibson, M. 1995 (revised 1996). Comparison of trends in the finfish assemblages of Mt. Hope Bay and Narragansett Bay in relation to operations fo the New England Power Brayton Point station. Rhode Island Division of Fish and Wildlife, Marine Fisheries Office.

[26] EPA-New England. 2002. Clean Water Act NPDES Permitting Determinations for Thermal Discharge and Cooling Water Intake from Brayton Point Station in Somerset, MA (NPDES Permit No. MA 0003654), July 22, 2002.

[27] Murdoch, W.W., R.C. Fay, and B.J. Mechalas. 1989. Final Report of the Marine Review Committee to the California Coastal Commission. August 1989, MRC Document No. 89–02.

sport fish; this number represents 33,000 adult equivalents or 3.5 tons of adult fish. In shallow water, densities of queenfish and white croaker decreased 60 percent within one kilometer of SONGS and 35 percent within three kilometers from SONGS as compared to densities prior to facility operations. Densities of local midwater fish decreased 50 to 70 percent within three kilometers of the facility. In contrast, relative abundances of some bottom-dwelling species in the same areas were higher because of the enriched nature of the SONGS discharge, which in turn supported elevated numbers of prey items for bottom-dwelling fish.

4. Missouri River

Facilities sited on waterbodies previously impaired by anthropogenic activities such as channelization can demonstrate the potential for reduced entrainment and impingement losses associated with cooling water intake structures. The Neal Generating Complex facility, located near Sioux City, Iowa, on the Missouri River is coal-fired and utilizes once-through cooling systems. According to a ten year study conducted from 1972–82, the Missouri River aquatic environment near the Neal complex was previously heavily impacted by channelization and very high flow rates meant to enhance barge traffic and navigation.[28] These anthropogenic changes to the natural river system resulted in significant losses of fish habitat. At this facility, there was found to be little impingement mortality and entrainment by cooling water intake structures.

Studies like those described in this section provide only a partial picture of the range of environmental impacts associated with cooling water intake structures. Although numerous studies were conducted to determine the environmental impacts caused by impingement mortality and entrainment at existing facilities, many of them are based on limited data that were collected more than 25 years ago. EPA's review of available facility impingement and entrainment studies identified a substantial number of serious study design limitations, including data collections for only one to two years or limited to one season or for a subset of the affected species; limited taxonomic detail (*i.e.*, egg and larval losses not identified to the species level); a general lack of statistical information such as inclusion of variance measures for impingement and entrainment estimates; and the lack of standard methods and metrics for quantifying impingement mortality and entrainment, which limits the potential for comparing impacts among species, years, sites, and technologies and for evaluating cumulative impacts across multiple facilities. Further, in many cases it is likely that facility operating conditions and/or the state of the waterbody itself has changed since these studies were conducted. Finally, the methods for monitoring impingement and entrainment used in the 1970s and 1980s, when most section 316(b) evaluations were performed, were often inconsistent or incomplete, making quantification of impacts difficult. Recent advances in environmental assessment techniques provide new and, in some cases, better tools for monitoring impingement and entrainment and quantifying the current magnitude of the impacts.[29] [30] It is difficult to predict the effects of these study limitations on the impacts estimates, specifically whether they have led to an overestimate or underestimate of impacts. The studies do show, however, that the nature and magnitude of impacts are highly case specific.

EPA is also concerned about the potential for cumulative impacts related to cooling water withdrawal. Cumulative impacts may result from: (1) Multiple facility intakes impinging and/or entraining aquatic organisms within a specific waterbody, watershed, or along the migratory pathway of specific species; (2) the existence of multiple stressors within a waterbody/watershed, including cooling water intake structures withdrawals; and (3) repeated, long-term occurrences of impingement and/or entrainment losses that may result in the diminishment of the compensatory reserve of a particular fishery stock.

Historically, environmental impacts related to cooling water intake structures have been evaluated on a facility-by-facility basis. These historical evaluations do not consider the potential for a fish or shellfish species to be concomitantly impacted by cooling water intake structures belonging to other facilities that are located within the same waterbody or watershed in which the species resides or along the coastal migratory route of a particular species. Based on EPA's estimation of national impacts from Phase II and Phase III facilities, Phase II facilities would contribute a greater level of stress to a national measurement of cumulative stress than would the universe of Phase III facilities. However, the potential cumulative effects on a species or ecosystem of multiple intakes located within a specific waterbody or along a coastal segment are difficult to quantify and are not typically assessed. Thus, EPA is concerned that this type of cumulative impact is largely unknown and has not adequately been accounted for in evaluating impacts.

A total of 408,000 million gallons of water per day were withdrawn from waters of the United States in 2000 for cooling, irrigation, manufacturing processes, drinking, livestock watering and other purposes,[31] of which cooling water intake from Phase III facilities constitutes 23,000 million gallons of water per day, or approximately 6% of total water withdrawal. Additional stresses on aquatic systems include, but are not limited to, nutrient, toxics, and sediment loadings; low dissolved oxygen; habitat loss; and stormwater runoff. Although EPA recognizes that a nexus between a particular stressor and adverse environmental impact may be difficult to establish with certainty, EPA believes stressors that cause or contribute to the loss of aquatic organisms and habitat, such as those described above, may incrementally impact the health and long-term viability of aquatic resources. EPA analyses suggest that over 99 percent of all existing facilities with cooling water withdrawals that EPA surveyed in its section 316(b) survey of existing facilities are located within two miles of waters that are identified as impaired by a State or Tribe (*see* 66 FR 65256, 65297). Thus, the Agency is concerned that to the extent that many of the aquatic organisms subject to the effects of cooling water withdrawals reside in impaired waterbodies, they are potentially more vulnerable to cumulative impacts from an array of physical and chemical anthropogenic stressors.

Finally, EPA believes that an aquatic population's potential compensatory ability—the capacity for a species to increase its survival, growth, or reproduction in response to reductions sustained to its overall population size—may be compromised by impingement and entrainment losses in

[28] Tondreau, R., J. Hey and E. Shane, Morningside College. 1982. Missouri River Aquatic Ecology Studies: Ten Year Summary (1972—1982). Prepared for Iowa Public Service Company, Sioux City, Iowa.

[29] Schmitt, R.J. and C.W. Osenberg. 1996. Detecting Ecological Impacts. Academic Press, San Diego, CA.

[30] EPRI 1999. Catalog of Assessment Methods for Evaluating the Effects of Power Plant Operations on Aquatic Communities. TR–112013, EPRI, Palo Alto, CA.

[31] Hutson, S.S., N.L. Barber, J.F. Kenny, K.S. Linsey, D.S. Lumia, and M.A. Maupin. 2004. Estimated Use of Water in the United States in 2000. U.S. Geological Survey Circular 1268.

conjunction with all the other stressors encountered within a population's natural range, as well as impingement and entrainment losses occurring consistently over extended periods of time. As discussed in the Phase I new facility rule (*see* 66 FR 65294), EPA is concerned that even if there is uncertainty about the extent to which cooling water intake structures alone reduce a population's compensatory reserve, this stressor, in combination with the multitude of other stressors acting upon a species, can potentially adversely affect population sustainability.[32] Moreover, EPA notes that the opposite effect or ''depensation'' (decreases in recruitment as stock size declines)[33] may occur if a population's size is reduced beyond a critical threshold. Depensation can lead to further decreases in population abundances that are already seriously depleted and, in some cases, recovery of the population may not be possible even if the stressors are removed.[34] [35] [36]

In conclusion, EPA believes that there are multiple types of undesirable and unacceptable environmental impacts that may be associated with Phase III facilities, depending on conditions at the individual site. EPA solicits comment and additional data characterizing the type and extent of these impacts.

VI. Basis for the Proposed Requirements

A. What Is the Best Technology Available for Minimizing Adverse Environmental Impact at Phase III Existing Facilities?

Under today's proposed rule, existing Phase III facilities would be subject to the same national performance standards as Phase II existing facilities, and would be authorized to meet these requirements through the same five compliance alternatives provided in the Phase II rule. EPA is proposing to codify Phase III requirements in 40 CFR 125, subpart K. See section II for a discussion of the three co-proposed thresholds that in part determine which facilities would constitute a Phase III existing facility. Requirements for facilities that have, or are required to have, an NPDES permit and withdraw cooling water from waters of the United States, but do not meet the applicable flow threshold of today's proposed rule, or use less than 25 percent of the water withdrawn exclusively for cooling purposes, would continue to be established by permit writers on a case-by-case, best professional judgment basis. Today's proposed rule also would establish requirements for new offshore oil and gas extraction facilities. See section VI.A.5 for a discussion of proposed requirements for new offshore oil and gas extraction facilities. As with EPA's Phase I and II rules, States and authorized Tribes retain the authority to impose additional requirements as authorized by their laws and regulations.

EPA is proposing national performance standards for the reduction of impingement mortality and, when appropriate, entrainment. EPA developed these proposed performance standards in part based on a variety of technologies, but the proposed rule would not mandate the use of any specific technology. Rather, the proposed performance standards consist of ranges of reductions in impingement mortality and/or entrainment (*e.g.*, reduce impingement mortality by 80 to 95 percent and/or entrainment by 60 to 90 percent) based on the effectiveness of commercially available, economically practicable technologies operating in a range of aquatic environments. These proposed performance standards reflect the best technology available for minimizing adverse environmental impact determined on a national categorical basis. The type of performance standard applicable to a particular facility (*i.e.*, reductions in impingement mortality only or reductions in both impingement mortality and entrainment) would vary by the source waterbody type (*i.e.*, freshwater river/stream, estuary/tidal river, ocean, Great Lake, or lake/reservoir) and the proportion of the waterbody withdrawn.

Under this proposal, a Phase III existing facility could select among the same compliance alternatives available under the Phase II rule: (1) Demonstrate that it has reduced or will reduce its cooling water intake flow commensurate with a closed-cycle recirculating system, or that it has reduced, or will reduce, the maximum through-screen design intake velocity to 0.5 feet per second or less (the through-screen design intake velocity criteria meets the performance standards to reduce impingement mortality only; the facility may still be subject to performance standards for entrainment); (2) demonstrate that its existing design and construction technologies, operational measures, and/or restoration measures meet the applicable performance standards and restoration requirements; (3) demonstrate that it has selected design and construction technologies, operational measures, and/or restoration measures that will, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet the applicable performance standards and restoration requirements; (4) demonstrate that it will install or has installed and properly operates and maintains an approved design and construction technology; or (5) demonstrate that it has selected, installed, and is properly operating and maintaining, or will install and properly operate and maintain, design and construction technologies, operational measures, and/or restoration measures that the Director has determined to be the best technology available for the facility based on application of a specified cost-to-cost test or a cost-to-benefit test.

EPA is proposing this regulatory scheme based on its assessment that Phase III existing facilities (existing facilities not covered under the Phase II rule with a design intake flow that meets or exceeds one of the co-proposed thresholds) and Phase II facilities (existing power producers with a design intake flow of 50 MGD or greater) can employ similar technologies to minimize adverse environmental impacts, specifically impingement mortality and entrainment. EPA found no significant differences in either the types of cooling water intake structures or types of fish protection technologies used by proposed Phase III existing facilities and Phase II facilities. Moreover, EPA found that these technologies are economically practicable at the Phase III existing facilities proposed for coverage under the three proposed options.

Existing facilities that do not meet one of the co-proposed design intake flow thresholds (but meet the other applicability criteria) would continue to be subject to requirements established by permit writers on a case-by-case, best

---

[32] Hutchings, J.A. and R.A. Myers. 1994. What can be learned from the collapse of a renewable resource? Atlantic cod, Gadus morhus, of New Foundland and Labrador. Canadian Journal of Fisheries and Aquatic Sciences 51:2126–2146.

[33] Goodyear, C.P. 1977. Assessing the impact of power plant mortality on the compensatory reserve of fish populations. Pages 186–195 in W. Van Winkle, ed., Proceedings of the Conference on Assessing the Effects of Power Plant Induced Mortality on Fish Populations. Pergamon Press, New York, NY.

[34] Myers, R.A., N.J. Barrowman, J.A. Hutchings, and A.A. Rosenburg. 1995. Population dynamics of exploited fish stocks at low population levels. Science 26:1106–1108.

[35] Hutchings, J.A. and R.A. Myers. 1994. What can be learned from the collapse of a renewable resource? Atlantic cod, Gadus morhus, of New Foundland and Labrador. Canadian Journal of Fisheries and Aquatic Sciences 51:2126–2146.

[36] Liermann, M. and R. Hilborn. 1997. Depensation in fish stocks: A hierarchic Bayesian metaanalysis. Can. J. Fish. Aquatic. Sci. 54:1976–1985.

professional judgment basis, rather than to national categorical standards.

EPA notes that under its current regulations at 125.90(b), any existing facility that is a point source, that uses or proposes to use cooling water intake structures to withdraw cooling water from waters of the United States, and that is not subject to Subpart J or any other section 316(b)-related subpart in Part 125 must meet the requirements of CWA section 316(b) as determined by the Director on a case-by-case, best professional judgment (BPJ) basis. In today's Notice, EPA is proposing national categorical requirements for some of the facilities that, under § 125.90(b), would otherwise be subject to section 316(b) requirements established on a BPJ basis. Those facilities outside the scope of today's proposed rule would continue to be regulated on a case by case, BPJ basis, under Part 125 pursuant to § 125.90(b). After considering public comment on today's proposed regulation and any additional information developed as part of this rulemaking, EPA may decide to continue to rely on § 125.90(b) for all existing facilities not subject to Subpart J or any other section 316(b)-related subpart in Part 125 in lieu of today's proposed national categorical requirements.

1. Basis for Proposed Performance Standards

Under today's proposal, Phase III existing facilities would be subject to the same performance standards promulgated in the final Phase II cooling water intake structure rule (§ 125.103(b)). The basis for these performance standards is discussed in detail in the preamble to the final Phase II rule (69 FR 41576, July 9, 2004).

Under two of the three options proposed today, Phase III existing facilities are subject either to performance standards to reduce impingement mortality only, or performance standards to reduce both impingement mortality and entrainment. EPA believes that impingement mortality and entrainment are appropriate metrics for performance because these are primary and distinct types of harmful impacts associated with the use of cooling water intake structures.

All Phase III existing facilities demonstrating compliance under alternatives two, three, and four described above (proposed § 125.103(a)(2), (3), and (4)) would be subject to performance standards for impingement mortality. The impingement mortality performance standard would require a Phase III existing facility that complies under § 125.103(a)(2), (3), and (4)) to reduce impingement mortality for all life stages of fish and shellfish by 80 to 95 percent from the calculation baseline. The impingement mortality and entrainment performance standards under § 125.103(b) would also be used for determining eligibility and site-specific requirements for facilities choosing to comply under compliance alternative five (see proposed § 125.103(b)).

Both impingement mortality and entrainment performance standards would apply to Phase III existing facilities that withdraw cooling water from a tidal river, estuary, ocean, or one of the Great Lakes. Under the proposed options that would establish a design intake flow threshold at 50 MGD or higher or 200 MGD or higher, both standards would also apply to facilities that use cooling water from a freshwater river or stream and have a design intake flow greater than five percent of the mean annual flow. EPA is proposing to apply both standards because these facilities have the potential to cause more significant entrainment impacts. The entrainment standard, where applicable, would require a Phase III existing facility to reduce entrainment of all life stages of fish and shellfish by 60 to 90 percent from the calculation baseline. Performance standards for entrainment would not apply to Phase III existing facilities with design intake flows of five percent or less of the mean annual flow of a freshwater river or stream, and those that withdraw cooling water from a reservoir or lake (other than one of the Great Lakes). EPA believes such facilities have a lower propensity for causing significant entrainment impacts due to lower proportional intake flow or general waterbody characteristics.

Although facilities that withdraw from lakes (other than the Great Lakes) and reservoirs would not be subject to entrainment performance standards, they would be subject to other specific performance standards under the 50 MGD or higher proposed option, or 200 MGD or higher proposed option. If such a facility proposes to increase the design intake flow of the cooling water intake structure, the increase in total design intake flow must not disrupt the natural thermal stratification or turnover pattern of the source water except in cases where the disruption does not adversely affect the management of fisheries (see proposed § 125.103(b)(3)).

The performance standards applicable to Phase III existing facilities are not based on a single technology but, rather, are based on consideration of a range of technologies that EPA has determined to be commercially available for the Phase III industries affected as a whole and to have acceptable non-water quality environmental impacts. Because the proposed requirements implementing section 316(b) would be applied in a variety of settings and to Phase III existing facilities of different types and sizes, no single technology is most effective at all such facilities. A range of available technologies has therefore been used as the basis for the performance standards.

EPA developed the performance standards for impingement mortality reduction based on an analysis of the efficacy of the following technologies: (1) Fine and wide-mesh wedgewire screens, as well as aquatic filter barrier systems, that can reduce mortality from impingement by up to 99 percent or greater compared with conventional once-through systems; (2) barrier nets that may achieve reductions of 80 to 90 percent; and (3) modified screens and fish return systems, fish diversion systems, and fine mesh traveling screens and fish return systems that have achieved reductions in impingement mortality ranging from 60 to 90 percent as compared to conventional once-through systems with no impingement mortality controls. Data available to EPA indicate that these technologies can be used to achieve the reductions in impingement mortality and/or entrainment specified in the performance standards. EPA estimates that 35 percent of potential Phase III existing facilities (*i.e.* with an intake greater than 2 MGD) currently use passive intake technology (e.g., wedgewire screens, etc.), 12 percent use fine mesh screens, 6 percent use fish diversion technologies, and 5 percent use fish handling technologies. Available performance data for entrainment reduction are not as comprehensive as impingement data. However, aquatic filter barrier systems, fine mesh wedgewire screens, and fine mesh traveling screens with fish return systems have been shown to achieve 80 to 90 percent or greater reduction in entrainment compared with conventional once-through systems without entrainment controls. EPA notes that screening to prevent organism entrainment may cause impingement of those organisms instead.

The performance standards proposed at § 125.103(b) are based on the type of waterbody in which the intake structure is located, the volume of water withdrawn by a facility, and the facility capacity utilization rate. Under the final Phase II rule, EPA grouped waterbodies into five categories: (1) Freshwater rivers or streams, (2) lakes or reservoirs,

(3) Great Lakes, (4) tidal rivers and estuaries, and (5) oceans. This proposal would apply these same categories to Phase III existing facilities. The Agency considers location, one aspect of which is waterbody type, to be an important factor in addressing adverse environmental impact caused by cooling water intake structures. Because different waterbody types have the potential for different adverse environmental impacts, the requirements to minimize adverse environmental impact would vary by waterbody type.

The performance standards for Phase III existing facilities with cooling water intake structures located in a tidal river or estuary are a reduction of impingement mortality by 80 to 95 percent and entrainment by 60 to 90 percent for fish and shellfish. Data available to EPA indicate that estuaries and tidal rivers are among the more susceptible waterbodies to adverse impacts from impingement mortality and entrainment. The reproductive strategies of tidal river and estuarine species, together with other physical and biological characteristics of those waters, make them more susceptible to impacts from cooling water intake structures (66 FR 28857–28859; 68 FR 17140). In contrast, many aquatic organisms found in non-tidal freshwater rivers and streams are less susceptible to entrainment due to their demersal (bottom-dwelling) nature and the fact that they do not typically have planktonic (free-floating) egg and larval stages (66 FR 28857; 68 FR 17140).

Absent entrainment control technologies, entrainment at a particular site is generally proportional to intake flow at that site. EPA believes it is reasonable to vary performance standards by the potential for adverse environmental impact associated with flow levels and a waterbody type. Under two of the three proposed options, EPA would limit the requirement for entrainment controls in fresh waters to those facilities that withdraw the largest proportion of water from freshwater rivers or streams because they have a greater potential to impinge and entrain larger numbers of fish and shellfish. EPA is not requiring entrainment reductions in freshwater rivers or streams where facilities withdraw 5 percent or less of the source water annual mean flow because such facilities generally have a lower propensity for causing significant entrainment impacts due to the lower proportion of intake flow in combination with the characteristics of the waterbody.

This proposed rule would also establish a specific performance standard for lakes (other than a Great Lake) or reservoirs, in order to protect the thermal stratification of the waterbody. The natural thermal stratification or turnover pattern of a lake is a key characteristic that is potentially affected by the intake flow (which can alter temperature and/or mixing of cold and warm water layers) and location of cooling water intake structures within such waterbodies. The Great Lakes are subject to more stringent standards than other lakes or reservoirs, and must meet performance standards for reduction in both impingement mortality and entrainment. As described in the Phase I proposed rule (65 FR 49086) and Notice of Data Availability (NODA) (66 FR 28858), and the Phase II final rule (69 FR 41576), EPA believes that the Great Lakes have areas of high productivity and sensitive critical habitats that would require a greater level of protection.

The performance standards for Phase III existing facilities with cooling water intake structures located in an ocean are a reduction of impingement mortality by 80 to 95 percent and entrainment by 60 to 90 percent for fish and shellfish. EPA is establishing requirements for facilities withdrawing from oceans that are similar to those for tidal rivers and estuaries because the coastal zone of oceans (where coastal cooling water intake structures withdraw water from) are highly productive areas for fish and shellfish. (See the Phase I proposed rule (65 FR 45060) and documents in the record for the Phase I new facility rule (Docket W–00–03) such as 2–013A through O, 2–019A–R11, 2–019A–R12, 2–019A–R33, 2–019A–R44, 2–020A, 3–0059. EPA is also concerned about the extent to which fishery stocks that rely upon tidal rivers, estuaries and oceans for habitat are over utilized and seeks to minimize the impact that cooling water intake structures may have on these species or forage species on which these fishery stocks may depend. See 69 FR 41600.

As in the Phase I and Phase II rules, EPA would apply performance standards for minimizing adverse environmental impact based on a relatively easy to measure and certain metric-reduction of impingement mortality and entrainment. Although adverse environmental impact associated with cooling water intake structures can extend beyond impingement mortality and entrainment, EPA is proposing this approach because impingement mortality and entrainment are primary, harmful environmental effects that can be reduced through the use of specific technologies. In addition, those impacts that exist at the population, community, and ecosystem levels will also be reduced by reducing impingement mortality and entrainment. Using impingement mortality and entrainment as metrics provide certainty about performance standards and streamlines and thus speeds the issuance of permits.

The performance standards are expressed in the form of ranges rather than a single performance benchmark because of the uncertainty inherent in predicting the efficacy of any one of these technologies, or a combination of these technologies, across the spectrum of facilities operating in a range of aquatic environments subject to today's proposed rule. See 69 FR 41600. In specifying a range, EPA anticipates that facilities will select the most cost-effective technologies or operational measures to achieve the performance level (within the stated range) based on conditions found at their site, and that Directors will review the facilities' applications to ensure that appropriate alternatives were considered. Proper selection, operation, and maintenance of these technologies would serve to increase potential efficiencies of the technologies. EPA also expects that some facilities may be able to meet these performance requirements by selecting and implementing a suite (i.e., more than one) of technologies and operational measures and/or, as discussed in this section, by undertaking restoration measures.

Several additional factors support EPA's expectation that the impingement mortality and entrainment reduction reflected in the performance standards can eventually be achieved by all facilities using the design and construction technologies on which the standards were based. First, a significant amount of the data available to EPA (e.g., section 316(b) permitting studies) were developed during early section 316(b) permitting and do not reflect recent developments or experience using these technologies. Second, many conventional barrier and return system technologies have not been optimized as would be encouraged by this rule. Finally, some facilities could achieve further reductions (estimated at 15–30 percent) in impingement mortality and entrainment by providing for seasonal flow restrictions, variable speed pumps, and other operational measures and innovative flow reduction alternatives that can achieve greater reductions.

The calculation baseline used to determine compliance with performance standards is defined in proposed § 125.102 as an estimate of

impingement mortality and entrainment that would occur at a site assuming: (1) The cooling water system had been designed as a once-through system; (2) the opening of the cooling water intake structure is located at, and the face of the standard 3/8 inch mesh traveling screen is oriented parallel to, the shoreline near the surface of the source waterbody; and (3) the baseline practices and procedures are those that the facility would maintain in the absence of any operational controls, including flow or velocity reductions, implemented in whole or in part for the purposes of reducing impingement mortality and entrainment. Alternatively, the facility could choose to use the current level of impingement mortality and entrainment as the calculation baseline. The calculation baseline could be estimated using: historical impingement mortality and entrainment data from the facility or from another facility with comparable design, operational, and environmental conditions; current biological data collected in the waterbody in the vicinity of the facility's cooling water intake structure; or current impingement mortality and entrainment data collected at the facility. Further, a facility could request that the calculation baseline be modified to be based on a location of the opening of the cooling water intake structure at a depth other than at or near the surface if it can demonstrate to the Director that the other depth would correspond to a higher baseline level of impingement mortality and/or entrainment. EPA is proposing to use this definition because it represents the most common default conditions the Agency could identify to give facilities credit for design and construction technologies, operational measures, and/or restoration measures that they have already implemented to minimize adverse environmental impact, while providing a clear and relatively simple definition. In many cases, existing technologies at the site show some reductions in impingement mortality and entrainment when compared to this baseline. In such cases, impingement mortality and entrainment reductions (relative to the calculated baseline) achieved by these existing technologies should be counted toward compliance with the performance standards. In addition, operational measures such as operation of traveling screens that exceed the baseline (*e.g.*, screens finer than 3/8 inch mesh, or with fish handling capacity), employment of more efficient return systems, and even location choices should be credited for any corresponding reduction in impingement mortality and entrainment. See section VII of this preamble for a discussion of how the calculation baseline is used to compare facility performance with the proposed rule's performance standards.

In the Phase II final regulations (*see* 69 FR 41578), EPA considered the rate of use of the electric power generation facility in setting performance requirements. Under the Phase II rule, power producing facilities with a capacity utilization rate of less than 15 percent are only required to meet the impingement mortality reduction requirements, based on EPA's determination that entrainment impacts below this threshold would be minimal. Today's proposed rule does not contain an analogous provision for manufacturing facilities, as EPA has been unable to identify a similar threshold of operations below which impacts would be considered minimal. EPA requests comment on the availability of such a threshold that would result in lesser requirements for facilities that do not operate full time, thus minimizing burdens to these facilities while still protecting the source waterbody.

2. Basis for Five Proposed Compliance Alternatives

Today's proposed rule would authorize a Phase III existing facility with a total design intake flow that exceeds the specified threshold to choose one of five alternatives for establishing the best technology available for minimizing adverse environmental impact at the facility. These compliance alternatives (proposed § 125.103(a)) would be consistent with those promulgated in the final Phase II rule (40 CFR 125.94(a)). Each proposed alternative is described below.

This proposed approach provides a high degree of flexibility for Phase III existing facilities to select the most effective and efficient approach and technologies for minimizing adverse environmental impact associated with their cooling water intake structures. This proposed approach also reflects EPA's judgment that, given the wide range of various factors that affect the environmental impact posed by Phase III existing facilities, different technologies or different combinations of technologies can be used and optimized to achieve the performance standards. EPA requests comment on all aspects of this proposed approach.

a. Meeting Performance Standards Through Reducing Intake Flow Commensurate With a Closed Cycle Recirculating System or Reduced Design Intake Velocity

EPA is proposing that a Phase III existing facility could meet applicable performance standards through complying with § 125.103(a)(1)(i) or (ii). Under proposed § 125.103(a)(1)(i), any Phase III existing facility that reduces its flow to a level commensurate with a closed-cycle, recirculating cooling system would be deemed to satisfy the applicable impingement mortality and entrainment performance standards for all waterbodies under § 125.103(b). Such facilities may still be subject to requirements under § 125.103(e). Facilities that select this compliance alternative either through the use of existing closed-cycle recirculating system technology at the plant, or by retrofitting their facility, would not be required to further demonstrate that they meet the applicable performance standards.

Available data described in Chapter 3 of the Phase II Existing Facility Technical Development Document (DCN 7–0004) suggest that closed-cycle, recirculating cooling systems (*e.g.*, cooling towers or ponds) can reduce mortality from impingement by up to 98 percent and entrainment by up to 98 percent when compared with conventional once-through systems.[37] Although closed-cycle, recirculating cooling is not one of the technologies on which the performance standards are based, use of a closed-cycle, recirculating cooling system would achieve the performance standards, and therefore, facilities that reduce their flow commensurate with closed-cycle, recirculating cooling systems would be deemed to have met the performance standards for both impingement mortality and entrainment. Under this proposal, § 125.103(a)(1)(i) would thus constitute a compliance alternative for

[37] Reducing the cooling water intake structure's capacity is one of the most effective means of reducing entrainment (and impingement mortality). For the traditional steam electric utility industry, facilities located in freshwater areas that have closed-cycle, recirculating cooling water systems can, depending on the quality of the make-up water, reduce water use by 96 to 98 percent from the amount they would use if they had once-through cooling water systems. Steam electric generating facilities that have closed-cycle, recirculating cooling systems using salt water can reduce water usage by 70 to 96 percent when make-up and blowdown flows are minimized. The lower range of water usage would be expected where State water quality standards limit chloride to a maximum increase of 10 percent over background and therefore require a 1.1 cycle of concentration. The higher range should be attainable where cycles of concentration up to 2.0 are used for the design.

Phase III existing facilities based on the use of a closed-cycle, recirculating cooling system. While EPA based the requirements of the Phase I new facility rule on the efficacy of closed-cycle recirculating systems (66 FR 65273—65274), EPA has determined that this technology is not economically practicable for some Phase III existing facilities. EPA is nonetheless aware that approximately 6 percent of Phase III manufacturers with a design intake flow of 50 MGD or greater, and 3 percent of Phase III manufacturers with a design intake flow of 200 MGD or greater, have installed this highly effective technology and should meet this streamlined alternative.

Similarly, under proposed § 125.103(a)(1)(ii), any Phase III existing facility that reduces its design intake velocity to 0.5 feet per second or less would be deemed to have met the performance standards for impingement mortality and would not be required to demonstrate further that it meets the performance standards for impingement mortality. However, if the facility is subject to performance standards for entrainment, it would need to otherwise demonstrate compliance with entrainment performance standards.

As EPA discussed in the Phase II proposed rule at 67 FR 17151 and Phase I final rule at 66 FR 65274, intake velocity is one of the key factors that can affect the impingement of fish and other aquatic biota, since in the immediate area of the intake it exerts a direct physical force against which fish and other organisms must act to avoid impingement and entrainment. As discussed in those notices, EPA compiled data from three swim speed studies (University of Washington study, Turnpenny, and EPRI) (DCN 2–28A–C) and these data indicated that a 0.5 feet per second velocity would protect at least 96 percent of the tested fish. As further discussed, EPA also identified Federal documents (Boreman, DCN 1–5003–PR; Bell (1990); National Marine Fisheries Service (NMFS), (1997); an early swim speed and endurance study performed by Sonnichsen *et al.* (1973); and fish screen velocity criteria that support this approach (DCN 2–29).

b. Meeting Performance Standards Through the Use of Design and Construction Technologies, Operational Measures, and/or Restoration Measures

Under the second and third proposed Phase III compliance alternatives, a facility could either demonstrate to the Director that the facility's existing design and construction technologies, operational measures, and/or restoration measures already meet the minimum performance standards specified under § 125.103(b) and (c), or that it has selected design and construction technologies, operational measures, and/or restoration measures or some combination thereof that will meet these performance standards (*see* proposed § 125.103(a)(2) and (3)).

Available data indicate that barrier and/or fish handling technologies are available on a national basis for use by Phase III existing facilities.[38] These technologies exist and are in use at various Phase III existing facilities and, thus, EPA considers them collectively technologically available. Many Phase III existing facilities that do not already have closed-cycle cooling systems have these or other technologies in place that reduce impingement mortality or entrainment to levels that would meet the proposed rule requirements (*e.g.*, EPA estimates this is the case for 23 percent of manufacturers with a design intake flow of 50 MGD or greater, see the TDD for more details). The fact that these technologies are collectively utilized means that, in general, one or more technologies within the suite would be available to each Phase III existing facility to meet the applicable performance standards. (If this is not the case for a specific facility, it can utilize compliance alternative five below.)

EPA believes that the design and construction technologies necessary to meet the requirements are commercially available and economically practicable for existing facilities, because facilities can and have installed many of these technologies years after a facility began operation. Typically, additional design and construction technologies such as fine mesh screens, wedgewire screens, fish handling and return systems, and aquatic filter fabric barrier systems can be installed during a scheduled outage (operational shutdown).

In addition, EPA's survey data shows that the types of intakes, technologies currently employed, or technologies that may be retrofitted at proposed Phase III existing facilities are no different than those at Phase II facilities. For example, EPA identified one Phase III facility that retrofitted ten 36-inch wedgewire T-screens. Another retrofit example is an electric generator that is below the Phase II threshold that replaced its perforated plate with wedgewire T-screens. Examples of Phase II facilities that installed these technologies after they initially started operating may be found at 69 FR 641602.

c. Meeting Performance Standards Through Use of a Pre-Approved Design and Construction Technology

Under the fourth compliance alternative in today's proposed regulation, a Phase III existing facility would be able to demonstrate that it meets specified conditions and has installed and properly operates and maintains a pre-approved technology (*see* proposed § 125.103(a)(4)). EPA has identified one pre-approved technology: Submerged cylindrical wedgewire screen technology to treat the total cooling water intake flow. This pre-approved technology was identified in the Phase II rule, and is proposed as a compliance option for Phase III existing facilities (*see* proposed § 125.108). There are five conditions that would need to be met in order to use this technology to comply with the proposed rule: (1) The cooling water intake structure is located in a freshwater river or stream; (2) the cooling water intake structure is situated such that sufficient ambient counter currents exist to promote cleaning of the screen face; (3) the through screen design intake velocity is 0.5 feet per second or less; (4) the slot size is appropriate for the size of eggs, larvae, and juveniles of any fish and shellfish to be protected at the site; and (5) the entire main cooling water flow is directed through the technology (small flows totaling less than two MGD for auxiliary plant cooling uses are excluded). Under this proposal, Directors would be explicitly authorized under § 125.108 to pre-approve other technologies for use at facilities with other specified characteristics within their respective jurisdiction after providing the public with notice and an opportunity to comment on the request for approval of the technology. The Director's authority to pre-approve other technologies would not be limited to technologies for use by facilities located on freshwater rivers and streams.

EPA has proposed this compliance alternative in response to Phase II proposed rule comments and Phase III small entity comments (provided pursuant to consultations mandated by the Small Business Regulatory Enforcement Fairness Act) that suggested that EPA provide an additional, more streamlined compliance option that would allow a facility to implement certain specified technologies that are deemed highly protective in exchange for reducing the implementation burden, including reducing the scope of the

[38] As previously noted, as an example of technologies in use EPA estimates that 35 percent of Phase III existing facilities currently use passive intake technology (*e.g.*, wedgewire screens, *etc.*), 12 percent use fine mesh screens, 6 percent use fish diversion technologies, and 5 percent use fish handling technologies.

Comprehensive Demonstration Study. (*See,* 68 FR 13522, 13539; March 19, 2003 and DCN 7–0006). EPA evaluated the effectiveness of specific technologies using the impingement mortality and entrainment reduction performance standards as assessment criteria. The approved cylindrical wedgewire screen technology has a demonstrated ability to reduce impingement mortality by 80 to 95 percent for fish and shellfish and, if required, reduce entrainment by 60 to 90 percent for any stages of fish and shellfish at facilities that meet the conditions specified in proposed § 125.108(a)(1). Thus, the technology has a demonstrated ability to meet the most stringent performance standards that would apply to any facility situated on a freshwater river or stream. (*See* DCN 1–3075, 1–5069, 1–5070, 3–0002, and 4–4002B. Also, *see* DCN 6–5000 and Chapter 3 of the Phase II Technical Development Document (DCN 6–0004)). Because cylindrical wedgewire screens are believed to be effective when deployed under the specified conditions and properly maintained, facilities that select this compliance option are provided substantially streamlined requirements for completing the Comprehensive Demonstration Study. However, facilities that select this option would still be required to prepare a Technology Installation and Operation Plan and a Verification Monitoring Plan to monitor the effectiveness of the technology at their sites in meeting the performance standards.

Referenced below are examples of Phase III facilities that installed this technology after they initially started operating.

Sherburne County Generating Plant. A Phase III electric generator, Sherburne County is located on the upper Mississippi River in Minnesota. The facility began operations in 1976 and operates one cooling water intake structure. The facility also uses a closed-cycle, recirculating cooling system. In 1986, Sherburne County replaced its existing intake technology (a perforated plate) with cylindrical wedgewire screens.

Tosco Refinery. Oil refineries are one of the industry sectors examined in the Phase III rule. Located in Rodeo, California, the Tosco Refinery replaced its traveling screens with cylindrical wedgewire screens in 2000.

To date, EPA has not identified new data or information that could be used to establish other technologies as pre-approved on a nationwide basis. Several stakeholders suggested EPA continue to evaluate whether other technologies could qualify as pre-approved technologies. EPA solicits comment and new data, including appropriate site conditions, on other candidate technologies for pre-approval.

d. Site-Specific Determination of Best Technology Available To Minimize Adverse Environmental Impact

Under this proposed compliance alternative, a Phase III existing facility also could comply with the proposed rule by seeking a site-specific determination of the best technology available to minimize adverse environmental impact by demonstrating to the Director that its cost of complying with the applicable performance standards would be significantly greater than the costs considered by EPA for a like facility when establishing such performance standards, or that its costs would be significantly greater than the benefits of complying with such performance standards at the facility. (*See* proposed § 125.103(a)(5)(i) and (ii)). If a facility satisfies one of the two proposed cost tests in § 125.103(a)(5), then the Director would have to establish site-specific alternative requirements based on design and construction technologies, operational measures, and/or restoration measures that achieve an efficacy that is, in the judgment of the Director, as close as practicable to the applicable performance standards without resulting in costs that are significantly greater than either the costs considered by the Administrator in establishing the applicable performance standards, or the benefits at the facility.

As discussed in the Phase II rule, in developing the proposed standards in § 125.103(b) and the proposed compliance alternatives in § 125.103(a)(2)–(4), EPA considered several factors, including efficacy, availability, ease of implementation, indirect effects, the costs that EPA expects all existing facilities to incur (national costs) and the benefits if all existing facilities meet the performance standards (national benefits). These proposed site-specific compliance options would give Phase III existing facilities flexibility to demonstrate that the best technology available to minimize adverse environmental impact at their particular sites may be less stringent than would otherwise be required if the facility selected one of the compliance alternatives in § 125.103(a)(2), (3) or (4).

i. Basis of the Cost-Cost Test

For a number of related reasons discussed below, EPA chose to use a comparison of a facility's actual costs to the costs EPA estimated that a like facility would incur to meet the national performance standards (a ''cost-cost test'') as a basis for obtaining a site-specific determination of best technology available to minimize adverse environmental impact. EPA's record for this proposed rule shows that for Phase III existing facilities withdrawing greater than the three co-proposed thresholds, the requirements in today's proposed rule would be technically available and generally economically practicable. However, EPA recognizes that it may not have anticipated all site-specific costs that a facility would incur, or that the costs for retrofitting may significantly exceed those EPA considered. For example, detailed information on some factors important to the effectiveness and costs of the technologies, such as debris loading and the presence of navigational channels within the waterbody at which cooling water intakes are sited, were not available. Moreover, the information EPA used to develop its costs was in some cases limited by the fact that, while EPA sent surveys to all known electric generators and a sample of manufacturing facilities covered under today's proposed rule, only 42 percent of the total potential Phase II and Phase III universes were sent detailed questionnaires. The remaining 58 percent only received a short technical questionnaire which requested minimal characterization information. Also, EPA may not have elicited information regarding characteristics of a particular facility that, if known, would have either significantly changed EPA's cost estimates or demonstrated that none of the technologies on which the categorical requirements are based are economically achievable by the facility. Similarly, existing facilities have less flexibility than new facilities in selecting the location of their intakes and technologies for minimizing adverse environmental impact, and therefore it may be difficult for some facilities to avoid costs much higher than those EPA considered when establishing the performance standards. The cost-cost site-specific alternative ensures that the overall rule remains economically practicable for all facilities that would be subject to today's proposed rule. Despite EPA's best effort, site-specific costs are difficult to estimate in a national rule. For all of these reasons, EPA believes that the cost-cost site-specific compliance alternative is necessary to ensure that the proposed rule would be economically practicable for all Phase III existing facilities. In order to ensure that this alternative provides only the

minimum relaxation of performance standards that is needed to make the proposed rule economically practicable, proposed § 125.103(a)(5)(i) requires that the site-specific requirements achieve an efficacy that is as close as practicable to the applicable performance standards without resulting in costs that are significantly greater than those considered by the Administrator for a like facility when establishing the performance standards.

EPA is proposing at § 125.103(a)(5) to limit the comparison of like facilities to Phase III existing facilities within the scope of the rule. EPA believes this provision is necessary and appropriate because different cost assumptions were used in estimating costs for the Phase II and Phase III existing facilities. (These differences are discussed in detail in the relevant Technical Development Documents (DCN 6–0004 and DCN 7–0002.)

Legal Authority for the Cost-Cost Test

CWA section 316(b) authorizes a site-specific determination of best technology available. Although, CWA section 316(b) authorizes EPA to promulgate national categorical requirements, the variety of factors to be considered in determining these requirements—such as location and design—indicate that site-specific conditions can be highly relevant to the determination of best technology available to minimize adverse environmental impact. In addition to specifying best technology available in relation to a national categorical performance standard, today's proposed rule also authorizes a site-specific determination of best technology available when conditions at the site lead to a more costly array of controls than EPA had expected would be necessary to achieve the applicable performance standards.

This site-specific compliance option is similar to the ''fundamentally different factors'' provision in CWA section 301(n), which authorizes alternative requirements for sources subject to national technology-based standards for effluent discharges, if the facility can establish that it is fundamentally different with respect to factors considered by EPA in promulgating the national standard. The fundamentally different factors provision was added to the CWA in 1987, but prior to the amendment, both the Second Circuit and the Supreme Court upheld EPA's rules containing provisions for alternative requirements as reasonable interpretations of the statute. *NRDC* v. *EPA*, 537 F.2d 642, 647 (2d Cir. 1976) (''the establishment of the variance clause is a valid exercise of the EPA's rulemaking authority pursuant to section 501(a) which authorizes the Administrator to promulgate regulations which are necessary and proper to implement the Act''); *EPA* v. *National Crushed Stone Ass'n*, 449 U.S. 64 (1980) (approving EPA's alternative requirements provision in a standard adopted pursuant to CWA section 301(b)(1), even though the statute did not expressly permit a variance.) EPA's alternative site-specific compliance option in this proposed rule is similarly a reasonable interpretation of section 316(b) and a valid exercise of its rulemaking authority under CWA section 501.

Based on this interpretation, EPA and State permitting authorities have been implementing CWA section 316(b) on a case-by-case basis for over 25 years. Such a case-by-case determination of best technology available has been recognized by courts as being consistent with the statute. See *Hudson Riverkeeper Fund* v. *Orange and Rockland Util*, 835 F. Supp. 160, 165 (S.D.N.Y. 1993) (''This leaves to the permit writer an opportunity to impose conditions on a case by case basis, consistent with the statute'').

EPA reasonably interprets CWA section 316(b) to authorize it to consider costs of compliance in determining best technology ''available.'' (*See* section I.) Therefore, where EPA fails to consider a facility's unusual or disproportionate costs in setting the national requirements for best technology available, it reasonably authorizes permit authorities to set site-specific alternative limits to account for these costs. See *Riverkeeper* v. *EPA*, slip op. at 25 (2nd Cir. Feb. 3, 2004) (upholding site-specific alternative limits under the Phase I rule for new facilities where a particular facility faces disproportionate compliance costs).

ii. Basis of the Cost-Benefit Test

Under today's proposal, EPA would allow a facility to use a comparison of its costs to the benefits of meeting the performance standards at its site (a ''cost-benefit test'') as another basis for obtaining a site-specific determination of best technology available to minimize adverse environmental impact. Section 316(b) authorizes consideration of the environmental benefit to be gained by requiring that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for the purpose of minimizing adverse environmental impact. Accordingly, in proposing the technologies on which EPA based the compliance alternatives and performance standards as the best technologies available for existing facilities to minimize adverse environmental impact, EPA considered the national cost of those technologies in comparison to the national benefits—*i.e.*, the reduction in impingement mortality and entrainment that EPA estimated would occur nationally if all Phase III existing facilities withdrawing greater than any of the co-proposed thresholds selected one of the compliance options in § 125.103(a)(2) through (4). While EPA believes that there is considerable value in promulgating national performance standards under section 316(b) based on what EPA determines, on a national basis, to be the best technology available to minimize adverse environmental impact, EPA also recognizes that, at times, determining what is necessary to minimize adverse environmental impact can necessitate a site-specific inquiry. EPA's balance of the national costs and national benefits may not be similar to the comparison of costs and benefits at a specific site due to variations in: (1) The performance of intake technologies, and (2) characteristics of the waterbody in which the intake(s) are sited, including the resident aquatic biota. For example, there may be some facilities where the absolute numbers of fish and shellfish impinged and entrained is so minimal that the cost to achieve the required percentage reductions would be significantly greater than the benefits of achieving the required reductions at that particular site. More specifically, because of the characteristics of a particular waterbody, or the behavioral patterns of the fish or shellfish in that particular waterbody, there may be little or no impingement mortality or entrainment occurring at the site. For such a facility, the cost of reducing an already small amount of impingement mortality and entrainment by 80 to 95 percent and 60 to 90 percent, respectively, may be significantly greater than the benefits. In short, it may not be cost-effective and, therefore may be economically impracticable for a facility to achieve percentage reductions when attempting to save a small number of fish or shellfish. For example, in a waterbody that is already degraded, very few aquatic organisms may be subject to impingement or entrainment, and the costs of retrofitting an existing cooling water intake structure may be significantly greater than the benefits of doing so. By requiring best technology available to minimize adverse environmental impact, section 316(b) invites a consideration of both technology and environmental

conditions, including the potential for adverse impacts, in the receiving waterbody. EPA believes it is a reasonable interpretation of the statute to allow the Director to consider the results of meeting the performance standards in terms of reducing environmental impact (*i.e.*, the benefits) in cases where the costs of installing the technology are significantly greater than the reduction in environmental impacts would seem to warrant. As with the cost-cost site-specific provision, EPA also wants to ensure that any relaxation of the performance standards be the minimum necessary to ensure that the costs are not significantly greater than the benefits. Proposed § 125.103(a)(5)(ii) thus provides that alternative site-specific requirements must achieve an efficacy that is as close as practicable to the applicable performance standards without resulting in costs that are significantly greater than the benefits of meeting the performance standards at the facility.

Legal Authority for the Cost-Benefit Test

EPA believes that the Clean Water Act authorizes a site-specific determination of the best technology available to minimize adverse environmental impact where the costs of compliance with the rule's performance standards are significantly greater than its benefits. This authority stems from the statutory language of CWA section 316(b). Section 316(b) requires that cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. The object of the best technology available is explicitly articulated by reference to the receiving water: To minimize adverse environmental impact in the waters from which cooling water is withdrawn. In contrast, under section 301, the goal of BAT is explicitly articulated by reference to a different purpose, to make reasonable further progress toward the national goal of eliminating the discharge of all pollutants (section 301(b)(2)(A)). Similarly, under section 304, the goal of BPT and BCT is explicitly articulated by reference to the degree of effluent reduction attainable. (Section 304(b)(1)(A) and section 304(b)(4)(A))

EPA has previously considered the costs of technologies in relation to the benefits of minimizing adverse environmental impact in establishing section 316(b) limits, which historically have been done on a case-by-case basis. See, e.g., *In Re Public Service Co. of New Hampshire,* 10 ERC 1257 (June 17, 1977); *In Re Public Service Co. of New Hampshire,* 1 EAD 455 (Aug. 4, 1978); *Seacoast Anti-Pollution League* v. *Costle,* 597 F. 2d 306 (1st Cir. 1979). Under CWA section 316(b), EPA may consider the benefits that the technology-based standard would produce in a particular waterbody, to ensure that it will ''minimize adverse environmental impact.'' EPA believes that the technology-based standards established in this proposed rule will, as a national matter, ''minimize adverse environmental impact.'' However, the degree of minimization contemplated by the national performance standards may not be justified by site-specific conditions. In other words, depending on the circumstances of the receiving water, it may be that application of less stringent controls than those that would otherwise be required by the performance standards will achieve the statutory requirement to ''minimize'' adverse environmental impact, when considered in light of economic practicability. An extreme example is a highly degraded ship channel with few fish and shellfish, but such situations can only be identified and addressed through a site-specific assessment.

For these reasons, EPA reasonably interprets the phrase ''minimize adverse environmental impact'' in section 316(b) to authorize a site-specific consideration of the benefits of the technology-based standard on the receiving water. EPA continues to believe that any impingement or entrainment would be an adverse environmental impact, but has determined that section 316(b) does not require minimization of adverse environmental impact beyond that which can be achieved at a cost that is economically practicable. EPA believes that the relationship between costs and benefits is one component of economic practicability for purposes of section 316(b) and the legislative history indicates that economic practicability may be considered in determining what is best technology available for purposes of section 316(b). The legislative history of section 316(b) indicates that the term ''best technology available'' should be interpreted as ''best technology available commercially at an economically practicable cost.'' [39] EPA believes that allowing a relaxation of the performance standards when costs significantly exceed benefits, but only to the extent justified by the significantly greater costs, is a reasonable way of ensuring that adverse environmental impact be minimized at an economically practicable cost. This does not mean that there is a need to make a finding of ''adverse environmental impact'' before performance standards based CWA section 316(b) requirements would apply. Rather, EPA is authorizing an exception to national performance standards based requirements on a site-specific basis in limited circumstances: when the costs of complying with the national performance standards are significantly greater than the benefits of compliance at a particular site.

3. Why Is EPA Proposing National Requirements for New Offshore and Coastal Oil and Gas Extraction Facilities?

After EPA proposed the Phase I rule for new facilities (65 FR 49060, August 10, 2000), the Agency received adverse comment from operators of mobile offshore and coastal drilling units concerning the limited information about their cooling water intakes, associated impingement mortality and entrainment, costs of technologies, or achievability of the controls proposed by EPA. On May 25, 2001, EPA published a Notice of Data Availability (NODA) for Phase I that, in part, sought additional data and information about mobile offshore and coastal drilling units (*see* 66 FR 28857). In the Phase I final rule, EPA committed to ''propose and take final action on regulations for new offshore oil and gas extraction facilities, as defined at 40 CFR 435.10 and 40 CFR 435.40, in the Phase III section 316(b) rule.'' See 66 FR 65256. Today's proposed regulation would establish national requirements for new offshore oil and gas extraction facilities that use a cooling water intake structure to withdraw water from waters of the U.S.

Requirements for new offshore oil and gas extraction facilities are proposed in a new subpart N. New onshore oil and gas extraction facilities are already potentially covered under section 316(b) Phase I requirements; new offshore oil and gas extraction facilities that would be subject to subpart N include new coastal and offshore oil and gas extraction facilities. The proposed requirements for these facilities are similar to some, but not all, of the requirements contained in the Phase I rule applicable to other new facilities. For example, the Phase I requirement to reduce intake flow commensurate with a closed-cycle, recirculating cooling system would not apply to these facilities. EPA is seeking comment only on the new facility requirements contained in proposed Subpart N, which would be applicable to new offshore oil and gas extraction facilities.

Under today's proposed rule, new offshore oil and gas extraction facilities

[39] See 118 Cong. Rec 33,762 (1972), reprinted in 1 Legislative History of the Water Pollution Control Act Amendments of 1972, at 264 (1973)(Statement of Representative Don H. Clausen).

that withdraw greater than 2 MGD and that employ sea chests as cooling water intake structures, and are fixed facilities would have to comply with the requirements in § 125.134(b)(1)(ii). These requirements address intake flow velocity, specific impact concerns (e.g., threatened or endangered species, critical habitat, migratory or sport or commercial species), required information submission, monitoring, and recordkeeping. Under this proposal, new offshore oil and gas extraction facilities that withdraw greater than 2 MGD that do not employ sea chests as cooling water intake structures, and are fixed facilities would have to comply with the requirements in § 125.134(b)(1)(i). The one additional requirement for these facilities is § 125.134(b)(5), which requires the selection and implementation of design and construction technologies or operational measures to minimize entrainment of entrainable life stages of fish or shellfish. Fixed facilities can also choose to comply through Track II, which allows a site-specific demonstration that alternative requirements would produce comparable levels of impingement mortality and entrainment reduction. New offshore oil and gas facilities that are not fixed facilities would have to comply with the regulations at § 125.134(b)(1)(iii). Track II is not available to non-fixed (mobile) facilities because non-fixed facilities, which are expected to operate at multiple locations, would not be able to perform a site-specific demonstration. For this same reason, EPA has dropped some of the other site-dependent requirements for non-fixed facilities (*e.g.*, baseline biological assessment). EPA requests comment on the practicability of Track II demonstrations and other site-dependent requirements for non-fixed facilities.

EPA has limited information on environmental impacts associated with the use of cooling water intake structures at new offshore oil and gas extraction facilities but believes the potential for such impacts is sufficient to warrant including requirements for new offshore oil and gas extraction facilities in this proposed rule (*see* section V for more detailed discussion). In addition, although such technologies are not generally in use at existing offshore oil and gas extraction facilities, EPA believes that technologies are available for use by new facilities in this subcategory to meet the proposed requirements as described below. EPA requests comment, including data, on environmental impacts from, and availability of technologies for, cooling water intake structures at new offshore oil and gas extraction facilities.

Some offshore oil and gas extraction facilities employ an underwater compartment within the facility or vessel hull or pontoon through which sea water is drawn in or discharged, often called a ''sea chest.'' A passive screen (strainer) is often set along the flush line of the sea chest. Pumps draw seawater from open pipes in the sea chest cavity for a variety of purposes (*e.g.*, cooling water, fire water, and ballast water). These intakes are normally the only source of cooling water for the facility; therefore, it is crucial to the operation of these facilities that the intake structures be kept clean and clear of fish, jellyfish, plastic bags, and other debris. To accomplish this these intake structures can, and have been, designed for low intake velocity (*i.e.*, less than 0.5 feet per second) and/or include fish protection equipment; see the Technical Development Document for details.

As outlined in Alaska's oil and gas leasing requirements, oil and gas extraction facilities in Alaskan State waters are currently subject to an impingement control velocity limit of 0.1 feet per second (*i.e.*, more stringent than EPA's design requirement of 0.5 feet per second in the Phase I new facility rule to minimize impingement mortality of aquatic organism). These State regulations suggest that impingement controls that would meet the velocity requirements of this proposed rule are available for new offshore oil and gas extraction facilities in Alaskan or similar waters.

However, facilities using sea chests may have limited opportunities to meet the entrainment control requirements applicable to facilities subject to the Phase I rule. A 2003 literature survey by Mineral Management Services (DCN 7–0012) identified no evidence of entrainment controls successfully fitted to offshore oil and gas extraction vessels with sea chests such as drill ships, jack-ups, MODUs, and barges. EPA's data suggests that the only physical technology controls for entrainment at facilities with sea chests would entail installation of equipment projecting beyond the hull of the vessel. Such controls may not be feasible due to facility design requirements, even for new facilities that could avoid the challenges of retrofitting control technologies.

EPA does have limited information showing the entrainment reduction benefits of planar wedgewire screens. EPA is considering, and requests comment on, whether entrainment technologies, such as planar wedgewire screens, are available for use by facilities using sea chests and whether based on such technologies it would be appropriate to apply § 125.134(b)(5) (requiring design and construction technologies or operational measures to minimize entrainment of entrainable life stages of fish or shellfish) to such facilities.

EPA also considered whether all new offshore vessels could be constructed without employing sea chests. A technology must prove to be practicable to be a viable alternative to current technology. In this case, EPA treats a viable alternative to sea chests as any practical alternative configuration/technology successfully implemented at existing facilities, including those in other manufacturing industries, with similar seawater intake structures. EPA data suggests the only demonstrated design for drill ships and semi-submersible MODUs is to use sea chests because they allow the vessel to maintain appropriate fluid dynamics, overall optimal vessel shape, and a safe seaworthy profile. Therefore, EPA does not believe entrainment controls are feasible at such facilities.

For new offshore oil and gas extraction facilities with intake structures other than sea chests, EPA believes the proposed entrainment controls are feasible. For example, a caisson intake (as referred to here) is simply a steel pipe attached to a fixed structure that extends from an operating area down some distance into the water. It is used to provide a protective shroud around another process pipe or pump that is lowered into the caisson from the operating area. The most likely technologies to reduce impingement mortality and entrainment of marine life in this type of structure would be passive intake screens or velocity caps. Air sparges and copper nickel alloys can be used to control biofouling. Other technologies such as acoustic barriers, electro barriers or intake relocation may also be used.

In summary, EPA is proposing to apply requirements that are consistent with some—but not all—of the Phase I provisions to new offshore oil and gas extraction facilities, because of differences in technological availability between such facilities and those covered in the Phase I rule. Because available information indicates that it is not feasible for all new offshore oil and gas extraction facilities to employ closed-cycle recirculating cooling systems, new offshore oil and gas extraction facilities would not be subject to Phase I requirements based on closed-cycle recirculating cooling systems.

Specifically, new offshore oil and gas extraction facilities would not have to meet requirements equivalent to § 125.84(b)(1) (requiring that a facility reduce intake flow to a level commensurate with a closed-cycle recirculating cooling system) and § 125.84(d)(1) (Track II requirements using closed-cycle recirculating cooling systems as a baseline).

EPA is proposing to exclude new seafood processing vessels from the proposed national requirements. Data available to the Agency indicate that given the relatively low cooling water flows used by these vessels, the propensity for reduced intake of fish or debris due to the vessel's speed in relation to the intake's orientation and intake velocity, and their highly mobile character, these vessels are not likely to cause significant adverse environmental impacts. Further, data available to the Agency has not clearly identified available technologies that would reduce entrainment for such vessels. In addition, EPA is proposing to exclude new offshore liquified natural gas import terminals from the proposed national requirements. Such facilities withdraw water primarily for warming (not cooling) purposes, to heat liquified natural gas to temperatures at which it becomes a gas and can enter the natural gas distribution pipelines. Thus, it appears that these facilities would not meet the 25 percent exclusive cooling water use threshold, and would therefore be beyond the scope of section 316(b). Seafood processing vessels and new offshore liquified natural gas import terminals would continue to be subject to any requirements for their cooling water intake structures established by permit Directors on a case-by-case basis using best professional judgment.

EPA requests comment on all aspects of this proposed approach.

B. Economic Practicability

The legislative history of section 316(b) indicates that the term ''best technology available'' should be interpreted as ''best technology available commercially at an economically practicable cost.'' [40] This interpretation reflects congressional concern that the application of best technology available should not impose an impracticable and unbearable economic burden. Thus, EPA has conducted extensive analyses of the economic impacts of this proposed rule and the co-proposed options discussed above, using an integrated energy market model (the IPM) and an analysis of market costs and residential rates for the energy sector, and a discounted cash flow analysis model for the facility, firm, and market levels for manufacturers. For a complete discussion of these analyses, please refer to section VIII of this preamble or the Economic Analysis in support of this proposed rule (DCN 7–0002).

EPA believes that the requirements of this proposed rule reflect the best technology available at an economically practicable cost. EPA examined the effects of the proposed rule's compliance costs on capacity, generation, variable production costs, prices, net income, and other measures, both at the market and facility levels. In addition, the other economic analyses conducted by EPA showed that the costs for this proposed rule would be economically practicable.

EPA believes that a consideration of the relationship of costs to environmental benefits is an important component of economic practicability. As discussed in section VIII.C of the proposed Phase I rule (65 FR 49094), EPA has long recognized that there should be some reasonable relationship between the cost of cooling water intake structure control technology and the environmental benefits associated with its use. EPA requests comment on the relationship of costs to environmental benefits of this proposed rule.

C. What Is the Proposed Role of Restoration and Trading?

1. What Is the Proposed Role of Restoration?

Under today's proposed rule, consistent with the Phase II regulation, EPA would provide Phase III existing facilities with the option to use restoration under compliance alternatives § 125.103(a)(2), (3), and (5) where the performance of the restoration measures (the production and increase of fish and shellfish in the facility's waterbody or watershed, including maintenance of community structure and function), would be substantially similar to that which would have been achieved if the facility reduced its impingement mortality and entrainment through the use of design and construction technologies and/or operational measures, to meet the applicable performance standards. The role of restoration under this proposed rule is to provide additional flexibility to facilities in complying with the rule by eliminating or significantly offsetting the adverse environmental impact caused by the operation of a cooling water intake structure. Restoration measures that increase fish and shellfish in an impacted waterbody or watershed and would result in performance substantially similar to that which would otherwise be achieved through reductions in impingement mortality and entrainment further the goal of minimizing adverse environmental impact while offering additional flexibility to both permitting authorities and facilities. Restoration measures may include such activities as removal of barriers to fish migration, reclamation of degraded aquatic organism habitat, or stocking of aquatic organisms.

Restoration measures have been used at existing facilities as one of many tools to implement section 316(b) on a case-by-case, best professional judgment basis to compensate for the death and injury of fish and other aquatic organisms caused by the cooling water intake structure. Under today's proposed rule, a Phase III existing facility could utilize restoration measures either in lieu of or as a supplement to design and construction technologies and/or operational measures. For example, a facility could demonstrate to the Director that velocity controls are the most feasible technology choice for the facility but that, when used on their own, the velocity controls are insufficient to meet the applicable performance standards at § 125.103(b). The facility could then, in conjunction with the use of velocity controls, implement restoration measures to increase the fish and shellfish productivity of the waterbody in order to meet the performance standards at § 125.103(b). Another facility could demonstrate to the Director that restoration measures alone achieve the greatest compliance with the performance standards. A facility could alternatively request a site-specific determination of best technology available under § 125.103(a)(5) and use restoration measures to meet the alternate requirements. Facilities that are currently utilizing restoration measures to comply with their existing section 316(b) requirements may use these measures to comply with the performance standards at § 125.103(b) or site-specific requirements at § 125.103(a)(5). However, restoration measures that are required under other statutory provisions or regulations (e.g., CWA section 404) could not be used to comply with today's proposed rule.

Facilities that propose to use restoration measures would need to demonstrate to the Director that they evaluated the use of design and

[40] See 118 Cong. Rec 33,762 (1972), reprinted in 1 Legislative History of the Water Pollution Control Act Amendments of 1972, at 264 (1973)(Statement of Representative Don H. Clausen).

construction technologies and operational measures and determined that the use of restoration measures is appropriate because meeting the applicable performance standards or requirements through the use of other technologies is less feasible, less cost-effective, or less environmentally desirable than meeting the standards in whole or in part through the use of restoration measures. Facilities also would need to demonstrate that the restoration measures they plan to implement, alone, or in combination with design and construction technologies and/or operational measures, would produce ecological benefits (production of fish and shellfish) at a level that is substantially similar to the level that would be achieved through compliance with the applicable impingement mortality and/or entrainment performance standards under § 125.103(b), or alternative site-specific requirements under § 125.103(a)(5). In other words, restoration measures would have to replace the fish and shellfish lost to impingement mortality and entrainment to the extent the loss would have been reduced by otherwise applicable requirements, either as a substitute or as a supplement to reducing impingement mortality and entrainment through design and control technologies and/or operational measures. While the species makeup of the replacement fish and shellfish would not have to be exactly the same as that of the impingement mortality and entrainment losses, the Director would have to make a determination that the net effect is to produce a level of fish and shellfish in the waterbody that is ''substantially similar'' to that which would result from meeting the performance standards through design and construction technologies and/or operational measures alone. The proposed rule would require that a facility use an adaptive management method for implementing restoration measures because the performance of restoration projects must be regularly monitored and potentially adjusted to ensure the projects achieve their objectives (*see* 67 FR 17146–17148 and 68 FR 13542).

The proposed rule also would require that restoration projects which replace the lost fish and shellfish with a different species mix (''out of kind'' restoration) be based on a watershed approach to restoration planning. The boundaries of a ''watershed'' should be guided by the cataloging unit of the ''Hydrologic Unit Map of the United States'' (USGS, 1980), although it may be appropriate to use another watershed or waterbody classification system developed at the State or local level if such a system compares favorably in level of detail. For example, in coastal systems that support migratory fish, a coastal waterbody that transects a number of watersheds may be the most appropriate unit for planning restoration.

Legal Authority for Restoration

While the Phase I rule also authorized use of restoration measures, today's proposed rule includes additional regulatory controls on the use of restoration measures to ensure that they are used appropriately by existing facilities to comply with the applicable performance requirements or site specific alternative requirements. For example, as described above, restoration measures are authorized only after a facility demonstrates to the permitting authority that it has evaluated other design and construction technologies and operational measures and determined that they are less feasible, less cost effective, or less environmentally desirable than meeting the performance standards or alternative site-specific requirements in whole or in part through the use of restoration measures. The facility must also demonstrate that the proposed restoration measures will produce ecological benefits (*i.e.,* the production of fish and shellfish for the facility's waterbody or watershed, including maintenance of community structure and function) at a level that is substantially similar to the level a facility would achieve through compliance with the applicable performance standards or alternative site-specific requirements. Further, the permitting authority must review and approve the restoration plan to determine whether the proposed restoration measures will meet the applicable performance standards or site specific alternative requirements. Consequently, the restoration provisions of today's proposed rule are designed to minimize adverse environmental impact to a degree that is comparable to the other technologies on which the rule is based.

The use of restoration to meet the requirements of section 316(b) is consistent with the goals of the Clean Water Act; measures that restore fish and shellfish to compensate for those that are impinged and entrained further the objective of the Clean Water Act ''to restore, maintain, and protect the biological integrity of the nation's waters.'' 33 U.S.C. 1251(a) (emphasis added). It is also consistent with EPA's and States' past practices in implementing section 316(b) in individual permit decisions. For at least twenty years, EPA and States have authorized existing facilities to comply with section 316(b) requirements, at least in part, through the use of restoration measures. For example, the Chalk Point Generating Station, located on the Patuxent River in Prince George's County, Maryland constructed a fish rearing facility in partial compliance of its section 316(b) obligations (DCN 1–5023–PR).

Although the United States Court of Appeals for the Second Circuit recently remanded the portion of EPA's Phase I new facility rule that authorized restoration measures to meet that rule's requirements, EPA believes that portion of the decision should not apply to this Phase III proposed rulemaking. Indeed, the Second Circuit explicitly stated that ''[i]n no way [does it] mean to predetermine the factors and standard applicable to Phase II and III of the rulemaking.'' *Riverkeeper* v. *EPA,* slip op. at 12, note 13 (2nd Cir. Feb. 3, 2004). This is probably because there are important differences between new and existing facilities that warrant interpreting section 316(b) more broadly to give existing facilities additional flexibility to comply with section 316(b). As noted above, restoration measures have been used to comply with section 316(b) limits at existing facilities for several years because of the more limited availability of other technologies for existing facilities. Costs to retrofit an existing facility to install a ''hard'' technology can be much higher than costs to install one at the time a facility is constructed, and those costs can vary considerably from site to site. Thus, the range of technologies that are ''available'' to existing facilities to meet the performance standards is narrower than the range of technologies available to new facilities.

In recognition of the vast differences between existing and new facilities, Congress established separate sections in the Clean Water Act for establishing discharge limitations on existing and new facilities. Effluent limitations guidelines for existing facilities are established under sections 301 and 304, whereas new source performance standards are established under section 306. Those sections set out two distinct sets of factors for developing effluent limitations guidelines for existing facilities and new source performance standards for new facilities. Notably, there are only two factors explicitly stated in section 306 for the Administrator to consider in establishing new source performance standards—cost and non-water quality

impacts, whereas for existing facilities Congress calls upon EPA to consider a much broader range of factors in section 304(b)(2)(b): the age of equipment and facilities involved, the process employed, the engineering aspects * * * of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impacts (including energy requirements), and such other factors as [EPA] deems appropriate. This list reflects the wide range of facility characteristics and circumstances that can influence the feasibility and availability of a particular technology across a particular industry. Existing facilities generally face more and different problems than new facilities because of the technological challenges and high costs associated with retrofitting as compared to building a new facility. Indeed, by including the phrase ''and such other factors as [EPA] deems appropriate,'' Congress made certain that EPA would have sufficient flexibility in establishing limitations for existing facilities to consider all relevant factors. For several other reasons, EPA believes the Second Circuit decision is not binding on this Phase III proposed rule. First, section 316(b) requires the design of a cooling water intake structure to reflect the best technology available to ''minimize adverse environmental impact.'' The phrase ''minimize adverse environmental impact'' is not defined in section 316(b). For the Phase III proposed rule, EPA interprets this phrase to allow facilities to minimize adverse environmental impact by reducing impingement mortality and entrainment, or to minimize adverse environmental impact by compensating for those impacts after the fact. Section 316(b) does not explicitly state when the adverse environmental impact of cooling water structures must be minimized—that is whether they must be prevented from occurring in the first place or compensated for after the fact or where the minimization most occurs—at the point of intake or at some other location in the same watershed. Therefore, under Chevron, EPA is authorized to define ''minimize'' to authorize restoration at existing facilities to minimize the effects of adverse environmental impact.

In another context under the Clean Water Act, EPA has interpreted authority to ''minimize adverse effects'' as including authority to require environmental restoration. Section 404 of the CWA authorizes the Army Corps of Engineers to issue permits for discharges of dredged or fill material into waters of the United States. EPA was granted authority to establish regulations containing environmental guidelines to be met by the Corps in issuing section 404 permits. See CWA section 404(b)(1). Current regulations, in place since 1980, prohibit a discharge unless, among other requirements, all practicable steps are taken to avoid, minimize and mitigate for the environmental effects of a discharge. See 40 CFR 230.10. Of particular relevance here, the regulations require that steps be taken to ''minimize potential adverse effects of the discharge on the aquatic ecosystem'' (40 CFR 230.10(d)). EPA has specifically defined minimization steps to include environmental restoration. See 40 CFR 230.75(d) (''Habitat development and restoration techniques can be used to minimize adverse impacts and to compensate for destroyed habitat'').

Moreover, at the time of the Phase I litigation, EPA had not interpreted the term ''reflect'' in section 316(b), and therefore, the Second Circuit did not consider its meaning in determining whether restoration could be used as a design technology to meet the Phase I rule requirements. Section 316(b) requires that ''the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.'' The term ''reflect'' is significant in two respects. First, it indicates that the design, location, construction and capacity of the cooling water intake structure itself must be based on the best technology available for such structures. This authorizes EPA to identify technologies that can be incorporated into the physical structure of the intake equipment. It also indicates that the choice of what actually is the best physical configuration of a particular cooling water intake structure can take into account, *i.e.*, reflect, other technologies—and their effects—that are not incorporated into the structure itself. For example, barrier nets are not incorporated into the physical design of the cooling water intake structure, but their use—and effectiveness—influences the physical design of the cooling water intake structure. Another relevant example is the technology known as ''closed-cycle'' cooling. Although this technology is physically independent of the cooling water intake structure, it directly influences decisions regarding the design capacity of the cooling water intake structure: as more cooling water is recycled, less needs to be withdrawn.

Both barrier nets and closed-cycle cooling are considered ''design'' technologies.'' Similarly, properly designed restoration measures can be best technologies available that can influence the design of the physical cooling water intake structure. To put it another way, for purposes of minimizing adverse environmental impact, requirements for cooling water intake structures reflect a variety of best technologies available, which EPA construes to include restoration measures. A dry cooling system is another example of a technology that although physically independent of the cooling water intake structure is nonetheless considered an acceptable method to minimize adverse environmental impacts. In fact, since a dry cooling system uses air as a cooling medium, it uses little or no water, dispensing altogether with the need for a cooling water intake structure.

EPA has discretion to characterize restoration measures as technologies for purposes of section 316(b). Section 316(b) does not define either the phrase ''cooling water intake structure'' or the term ''technology'' and, therefore, leaves their interpretation to EPA. EPA has defined the phrase cooling water intake structure in today's rule to mean the total physical structure and any associated waterways used to withdraw cooling water from waters of the United States. This definition embraces elements both internal and external to the intake equipment. EPA did not define the term technology in today's proposed rule, but looked for guidance to section 304(b), which the Second Circuit has recognized can help illuminate section 316(b). Section 301(b)(2) best available technology limitations are based on factors set forth in section 304(b). Section 304(b), while not using the term technology, discusses the ''application of the best control measures and practices achievable including treatment techniques, process and procedure innovations, operating methods, and other alternatives.'' This is a broad, nonexclusive list. Indeed, BAT effluent limitations guidelines under this authority have been based on a vast array of treatment techniques, operation practices (including chemical substitution), and management practices. *See* 40 CFR part 420 (effluent guidelines for concentrated animal feeding operations); 40 CFR part 430, subparts B & E (effluent guideline for pulp and paper industry). *See* also 62 FR 18504 (April 15, 1998).

Employing this broad concept of technology, in today's proposed rule EPA has determined that the design of cooling water intake structures may reflect technologies relating to the restoration of fish and shellfish in the

waters from which cooling water is withdrawn. Restoration is not included in the definition of ''design and construction technology'' in today's proposed rule so as to distinguish restoration from ''hard'' technologies for purposes of the proposed rule. Under the regulatory scheme of the proposed rule, restoration is treated differently than other technologies in several respects, all of which are to help ensure that restoration projects achieve substantially similar performance as design and construction technologies and/or operational measures. When these restoration technologies are used they must produce ecological benefits (the production of fish and shellfish for a facility's waterbody or watershed, including maintenance of community structure and function) at a level that is substantially similar to the level the facility would achieve by using other design and construction technologies and/or operational measures to achieve the applicable performance standards or alternative site-specific performance requirements in § 125.103. In other words, the operation of the cooling water intake structure together with these restoration technologies will achieve the overall performance objective of the statute: To minimize the adverse environmental impact of withdrawing cooling water. For facilities using this authority, their hardware decisions for the cooling water intake structure thus take into account—or reflect—the effects of restoration technology, as well as other technologies external to the intake structure itself.

EPA acknowledges that in 1982, when Congress was considering substantial amendments to the Clean Water Act, EPA testified in support of a proposed amendment to CWA section 316(b) that would have expressly authorized the use of restoration measures as a compliance option. According to the Second Circuit, this suggested that EPA may have interpreted section 316(b) at that time as not authorizing restoration measures to minimize the adverse environmental impact of cooling water intake structures. In EPA's view, the Second Circuit gave undue weight to that testimony, particularly because it was provided before the Supreme Court's decision in *Chevron U.S.A.* v. *Natural Resources Defense Council,* 467 U.S. 837 (1984), which gave administrative agencies latitude to fill in the gaps created by ambiguities in statutes the agencies have been charged by Congress to implement. For at least twenty years, EPA and States have authorized existing facilities to comply with section 316(b) requirements, at least in part, through the use of restoration measures. Additionally, since 1982 EPA has gathered substantially more data to inform its judgment regarding cooling water intake structures, the environmental impact resulting from them, and various technologies available to reduce impingement mortality and entrainment. Finally, EPA notes that, in contrast to water quality based effluent limitations that are included in NPDES permits to meet water quality standards, the required performance of restoration measures under this proposed rule is not tied to conditions in the waterbody. Rather it is tied directly to the performance standards, just as is the performance of the other technologies that facilities may use to meet the standards. While the design and operation of restoration measures will necessarily be linked to conditions in the waterbody (as is also the case for ''hard'' technologies) the performance standards that restoration measures must meet are not.

2. What Is the Role of Trading in Today's Proposed Rule?

Under today's proposed rule, if a State demonstrates to the Administrator that it has adopted alternative regulatory requirements in its NPDES program that will result in environmental performance within a watershed that is comparable to the reductions of impingement mortality and entrainment that would otherwise be achieved under § 125.103, the Administrator must approve such alternative requirements (*see* § 125.100(c)). A trading program could be a part of these alternative regulatory requirements.

Trading under other EPA programs has been shown to provide opportunities for regulatory compliance at reduced costs. EPA's Office of Water's *Water Quality Trading Policy,* published in January 2003 (*see* DCN 6–5002), fully supports trading nutrients and sediment and adopts a case-by-case approach to evaluating proposals to trade other pollutants. Trading in the context of section 316(b) raises many complex issues, for example, how to establish appropriate units of trade and how to measure these units effectively given the dynamic nature of the populations of aquatic organisms subject to impingement mortality and entrainment. Should a State choose to propose a trading program under § 125.100(c), EPA would evaluate the State's proposal on a case-by-case basis to ensure the program complies with the regulatory requirement—that it will result in environmental performance within a watershed that is comparable to the reductions of impingement mortality and entrainment that would otherwise be achieved under the requirements established at § 125.103. For more information on approaches to trading under section 316(b) and considerations, see the Phase II proposed rule at 67 FR 17170–17173; April 9, 2002.

As in Phase II, questions have been raised by stakeholders in the context of EPA's section 316(b) rulemakings as to whether these proposed requirements would allow for trading of aquatic organisms for pollutant discharges. EPA is concerned that such a program may introduce comparability and implementation challenges that would be difficult to overcome, and therefore, EPA does not expect that such a program would work within the framework of today's proposed rule. In addition, EPA does not believe that it is possible at this time to quantify with adequate certainty the potential effects on ecosystem function, community structure, biodiversity, and genetic diversity of such trades, especially when threatened and/or endangered species are present. Based on the current state of the science in aquatic community ecology and ecological risk assessment, States wishing to develop trading programs in the context of section 316(b) would be better off focusing on programs based on metrics of comparability between fish and shellfish gains and losses among trading facilities, rather than the much more complex metrics that would be necessary for comparability among fish and shellfish losses on the one hand, and pollutant reductions on the other hand (69 FR 41609). EPA requests comment on the potential role of trading in the context of today's proposed rulemaking and possible approaches for developing a trading program.

VII. Implementation

As in Phase I and II, proposed section 316(b) requirements for Phase III existing facilities and new offshore oil and gas extraction facilities would be implemented through the NPDES permit program. Today's proposal would establish implementation requirements consistent with the Phase II final rule for Phase III existing facilities. This proposed rule would also establish implementation requirements for new offshore oil and gas extraction facilities that are generally consistent with Phase I requirements. Today's proposal would establish application requirements for Phase III existing facilities under 40 CFR 122.21 and proposed § 125.104, monitoring requirements under

proposed § 125.105, and record keeping and reporting requirements under proposed § 125.106. For new offshore oil and gas extraction facilities, today's proposal would establish application requirements consistent with 40 CFR 122.21 and proposed § 125.136, monitoring requirements under proposed § 125.137, and record keeping and reporting requirements consistent with proposed § 125.138. The proposed regulations also require the Director to review application materials submitted by each regulated facility and include monitoring and record keeping requirements in the permit (§ 125.107, § 125.139).

A. When Would the Proposed Rule Become Effective?

If promulgated as proposed, this proposed rule would become effective 60 days after the final rule is published in the **Federal Register.** Phase III existing facilities subject to today's proposed rule would need to comply with the Subpart K requirements when an NPDES permit containing requirements consistent with Subpart K is issued to the facility. Under existing NPDES program regulations, this would occur when an existing NPDES permit is reissued or, when an existing permit is modified or revoked and reissued. For facilities whose permits are expiring, EPA recognizes that facilities will need a reasonable time period to conduct baseline studies and develop and implement an appropriate suite of control technologies and this is provided for in § 125.104(a)(2)(ii). Under today's proposed rule, new offshore oil and gas extraction facilities would need to comply with the Subpart N requirements when an NPDES permit containing requirements consistent with Subpart N is issued to the facility (§ 125.132).

B. What General Information Would I Be Required To Submit to the Director When I Apply for My Reissued NPDES Permit?

The NPDES regulations that establish the application process at § 122.21 generally require that facilities currently holding a permit submit information and data 180 days prior to the end of the permit term, which is five years. Under today's proposed rule, Phase III existing facilities and new offshore oil and gas extraction facilities would be required to submit the information that is required under § 122.21 of today's proposed rule with their application for permit issuance or reissuance.

Today's proposed rule would modify regulations at § 122.21 to require existing Phase III facilities and new offshore oil and gas extraction facilities to prepare and submit some of the same information required for new Phase I and existing Phase II facilities. The proposed application requirements would require owners or operators of all Phase III existing facilities to submit two general categories of information when they apply for a reissued NPDES permit. The general categories of information would include (1) physical data to characterize the source waterbody in the vicinity where the cooling water intake structure(s) is/are located, and (2) data to characterize the design and operation of the cooling water intake structures. As in Phase II, Phase III existing facilities would not be required to submit the Source Water Baseline Biological Characterization Data required under § 122.21(r)(4). However, new offshore oil and gas extraction facilities may be required to submit the Source Water Baseline Biological Characterization Data depending on whether they are fixed or non-fixed facilities. Non-fixed facilities would be exempt from the requirement. Specific data requirements for the Source Water Baseline Biological Characterization Data are described later in this section. Studies to be submitted by both Phase III existing facilities and new offshore oil and gas extraction facilities are described below.

1. Source Water Physical Data (§ 122.21(r)(2))

Under the requirements at § 122.21, Phase III existing facilities and new offshore oil and gas extraction facilities subject to this proposed rule are required to provide the source water physical data specified at § 122.21(r)(2) in their application for a reissued permit. These data are needed to characterize the facility and evaluate the type of waterbody and species potentially affected by the cooling water intake structure. The Director would use this information to evaluate the appropriateness of the design and construction technologies proposed by the applicant.

The applicant for an existing facility or a new fixed offshore oil and gas extraction facility would be required to submit the following specific data: (1) A narrative description and scale drawings showing the physical configuration of all source waterbodies used by the facility, including areal dimensions, depths, salinity and temperature regimes, and other documentation; (2) an identification and characterization of the source waterbody's hydrological and geomorphological features, as well as the methods used to conduct any physical studies to determine the intake's zone of influence and the results of such studies; and (3) locational maps. For new non-fixed (mobile) offshore oil and gas extraction facilities this provision requires only some of the location information and not the source water physical data required for Phase III existing facilities and new fixed offshore oil and gas extraction facilities.

EPA recognizes that mobile facilities may not always know where they will be operating during the permit term, and the requirement in (r)(2)(iv) is not meant to restrict them only to locations identified in the permit application. However, EPA expects that permit applicants will provide, based on available information, their best estimate as to where they will be operating during the permit term, at whatever level of detail they can. EPA requests comment on this requirement.

2. Cooling Water Intake Structure Data (§ 122.21(r)(3))

Phase III existing facilities and new offshore oil and gas extraction facilities would be required to submit the cooling water intake structure data specified at § 122.21(r)(3) to characterize the cooling water intake structure and evaluate the potential for impingement and entrainment of aquatic organisms. Note that § 122.21(r)(3)(ii)—latitude and longitude of each intake structure—would not be applicable to non-fixed (mobile) offshore oil and gas extraction facilities. Information on the design of the intake structure and its location in the water column would allow the permit writer to evaluate which species or life stages would potentially be subject to impingement mortality and entrainment. A diagram of the facility's water balance would be used to identify the proportion of intake water used for cooling, make-up, and process water. The water balance diagram also provides a picture of the total flow in and out of the facility, allowing the permit writer to evaluate compliance with the performance standards or requirements.

The applicant would be required to submit the following specific data: (1) A narrative description of the configuration of each of its cooling water intake structures and where they are located in the waterbody and in the water column; (2) latitude and longitude in degrees, minutes, and seconds for each of its cooling water intake structures (not applicable to new non-fixed (mobile) offshore oil and gas extraction facilities); (3) a narrative description of the operation of each of the cooling water intake structures, including design intake flows, daily

hours of operation, number of days of the year in operation, and seasonal operation schedules, if applicable; (4) a flow distribution and water balance diagram that includes all sources of water to the facility, recirculating flows, and discharges; and (5) engineering drawings of the cooling water intake structure.

3. Cooling Water System Description (§ 122.21(r)(5)) (Phase III Existing Facilities Only)

Phase III existing facilities would be required to submit the cooling water system data specified at § 122.21(r)(5) to characterize the operation of cooling water systems and their relationship to the cooling water intake structure(s) at the facility. They would also be required to submit a narrative description of the proportion of design intake flow that is used in the system, the number of days of the year that the cooling water system is in operation, and any seasonal changes in the operation of the system, if applicable. The facility would also submit design and engineering calculations prepared by a qualified expert, such as a professional engineer, and supporting data to support the narrative description. This information would be expected to be used by the applicant and the Director in determining the appropriate standards that can be applied to the Phase III facility.

C. Phase III Existing Facility Implementation

In this proposed rule, a Phase III existing facility as defined by any of the three co-proposed options would choose one of the following five compliance alternatives for establishing best technology available for minimizing adverse environmental impact at the site (*see* § 125.103(a)(1–5)):

(1) Demonstrate that it has reduced its flow commensurate with a closed-cycle recirculating system and therefore already meets the performance standards to reduce impingement mortality and entrainment. Or, a facility may demonstrate that it has already reduced its design intake velocity to 0.5 feet per second and therefore meets the performance standards to reduce impingement mortality only;

(2) Demonstrate that existing design and construction technologies, operational measures, and/or restoration measures already meet the performance requirements specified under § 125.103(b) and the restoration requirements in (c), as applicable;

(3) Demonstrate that it has selected and installed design and construction technologies, operational measures, and/or restoration measures that will, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet the performance standards specified under § 125.103(b) and the restoration requirements specified in § 125.103(c), as applicable;

(4) Demonstrate that it has installed and properly operates and maintains an approved design and construction technology in accordance with § 125.108(a); or propose a technology for approval in accordance with § 125.108(b); or,

(5) Demonstrate that a site-specific determination of best technology available for minimizing adverse environmental impact is appropriate for its site in accordance with § 125.103(a)(5).

The application, monitoring, record keeping, and reporting requirements for each of these compliance alternatives are detailed in the following sections.

1. As an Existing Phase III Facility, What Additional Information Would I Submit to the Director When I Apply for My Reissued NPDES Permit?

In addition to § 122.21 described above, the facility would be required to submit the information required under § 125.104, as appropriate. This information includes the Comprehensive Demonstration Study and its seven components as discussed in this section. The seven components include the following: Proposal for Information Collection; Source Waterbody Flow Information; Impingement Mortality and/or Entrainment Characterization Study; Technology Compliance and Assessment Information; Restoration Plan; Information to Support Site-specific Determination of Best Technology Available for Minimizing Adverse Environmental Impact; and Verification Monitoring Plan.

Under today's proposed rule, if a Phase III existing facility's permit expires before 4 years after the publication date of the final rule, the facility may request that the Director establish a schedule for the facility to submit the information required as expeditiously as practicable, but not later than 3 years and 180 days after publication of the final rule. Between the time the facility's existing permit expires and the time an NPDES permit containing requirements consistent with Subpart K is issued to the facility, the best technology available to minimize adverse environmental impact would continue to be based on the Director's best professional judgment.

The Proposal for Information Collection component of § 125.104 should be submitted to the Director for review and comment prior to the start of information collection activities. For a typical facility that plans to install a new technology, it is estimated that a facility would need to submit this Proposal for Information Collection about fifteen (15) months prior to the submission of the remainder of the required information, which in turn would need to be submitted about twenty-one (21) months prior to the expiration of its current permit. This approximate timing is based on the sequential Comprehensive Demonstration Study requirements and the estimated level of effort required to complete the studies and allow time for the Director's review and approval. The timing provided in this section is for illustrative purposes only and represents a schedule that the average facility may need to follow to meet the deadlines established in today's proposed rule. Some facilities may require more, or less time to perform the studies and prepare the application requirements. All facilities, except those that choose to comply with the proposed rule by reducing intake capacity to a level commensurate with a closed-cycle recirculating system in accordance with § 125.103(a)(1)(i), or by adopting an approved technology in accordance with § 125.103(a)(4) would submit a Proposal for Information Collection for review and comment by the Director (§ 125.104(a)(1)). Facilities that comply with impingement mortality requirements by reducing intake velocity to 0.5 feet per second or less in accordance with § 125.103(a)(1)(ii) will only need to submit a Comprehensive Demonstration Study, including a Proposal for Information Collection, for entrainment reduction requirements, if applicable. The Proposal for Information Collection requirements are detailed later in this section. Figure 1 presents an example of a possible time frame a facility may follow in preparing and submitting application components.

Following submission of the Proposal for Information Collection, the Director will review and provide comments on the proposal. During this time, the facility may proceed with planning, assessment, and data collection activities in fulfillment of Comprehensive Demonstration Study requirements. The Director is encouraged to provide comments expeditiously (*i.e.*, within 60 days) so the permit applicant can make

responsive modifications to its information gathering activities.

BILLING CODE 6560–50–P

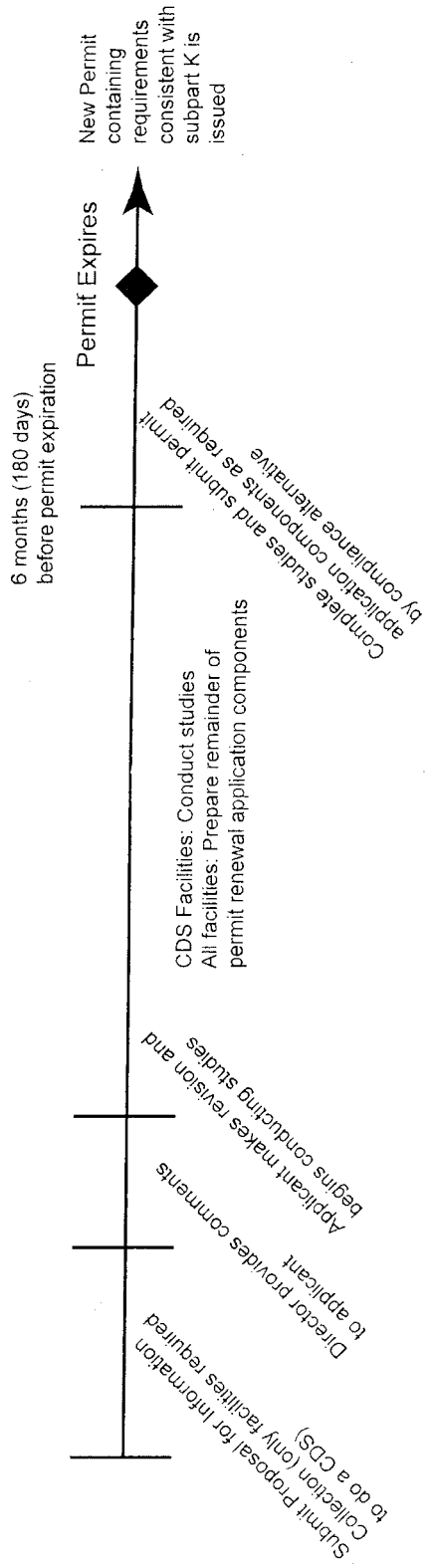

Figure 1. Sample Application Timeline

Notes

1. The timeframes provided in this figure are approximate.
2. The remainder of the permit renewal application (to be submitted 180 days prior to permit expiration) includes Source Water Physical Data; Cooling Water Intake Structure Data; and Cooling Water System Description. The applicant must submit all components of the permit application as appropriate for the compliance alternative selected
3. The Director may alter the application timeline as necessary.

BILLING CODE 6560–50–C

It is assumed that most facilities would need approximately one year to complete the studies outlined in the Proposal for Information Collection. These would be completed at least 180 days prior to the end of the current permit term, by which time the remainder of required application information would be submitted. If the facility believed it would require more than one year to complete studies described in the Proposal for Information Collection, the facility would be encouraged to consult with the Director.

After the first permit containing requirements consistent with Subpart K is issued, facilities may submit a request to their Director soliciting a reduced information collection effort for subsequent permit applications in accordance with § 125.104(a)(3), which allows facilities to demonstrate that the conditions at their facility and within the waterbody in which their intake is located remain substantially unchanged since their previous permit application. The request for reduced cooling water intake structure and waterbody application information would contain a list of and justification for each information item in § 122.21(r) and § 125.104(b) that has not changed since the previous permit application. The applicant would submit this request at least one year prior to the expiration of the current permit term and the Director is required to act on the request within 60 days.

The Director would review the information provided in the application including the information submitted in compliance with § 122.21 and § 125.104 and would confirm whether the facility should be regulated as an existing facility under these proposed regulations or as a new facility under regulations that were published on December 19, 2001 (66 FR 65256), and establish the appropriate requirements to be applied to the cooling water intake structure(s). Following review and approval of the permit application, the Director would develop a draft permit for public notice and comment. The comment period would allow the facility and other interested parties to review the draft permit conditions and provide comments to the Director. The Director would consider all public comments received on the draft permit and would develop a final permit based upon the application studies submitted and other information submitted during the comment period, as appropriate. The Director would incorporate the relevant requirements for the facility's cooling water intake structure(s) into the final permit.

The information required under § 125.104 would be identical under each of the three co-proposed regulatory options, with one exception. Under the regulatory option which defines facilities with design intakes flows 100 MGD or more located on tidal rivers, estuaries, or oceans or one of the Great Lakes as existing Phase III facilities, there would not be a requirement to collect the Source Waterbody Flow information described below, because this information is only relevant for facilities withdrawing water from freshwater rivers and streams or lakes and reservoirs. In addition, under this regulatory option there would not be any facilities required to meet only impingement mortality performance standards. Therefore, under this regulatory option all facilities except those that have met the applicable requirements in accordance with § 125.103(a)(1)(i) or § 125.103(a)(4) would be required to submit a Study for both the impingement mortality and entrainment reduction requirements, unless the facility had met the applicable requirements in § 125.103(a)(1)(ii), in which case it would be required to submit a Study for entrainment only. The following describes the proposed application requirements in more detail.

a. Comprehensive Demonstration Study (§ 125.104(b))

Proposed application requirements at § 125.104 would require all existing facilities except those deemed to have met the performance standard in § 125.103(a)(1) (reduced intake capacity to a level commensurate with the use of a closed-cycle, recirculating cooling water system, or for facilities with impingement requirements only, reduce intake velocity to 0.5 feet per second or less) to perform and submit to the Director the results of a Comprehensive Demonstration Study, including data and detailed analyses to demonstrate that the facility will meet applicable requirements contained in § 125.103(b) or established pursuant to § 125.103(a)(5).

The proposed Comprehensive Demonstration Study has seven components.

- Proposal for Information Collection;
- Source Waterbody Flow Information;
- Impingement Mortality and/or Entrainment Characterization Study;
- Technology and Compliance Assessment Information;
- Restoration Plan;
- Information to Support Site-specific Determination of Best Technology Available for Minimizing Adverse Environmental Impact; and
- Verification Monitoring Plan.

All Phase III existing facilities would not be required to submit each of these components of the Comprehensive Demonstration Study. Rather, required submittals for a facility would depend on the compliance alternative selected. All Phase III existing facilities, except those deemed to have met the performance standard in accordance with § 125.103(a)(1) or § 125.103(a)(4), would be required to submit a Proposal for Information Collection; Source Waterbody Flow Information whenever the intake is on a freshwater river or stream or a lake or reservoir; an Impingement Mortality and/or Entrainment Characterization Study; Technology and Compliance Assessment Information; and a Verification Monitoring Plan. Facilities complying in accordance with § 125.103(a)(4) would be required to submit Technology and Compliance Assessment Information and a Verification Monitoring Plan. Only those Phase III existing facilities that propose to use restoration measures in whole or in part to meet the performance standards in § 125.103(b) or site-specific requirements in § 125.103(a)(5) would be required to submit a Restoration Plan. Only those facilities that choose to demonstrate that a site-specific standard is appropriate for their site would be required to submit Information to Support Site-specific Determination of Best Technology Available for Minimizing Adverse Environmental Impact.

Proposal for Information Collection (§ 125.104(a))

Before conducting any studies, the facility would be required to submit to the Director for review and approval, a proposal stating what information would be collected to support the Comprehensive Demonstration Study (see § 125.104(b)(1)). This proposal would provide: (1) A description of the proposed and/or implemented technology(ies) and/or supplemental restoration measures to be evaluated; (2) a list and description of any historical studies characterizing impingement mortality and entrainment and/or the physical and biological conditions in the vicinity of the cooling water intake structures and their relevance to this proposed study. If the facility proposes to use existing data, it would demonstrate the extent to which the data are representative of current conditions and that the data were collected using appropriate quality assurance/quality control procedures;

(3) a summary of any past or ongoing (including voluntary) consultations with appropriate Federal, State, and Tribal fish and wildlife agencies that are relevant to this study and a copy of written comments received as a result of such consultation; and (4) a sampling plan for any new field studies proposed to be conducted in order to ensure that the facility has sufficient data to develop a scientifically valid estimate of impingement mortality and entrainment at the site. The sampling plan would document all methods and quality assurance/quality control procedures for sampling and data analysis. The sampling and data analysis methods proposed would be appropriate for a quantitative survey and would take into account the methods used in other studies performed in the source waterbody. The sampling plan would include a description of the study area (including the area of influence of the cooling water intake structure), and provide taxonomic identifications of the sampled or evaluated biological assemblages (including all life stages of fish and shellfish).

The proposed rule does not specify particular timing requirements for the information collection proposal, but does require review of the proposal by the Director. In general, EPA expects that it would be submitted well in advance of the other permit application materials, so that if the Director determined that additional information was needed to support the application, the facility would have time to collect this information, including additional monitoring as appropriate. In some cases, however, where the facility intends to rely on existing data and there has been no change in conditions at the site since the last permit renewal, a long lead time might not be necessary. This would most likely be the case for subsequent permit renewals following the first renewal after the Phase III requirements go into effect.

Source Waterbody Flow Information

Facilities under the co-proposed regulatory option that defines existing Phase III facilities as those with design intakes flows 100 MGD or more located on tidal rivers, estuaries, or oceans, or one of the Great Lakes would not have a requirement to submit Source Waterbody Flow Information. Under either of the other co-proposed options, Phase III existing facilities with cooling water intake structures that withdraw cooling water from freshwater rivers or streams, except those deemed to have met the performance standard in § 125.103(b) (in accordance with 125.103(a)(1)(i)), would be required to provide the mean annual flow of the waterbody and any supporting documentation and engineering calculations that allow a determination of whether they are withdrawing less than or greater than five (5) percent of the annual mean flow. This would provide information needed to determine which requirements would apply to the facility (see § 125.103(b)(1) and (2)). Facilities seeking compliance in accordance with § 125.103(a)(1)(ii) would need this information to determine whether they have impingement mortality and entrainment requirements, or impingement mortality requirements only. The documentation might include either publicly available flow data from a nearby U.S. Geological Survey (USGS) gauging station or actual instream flow monitoring data collected by the facility. The waterbody flow should be compared with the total design flow of all cooling water intake structures at the regulated facility.

Under the proposed requirements at § 125.103(b)(3), Phase III existing facilities with cooling water intake structures that withdraw cooling water from a lake or reservoir and that propose to increase the facility's design intake flow would be required to submit a narrative description of the waterbody's thermal stratification and any supporting documentation and engineering calculations to show that the increased flow meets the requirement not to disrupt the natural thermal stratification or turnover pattern (where present) of the source water except in cases where the disruption is determined, in consultation with Federal, State or Tribal fish and wildlife management agencies, to not adversely affect the management of fisheries. Typically, this natural thermal stratification would be defined by the thermocline, which may be affected to a certain extent by the withdrawal of cooler water and the discharge of heated water into the system. In cases where the lake or reservoir remains stratified, the Director may also consider changes in the relative size of the water layers due to the changes in withdrawals and any subsequent impacts (*e.g.*, change in dissolved oxygen, change in available habitat).

Impingement Mortality and/or Entrainment Characterization Study

The proposed regulations would require that the facility submit the results of an Impingement Mortality and/or Entrainment Characterization Study in accordance with § 125.104(b). This study would include: (1) Taxonomic identifications of those species of fish and shellfish and their life stages that are in the vicinity of the cooling water intake structure and are most susceptible to impingement and entrainment; (2) a characterization of these species of fish and shellfish and life stages, including a description of the abundance and temporal/spatial characteristics in the vicinity of the cooling water intake structure, based on the collection of a sufficient number of years of data to characterize annual, seasonal, and diel variations in impingement mortality and entrainment (*e.g.*, related to climate/weather differences, spawning, feeding and water column migration); and (3) documentation of the current impingement mortality and entrainment of all life stages of fish and shellfish at the facility and an estimate of impingement mortality and entrainment under the calculation baseline.

This documentation would include historical data that are representative of the current operation of the facility and of biological conditions at the site. Impingement mortality and entrainment samples to support the calculations required would be collected during periods of representative operational flows for the cooling water intake structure and the flows associated with the samples would be documented. In addition, this study would include an identification of species that are protected under Federal, State, or Tribal law (including threatened or endangered species) that might be susceptible to impingement and entrainment by the cooling water intake structure(s). The Director might coordinate a review of the list of threatened, endangered, or other protected species with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, or other relevant agencies to ensure that potential impacts to these species have been addressed.

The calculation baseline is defined at § 125.102 as an estimate of impingement mortality and entrainment that would occur at the site assuming: (1) The cooling water intake system has been designed as a once-through system; (2) the opening of the cooling water intake structure is located at, and the face of the standard 3/8inch mesh traveling screen is oriented parallel to, the shoreline near the surface of the source waterbody; and (3) the baseline practices, procedures, and structural configuration are those that the facility would maintain in the absence of any structural or operational controls, including flow or velocity reductions, implemented in whole or in part for the purposes of reducing impingement mortality and entrainment. The facility

may also choose to use its current level of impingement mortality and entrainment as the calculation baseline. EPA has previously referred to this as the ''as-built approach'' (69 FR 41576).

Reductions in impingement mortality and entrainment from the calculation baseline as a result of any design and construction technologies and/or operational measures already implemented at the facility should be added to the reductions expected to be achieved by any additional design and construction technologies and operational measures that will be implemented in order to meet the applicable performance standards or site-specific requirements. In this case, the calculation baseline could be estimated by evaluating existing data from a facility nearby without impingement and/or entrainment control technology (if relevant) or by evaluating the abundance of organisms in the source waterbody in the vicinity of the intake structure that may be susceptible to impingement and/or entrainment. Additionally, if a portion of the total design intake flow is water withdrawn for a closed-cycle, recirculating cooling system (but flow is not sufficiently reduced to satisfy the compliance option in § 125.103(a)(1)(i)), such facilities would be able to use the reduction in impingement mortality and entrainment that is attributed to the reduction in flow in meeting the performance requirements in § 125.103.

The calculation baseline may be estimated using: historical impingement mortality and entrainment data from the facility or from another facility with comparable design, operational, and environmental conditions; current biological data collected in the waterbody in the vicinity of the cooling water intake structure; or current impingement mortality and entrainment data collected at the facility. A facility could also request that the calculation baseline be modified to be based on a location of the opening of the cooling water intake structure at a depth other than at or near the surface if it can demonstrate to the Director that the other depth would correspond to a higher baseline level of impingement mortality and/or entrainment.

Technology and Compliance Assessment Information

The Technology and Compliance Assessment Information required under § 125.104(b)(4) consists of two parts: (1) The Design and Construction Technology Plan; and (2) the Technology Installation and Operation Plan. If a facility plans to utilize the compliance alternative in § 125.103(a)(4), it need only submit the Technology Installation and Operation Plan (and the Verification Monitoring Plan under § 125.104(b).) If the facility plans to utilize the compliance alternative in § 125.103(a)(2) or (3) using design and construction technologies and/or operational measures (either existing or new), it would submit both the Design and Construction Technology Plan and the Technology Installation and Operation Plan. Note that facilities seeking a site-specific determination of best technology available in accordance with § 125.103(a)(5), would submit a Site-Specific Technology Plan in accordance with § 125.104(b) rather than a Design and Construction Technology Plan, as well as a Technology Installation and Operation Plan and the other studies discussed later in section VII.C.5, Alternative Site-Specific Requirements.

The Design and Construction Technology Plan would explain the technologies or operational measures selected by a facility to meet the requirements in § 125.103(a)(2) or (3). The Agency recognizes that selection of the specific technology or group of technologies for the site will depend on individual facility and waterbody conditions. Examples of appropriate technologies may include, but are not limited to, wedgewire screens, fine mesh screens, fish handling and return systems, barrier nets, aquatic filter barrier systems, and enlargement of the cooling water intake structure to reduce velocity. Examples of operational measures include, but are not limited to, seasonal shutdowns or reductions in flow, and continuous or more frequent rotation of traveling screens.

Information required as part of the Design and Construction Technology Plan would include the following: (1) A narrative description of the design and operation of all design and construction technologies and/or operational measures that have been or will be put into place to meet the performance standards for reduction of impingement mortality of those species most susceptible to impingement, and information that demonstrates the efficacy of those technologies and/or operational measures for those species; (2) a description of the design and operation of all design and construction technologies or operational measures that have been or will be put into place, to meet the performance standards for reduction of entrainment for those species most susceptible to entrainment, if applicable to the facility, and information that demonstrates the efficacy of those technologies and/or operational measures for those species; (3) calculations of the reduction in impingement mortality and/or entrainment of all life stages of fish and shellfish that would be achieved by the technologies and/or operational measures selected based on the Impingement Mortality and/or Entrainment Characterization Study in § 125.104(b); and (4) design and engineering calculations, drawings, and estimates to support the narrative descriptions required in the Design and Construction Technology Plan prepared by a qualified expert such as a professional engineer.

In determining compliance with any requirements to reduce impingement mortality or entrainment, the facility would assess the total reduction in impingement mortality and entrainment against the calculation baseline developed under the Impingement Mortality and/or Entrainment Characterization Study.

Under the Phase II final rule, power producing facilities with a capacity utilization rate of less than 15 percent are only required to meet the impingement mortality reduction requirements, based on EPA's determination that entrainment impacts below this threshold would be minimal. EPA defined the capacity utilization rate as the ratio between the average annual net generation of the power by the facility (in MW) and the total net capability of the facility to generate power (in MW) multiplied by the number of available hours during a year. Today's proposed rule does not contain an analogous provision for manufacturing facilities, as EPA has been unable to identify a similar threshold of operations below which impacts would be considered minimal. EPA requests comment on the availability of such a threshold that would result in lesser requirements for facilities that do not operate full time, thus minimizing burdens to these facilities while still protecting the source waterbody.

The Technology Installation and Operation Plan is required for all facilities that choose the compliance alternatives in § 125.103(a)(2), (3), (4), or (5), and propose to use design and construction technologies and/or operational measures (either existing or new) to meet performance standards or site specific requirements. Such facilities would submit the following information to the Director for review and approval: (1) A schedule for the installation and maintenance of any new design and construction technologies; (2) a list of the operational parameters that will be monitored, including the location and the

frequency at which they will be monitored; (3) a list of activities to be undertaken to ensure to the degree practicable the efficacy of the installed design and construction technologies and operational measures, and the schedule for implementing them; (4) a schedule and methodology for assessing the efficacy of any installed design and construction technologies and operational measures in achieving applicable performance standards, including an adaptive management plan for revising design and construction technologies and/or operational technologies if the assessment indicates that applicable performance standards are not being met; and (5) for facilities that select an approved technology in accordance with § 125.103(a)(4), documentation that appropriate site conditions (as specified by EPA or the Director in accordance with § 125.108) exist at the facility. In developing the schedule for installation and maintenance of any new design and construction technologies in item 1, the facility should schedule any downtime to coincide with otherwise necessary downtime (*e.g.*, for repair, overhaul, or routine maintenance of the) to the extent practicable. The Director should approve any reasonable scheduling provision included for this purpose. Those facilities that propose to use restoration measures in whole or in part would submit the Restoration Plan required at § 125.104(b)(5).

Today's proposed rule would require the Director to evaluate, using information submitted in the application, biennial status reports, and any other available information, the performance of any technologies, operational measures, and/or restoration measures the facility may have implemented in previous permit terms. Additional or different design and construction technologies, operational measures, and/or restoration measures may be required if the Director determines that the initial technologies, operational measures, and/or restoration measures selected and implemented will not meet the requirements of § 125.103, as provided in § 125.107. The proposed rule also requires that the permit contain a condition requiring the facility to reduce impingement mortality and entrainment (if applicable) commensurate with the efficacy of the installed design and construction technologies and/or operational measures. This is designed to ensure that technologies are operated and maintained to ensure their efficacy to the degree practicable, and not merely to meet the low end of the applicable performance standard range, if better performance is practicable.

The Technology Installation and Operation Plan is one of the most important pieces of documentation for implementing the requirements of this proposed rule. It serves to: (1) Guide facilities in the installation, operation, maintenance, monitoring, and adaptive management of selected design and construction technologies and/or operational measures; (2) provide a schedule and methodology for assessing success in meeting applicable performance standards and site-specific requirements; and (3) provide a basis for determining compliance with the requirements of § 125.103(a)(2)–(5). Facilities and Directors are encouraged to take appropriate care in developing, reviewing and approving the plan. Note that for facilities employing restoration measures, the Restoration Plan serves the same required functions.

Restoration Plan

EPA proposes restoration measures as one of several technologies that may be employed, alone or in combination with others, to minimize adverse environmental impact at existing facilities. The consideration of restoration measures is relevant to the section 316(b) determination of the requisite design of cooling water intake structures because restoration measures help minimize the adverse environmental impact attributable to such structures. Phase III existing facilities may use restoration measures that produce and/or result in levels of fish and shellfish in the facility's waterbody or watershed that are substantially similar to those that would result through compliance with the applicable performance standards or alternative site-specific requirements. In order to employ restoration measures, the facility would demonstrate to the Director that it has evaluated the use of design and construction technologies and/or operational measures and determined that the use of restoration measures is appropriate because meeting the applicable performance standards or site-specific requirements through the use of design and construction technologies and/or operational measures alone is less feasible, less cost-effective or less environmentally desirable than meeting the standards in whole or in part through the use of restoration measures. Facilities would also demonstrate to the Director that the restoration measures, alone or in combination with any selected design and construction technologies and/or operational measures, will produce ecological benefits and maintain fish and shellfish in the waterbody, including community structure and function, at a substantially similar level to that which would be achieved by meeting the applicable performance standards at § 125.103(b) or the site-specific requirements developed pursuant to § 125.103(a)(5).

To help all parties review the proposed or existing restoration measures and to help ensure adequate performance of those measures, § 125.104(b) would require facilities proposing to use restoration measures to submit the following information in a Restoration Plan with their applications to the Director for review and approval. In the submittal, the facility would address species identified, in consultation with Federal, State, and Tribal fish and wildlife management agencies with responsibility for fisheries and wildlife potentially affected by the facility's cooling water intake structures, as species of concern. The level of complexity of the Restoration Plan likely will be commensurate with the restoration measures considered or proposed.

First, the facility would be required to demonstrate that it has evaluated the use of design and construction technologies and/or operational measures and explain how it determined that the use of restoration measures would be more feasible, cost-effective, or environmentally desirable than meeting the applicable performance standards or site-specific requirements wholly through the use of design and construction technologies, and/or operational measures.

Second, the facility would be required to submit a narrative description of the design and operation of all restoration measures the facility has in place or has selected and proposes to implement to produce fish and shellfish. If the ecological benefits from an existing restoration project are required to compensate for some environmental impact other than the impact from impingement and entrainment by the cooling water intake structure (*e.g.*, a wetland created to satisfy section 404 of the Clean Water Act requirements), those ecological benefits should not be counted towards meeting the applicable performance standards or site-specific requirements. The narrative description should identify the species targeted under any restoration measures.

Third, the facility would be required to submit a quantification of the ecological benefits of the existing and/or proposed restoration measures. The facility would estimate the reduction in fish and shellfish impingement mortality and entrainment that would

be necessary to comply with applicable performance standards or site-specific requirements, using information from the Impingement Mortality and/or Entrainment Characterization Study and any other available and appropriate information. The facility would then calculate the production of fish and shellfish from existing and proposed restoration measures. The quantification would also include a discussion of the nature and magnitude of uncertainty associated with the performance of the restoration measures and a discussion of the time frame within which ecological benefits are expected to accrue from the restoration project.

Fourth, the facility would be required to provide design calculations, drawings, and estimates documenting that the proposed restoration measures, in combination with design and construction technologies and/or operational measures, or alone, will meet the requirements for production of fish and shellfish. Production of fish and shellfish as a result of relevant restoration measures already implemented at the facility should be added to the production expected to be achieved by the additional restoration measures. If the restoration measures address the same fish and shellfish species identified in the Impingement Mortality and/or Entrainment Characterization Study (in-kind restoration), the facility would be required to demonstrate that the restoration measures will produce a level of these fish and shellfish substantially similar to that which would result from meeting applicable performance standards or site-specific requirements. In this case, the calculations should include a site-specific evaluation of the suitability of the restoration measures based on the species that are found at the site. If the restoration measures address fish and shellfish species different from those identified in the Impingement Mortality and/or Entrainment Characterization Study (out-of-kind restoration), the facility would be required to demonstrate that the restoration measures produce ecological benefits substantially similar to or greater than those that would be realized through in-kind restoration. Such a demonstration should be based on a watershed approach to restoration planning and consider applicable multi-agency watershed restoration plans, site-specific peer-reviewed ecological studies, and/or consultation with appropriate Federal, State, and Tribal natural resource agencies. While both in-kind and out-of-kind restoration require a quantification of the levels of fish and shellfish the restoration measures are expected to produce, out-of-kind restoration could include a qualitative demonstration that these ecological benefits are substantially similar to or greater than those that would be realized through in-kind restoration, because different species are being produced that may not be directly comparable to those identified in the Impingement Mortality and/or Entrainment Characterization Study. The Director could require additional information from the facility in order to assess the results of the out-of-kind restoration (*e.g.*, biological data on species present, function of species in the community, etc.).

Fifth, the facility would be required to submit a plan utilizing an adaptive management method for implementing, maintaining, and demonstrating the efficacy of the restoration measures it has selected and for determining the extent to which restoration measures, or the restoration measures in combination with design and construction technologies and operational measures, have met the applicable performance standards or site-specific requirements. Adaptive management is a process in which a facility chooses an approach for meeting a project goal, monitors the effectiveness of that approach, and then, based on monitoring and any other available information, makes any adjustments necessary to ensure continued progress toward the project's goal. This cycle is repeated as necessary until the goal is met.

The adaptive management plan would include: (1) A monitoring plan that includes a list of the restoration parameters that the facility will monitor, the frequency at which they will be monitored, and the success criteria for each parameter; (2) a list of activities the facility will undertake to ensure the efficacy of the restoration measures, a description of the linkages between these activities and the items described in the monitoring plan, and an implementation schedule for the activities; and (3) a process for revising the restoration plan as new information, including monitoring data, becomes available, and if the applicable performance standards or site-specific requirements are not being met.

Sixth, the facility would be required to submit a summary of any past or ongoing consultation with Federal, State, and Tribal fish and wildlife management agencies on its use of restoration measures, including any written comments received as a result of such consultations.

Seventh, if requested by the Director, the facility would be required to conduct a peer review of items to be submitted as part of the Restoration Plan. Written comments from peer reviewers would be submitted to the Director and made available to the public as part of the permit application. Peer reviewers would be selected in consultation with the Director who may consult with EPA, and with Federal, State and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by the facility's cooling water intake structure(s). Peer reviewers would be required to have appropriate qualifications (*e.g.*, in the fields of geology, engineering and/or biology) depending upon the materials to be reviewed.

Finally, the facility would be required to include in the Plan a description of information to be included in a status report to the Director every two years. The proposed regulations at § 125.107(b) would require that this information be reviewed by the Director to determine whether the proposed restoration measures, in conjunction with (or in lieu of) design and construction technologies and/or operational measures, would meet the applicable performance standards or site-specific requirements, or, if the restoration is out-of-kind, would produce substantially similar ecological benefits (fish and shellfish) including maintenance or protection of community structure and function in the facility's waterbody or watershed.

Compliance Using an Approved Technology

Today's proposed rule would offer facilities the choice of adopting a protective, pre-approved design and construction technology, which would allow them to submit a significantly streamlined Comprehensive Demonstration Study. Section 125.108 lists one approved technology (wedgewire screens) and provides an opportunity for the Director to pre-approve other technologies.

If the facility chooses to comply with this compliance alternative, the facility would submit documentation to the Director that the facility meets the appropriate site conditions and the facility has installed and will properly operate and maintain submerged cylindrical wedgewire screen technology (as described in § 125.108(a)(1)) or other technologies as approved by the Director under § 125.108(b)). If the facility is subject to impingement mortality performance standards only, and plans to install

wedgewire screens with a maximum through-screen design intake velocity of 0.5 feet per second or less, the facility should choose the compliance alternative in § 125.103(a)(1)(i), and does not need to demonstrate that it meets the other criteria in § 125.104(a)(1) or prepare a Technology Installation and Operation Plan or Verification Monitoring Plan.

Facilities subject to entrainment performance standards seeking compliance under this alternative would submit a Technology Installation and Operation Plan and a Verification Monitoring Plan that address entrainment reduction, and document that all of the appropriate site conditions in § 125.108(a)(1) exist at their facility. To qualify for compliance using the cylindrical wedgewire screen technology, the facility would have to meet the following conditions: (1) The cooling water intake structure is located in a freshwater river or stream; (2) the cooling water intake structure is situated such that sufficient ambient counter-currents exist to promote cleaning of the screen face; (3) the maximum through-screen design intake velocity is 0.5 feet per second or less; (4) the slot size is appropriate for the size of eggs, larvae, and juveniles of all fish and shellfish to be protected at the site; and (5) the entire main cooling water intake flow is directed through the technology. Facilities should demonstrate that they meet these criteria in the Technology Installation and Operation Plan. Note the submerged cylindrical wedgewire screen technology is only pre-approved if the cooling water intake structure is, among other things, located in a freshwater river or stream (*see* § 125.108(a)). Therefore, this particular pre-approved technology would not apply under the co-proposed regulatory option that defines Phase III existing facilities as those with design intakes flows 100 MGD or more located on tidal rivers, estuaries, or oceans, or one of the Great Lakes.

In addition, any interested person could submit a request that a technology be approved for use in accordance with the compliance alternative in § 125.103(a)(4). If the Director approves, the technology may be used by all facilities that have similar site conditions under the Director's jurisdiction. To do this, the interested person would submit the following as required by § 125.108(b): (1) A detailed description of the technology; (2) a list of design criteria for the technology and site characteristics and conditions that each facility would need to have in order to ensure that the technology can consistently meet the appropriate impingement mortality and entrainment performance standards in § 125.103(b); and (3) information and data sufficient to demonstrate that all facilities under the jurisdiction of the Director can meet the applicable impingement mortality and entrainment performance standards in § 125.103(b) if the applicable design criteria and site characteristics and conditions are present at the facility.

EPA is proposing this compliance alternative in response to comments received under the Phase II proposed rule suggesting that EPA provide an additional, more streamlined compliance option under which a facility could implement certain specified technologies that are deemed highly protective in exchange for reducing the scope of the Comprehensive Demonstration Study. (*See,* 68 FR 13522, 13539; March 19, 2003). This approach was also endorsed by small entity representatives and the Final Report of the Small Business Advocacy Review Panel on EPA's Planned Proposed Rule for Cooling Water Intake Structures at Section 316(b) Phase III Facilities (DCN 7–0006). EPA is soliciting comments on other technologies that are equally protective and may be used to meet the performance requirements.

Information To Support Site-Specific Determination of Best Technology Available for Minimizing Adverse Environmental Impact

If a facility selects compliance alternative 5 (§ 125.103(a)(5)), it would be required to demonstrate that its costs of compliance under the compliance alternatives 3 or 4 (§ 125.103(a)(3) or (4)) would be significantly greater than the costs considered by the Administrator for a similar facility in establishing the applicable performance standards, or that its cost of compliance under alternatives 3 and 4 would be significantly greater than the benefits of complying with the applicable performance requirements. Depending on the approach taken, a facility would be required to complete the Site-Specific Technology Plan, the Comprehensive Cost Evaluation Study, and possibly the Benefits Valuation Study. These study requirements are discussed later in section VII.C.5, Alternative Site-Specific Requirements.

Verification Monitoring Plan

Section 125.104(b) would require all Phase III existing facilities, except those deemed to have met the performance standard in § 125.103(a)(1), to submit a Verification Monitoring Plan to measure the efficacy of the implemented design and construction technologies and/or operational measures. The plan would include a monitoring study lasting at least two years to verify the full-scale performance of the proposed or already implemented technologies and of any additional operational measures. The plan would be required to describe the frequency of monitoring and the parameters to be monitored and the bases for determining these. The Director would use the verification monitoring results to confirm that the facility is meeting the level of impingement mortality and/or entrainment reduction expected and that fish and shellfish are being maintained at the level expected (as required in § 125.105). Verification monitoring would be required to begin once the technologies and/or operational measures are implemented and continue for a sufficient period of time (but at least two years) to demonstrate that the facility is reducing impingement mortality and/or entrainment to the level of reduction required.

2. How Would the Director Determine the Appropriate Cooling Water Intake Structure Requirements?

The Director's first step would be to determine whether the facility is covered by this proposed rule. If the answer to all the following questions is yes, the facility would be required to comply with the requirements of this proposed rule.

(1) Is the facility a point source?

(2) Is the facility an existing facility other than a Phase II existing facility?

(3) Does the facility use at least 25 percent of water withdrawn exclusively for cooling purposes, measured on an average annual basis? and

(4) Does the facility use, or propose to use, a cooling water intake structure (including a cooling water intake structure operated by an independent supplier) that meets the total design intake flow/source waterbody threshold as specified under each of the three co-proposed regulatory options to withdraw cooling water from waters of the United States?

If a facility is a point source that uses a cooling water intake structure and has or is required to have an NPDES permit, but does not meet the applicability requirements in today's proposed rule, it would continue to be subject to permit conditions implementing section 316(b) of the Clean Water Act set by the Director on a case-by-case basis, using best professional judgment.

The Director's second step would be to determine whether the facility proposes to comply: By demonstrating

that its existing design and construction technologies, operational measures, or restoration measures meet the proposed performance standards; by implementing design and construction technologies, operational measures, or restoration measures that, in combination with existing technologies and operational measures, meet the proposed performance standards; by using an approved technology; or by seeking a site-specific determination of best technology available to minimize adverse environmental impact (*see* § 125.103(a)).

If a facility selects compliance alternative 1 (§ 125.103(a)(1)), and it demonstrates that it has reduced its flow commensurate with a closed-cycle recirculating system and therefore already meets the performance standards to reduce impingement mortality and entrainment, the Director would only have to verify that this is indeed true; no additional requirements are necessary. Under compliance alternative 1, a facility may demonstrate that it has already reduced its design intake velocity to 0.5 feet per second and therefore meets the performance standards to reduce impingement mortality only. Again the Director would only need to verify the design intake velocity and no further requirements would be necessary.

Under compliance alternative 2 (§ 125.103(a)(2)), in which a Phase III existing facility chooses to demonstrate that its existing design and construction technologies, operational measures, or restoration measures meet the proposed performance standards, the Director would need to verify that the existing facility meets the impingement mortality and entrainment reduction requirements.

To verify that existing controls meet the impingement mortality and entrainment reduction requirements in the proposed rule, the Director would need to: (1) Verify the facility's baseline calculation; (2) confirm the location of the facility's cooling water intake structure(s); (3) verify the withdrawal percentage of mean annual flow if applicable; (4) review impingement mortality and/or entrainment rates or estimates; and (5) consider any use of restoration. These same steps also would be part of determining requirements under other compliance alternatives as discussed below.

The Director would initially review and verify the calculation baseline estimate submitted by the facility under § 125.104(b). This estimate would need to be consistent with the proposed definition of the term ''calculation baseline'' and be representative of current biological conditions at the facility. The Director would then review the information that the facility provides to validate the source waterbody type in which the cooling water intake structure is located (freshwater river or stream; lake or reservoir; or estuary, tidal river, ocean, or Great Lake). The Director would review the supporting material the applicant provided in the permit application to document the physical placement of the cooling water intake structure. For existing facilities with one or more cooling water intake structures located in a freshwater river or stream, the Director would need to determine whether the facility withdraws more or less than five percent of the mean annual flow, which determines whether impingement mortality, or impingement mortality and entrainment controls would apply. For facilities with cooling water intake structures located on lakes or reservoirs, other than a Great Lake, for which the facility seeks to increase the design flow, the Director would need to determine whether the increased intake flow would disrupt the natural thermal stratification or turnover pattern of the source waterbody. In making this determination, the Director would need to consider anthropogenic factors that can influence the occurrence and location of a thermocline, and would need to coordinate with appropriate Federal, State, or Tribal fish and wildlife agencies to determine if any disruption adversely impacts the management of the fisheries. Both of these determinations would be based on the source waterbody flow information required under § 125.104(b).

For Phase III existing facilities that have in place existing restoration measures that meet the requirements of § 125.103(b), the Director would review the evaluation of the current restoration measures submitted under § 125.104(b). The Director could gather additional information and solicit input for the review from appropriate fishery management agencies as necessary. The Director would need to determine whether the current measures would maintain the fish and shellfish in the waterbody at comparable levels to those that would be achieved under § 125.103, as well as review and approve the proposed Restoration Plan required in § 125.104(b).

Finally, the Director would need to review impingement and/or entrainment data or estimates to determine whether in-place controls achieve the performance standards proposed for the different categories of source waterbodies. This step would involve comparing the calculation baseline with the impingement and/or entrainment data or estimates provided as part of the Comprehensive Demonstration Study and the Impingement Mortality and/or Entrainment Characterization Study requirements under § 125.104(b).

If the Director determines that the existing technologies, operational measures, or supplemental restoration measures employed do not achieve compliance with the applicable performance standards, the Director would issue a permit requiring additional measures to achieve such compliance, based on the information submitted in the Comprehensive Demonstration Study (§ 125.107(b)(1)). If such studies are approved and a permit is issued on that basis, but the Director later determines, based on the results of subsequent monitoring, that the technologies, operational measures, and supplemental restoration measures did not meet the performance standards, the Director would require the existing facility to implement additional technologies and operational measures as necessary to meet the rule requirements. In general, this would occur at the next renewal of the permit. The Director would also review the facility's Verification Monitoring Plan and/or Restoration Plan (as appropriate) for post-operational monitoring to demonstrate that the technologies and/or restoration measures are performing as predicted.

Under compliance alternative 3 (§ 125.103(a)(3)), the same general steps would be followed as described above to assess compliance of existing controls with applicable performance standards except that under this alternative, the Phase III existing facility would be required to demonstrate that the technologies and measures identified would meet (rather than currently meet) the applicable performance standards. This review would also be based on data submitted in the Comprehensive Demonstration Study required under § 125.104(b).

For facilities seeking compliance under compliance alternative 4 (§ 125.103(a)(4)), through the use of an approved technology, the Director would review the Technology Installation and Operation Plan and Verification Monitoring Plan.

These same basic steps described under compliance alternatives 2 and 3 would also apply to facilities seeking to comply under compliance alternative 5 (§ 125.103(a)(5)); however, the Director would be required to make two additional determinations under this option, including whether the facility meets one of the applicable cost tests

and what alternative requirements are justified in light of the significantly greater costs. Phase III existing facilities seeking to comply under this option would be required to submit a Comprehensive Cost Evaluation Study under § 125.104(b), which includes data that document the cost of implementing design and construction technologies, operational measures, and/or restoration measures to meet the otherwise applicable performance standards in § 125.103(b). The Director would need to review these data, including detailed engineering cost estimates, and compare these with the costs the Agency considered in establishing these requirements for a like Phase III facility. Where the Director finds that the facility's cost of implementation is significantly greater than those considered during rule development, he or she would approve site-specific requirements and could approve alternative technologies or operational measures. Such alternative technologies or operational measures could be those proposed by the facility in the Site-Specific Technology Plan or Restoration Plan, but less protective requirements would have to be justified by the significantly greater costs.

Where a Phase III existing facility seeks site-specific requirements based on facility costs that are significantly greater than the environmental benefits of compliance, the facility would also be required to submit a Benefits Valuation Study (along with the Comprehensive Cost Evaluation Study). The Director would review the benefits valuation, including a narrative description of non-quantified benefits, to determine whether it fully values the benefits of meeting the applicable performance standards, as required in § 125.104(b), and whether the facility's cost of implementation is significantly greater than the environmental benefits of complying with the requirements of § 125.103(b). If the Director determines that the compliance costs are significantly greater than the environmental benefits, the Director would approve site-specific requirements and could approve alternative technologies or operational measures. Such alternative technologies or operational measures could be those proposed by the facility in the Site-Specific Technology Plan and/or Restoration Plan, but less protective requirements would have to be justified by the significantly greater costs. EPA is interested in ways to decrease application review time and is requesting comments on how to make this process both efficient and effective.

3. What Would I Be Required To Monitor?

Section 125.105 of today's proposed rule provides that Phase III existing facilities would perform monitoring in accordance with the Verification Monitoring Plan, the Technology Installation and Operation Plan, and/or the Restoration Plan, all required by § 125.104(b), and any additional monitoring specified by the Director to demonstrate compliance with the applicable requirements of § 125.103(e). In developing biological monitoring conditions, the Director should consider the need for the data, and only collect data sufficient to assess the presence, abundance, life stages (including eggs, larvae, juveniles, and adults), and mortality of aquatic organisms (fish and shellfish or other organisms required to be monitored by the Director) impinged or entrained during operation of the cooling water intake structure. This type of data may be used to develop permit conditions to implement the requirements of this rule. The Director should ensure, where appropriate, that any required monitoring will allow for the detection of any annual, seasonal, and diel variations in the species and numbers of individuals that are impinged or entrained.

The Director may modify the monitoring program based on changes in physical, chemical, or biological conditions in the vicinity of the cooling water intake structure. The Director may also require monitoring of operational parameters for facilities that employ a Technology Installation and Operation Plan or Restoration Plan to comply with the requirements of § 125.103. The Director would be required to specify what monitoring or other data is to be included in a status report every two years.

4. How Would Compliance Be Determined?

This proposed rule would be implemented by the Director placing conditions consistent with the requirements of this part in NPDES permits. The application information, including components of the Comprehensive Demonstration Study, as appropriate, should demonstrate that the facility is already meeting the performance standards, or that it will install and properly operate and maintain design and construction technologies, operational measures, and/or restoration measures to meet the performance standards, or that a site-specific determination of best technology available is necessary. To support this demonstration, the facility should submit the following information to the Director:

- Data submitted with the NPDES permit application to show that the facility meets location, design, construction, and capacity requirements consistent with the compliance alternative selected;
- Data to demonstrate that the facility is meeting the performance standards or requirements consistent with the compliance alternative selected; and
- Compliance monitoring data and records as prescribed by the Director.

Facilities complying using compliance alternatives in § 125.103 (a)(2)–(5) would be required to submit a Technology Installation and Operation Plan and Verification Monitoring Plan (or Restoration Plan, which includes comparable information), regardless of how the facility wants to measure compliance. The specifics of how success in meeting the performance standards may be measured (*i.e*, the number of species, whether critical species or all species) and the method of measurement (*e.g.*, total biomass, total counts, etc.) would be determined by the Director based on review of the proposed methodology submitted by the facility in its Verification Monitoring Plan and/or Restoration Plan, and any other methods the Director considers appropriate.

The facility may request that compliance be determined based on whether it has complied with the construction, operational, maintenance, monitoring, and adaptive management requirements of its Technology Installation and Operation Plan (for design and construction technologies and/or operational measures) or Restoration Plan (for restoration measures). In this case, the facility would still assess success in meeting applicable performance standards or restoration requirements but this assessment serves to guide the adaptive management process rather than as a basis for determining compliance. After the first permit term following promulgation of this rule, facilities are only eligible for this compliance determination alternative if they have been in compliance with the terms of their Technology Installation and Operation Plan and/or Restoration Plan during the preceding permit term.

Under this compliance determination alternative, the Technology Installation and Operation Plan or Restoration Plan would specify construction, operational, maintenance, monitoring, and adaptive management requirements that can reasonably be expected to achieve success in meeting the applicable performance standards, restoration

requirements and/or site-specific requirements. These construction, operational, maintenance, monitoring, and adaptive management requirements would also be approved by the Director, who would be required to specify what verification monitoring, monitoring data and other information would be included in the facility's biennial status report.

The required elements of the Technology Installation and Operation Plan include: (1) A schedule for installation and maintenance of any new technologies; (2) operational parameters to be monitored; (3) activities to ensure the efficacy of technologies and measures; (4) a schedule and methodology for assessing the efficacy of installed technologies and measures in meeting the performance standards; (5) an adaptive management plan; and (6) for facilities using an approved compliance technology, documentation that they meet the conditions for its use. The Restoration Plan requires corresponding information as appropriate for restoration measures.

EPA believes that it is important for facilities to consider and document each of the components of the Technology Installation and Operation Plan, regardless of which compliance determination approach is used. However, the level of detail appropriate for some of the components may be different for the two different approaches. For facilities that comply by demonstrating success in meeting performance standards, particularly in cases where they are already meeting the standards and no significant changes in technologies or operations are needed, brief summaries may be sufficient for most components, though they would still need detailed documentation of their schedule and methodology for assessing efficacy of installed technologies and measures for meeting the standards. Conversely, for facilities where compliance is determined based on whether they have complied with the construction, operation, maintenance, monitoring, and adaptive management approaches required in the Technology Installation and Operation Plan or Restoration Plan, a fairly detailed specification of these requirements would be appropriate. The Director should ensure that the level of detail in the Technology Installation and Operation Plan or Restoration Plan is sufficient to support whichever compliance determination approach is selected.

Section 125.106 requires existing facilities to keep records and report monitoring data and other information specified by the Director in a biennial status report, although Directors may require more frequent reports. Facilities would also keep records of all data used to complete the permit application and show compliance with the requirements of § 125.103, any supplemental information developed under § 125.104, and any compliance monitoring data submitted under § 125.105, for a period of at least three (3) years from date of permit issuance. The Director may require that these records be kept for a longer period.

5. Alternative Site-Specific Requirements

Under § 125.103(a)(5), an existing facility may demonstrate to the Director that it has selected, installed, and is properly operating and maintaining, or will install and properly operate and maintain, design and construction technologies, operational measures, and/or restoration measures that the Director determines to be the best technology available to minimize adverse environmental impact for the facility based on the cost-cost test specified in § 125.103(a)(5)(i) or the cost-benefit test specified in § 125.103(a)(5)(ii) of the proposed rule.

Section 125.103(a)(5)(i) provides that an existing facility may demonstrate that the costs of compliance under the compliance alternatives in § 125.103(a)(3) and (4) of the rule would be significantly greater than the costs considered by the Administrator for a like facility in establishing the applicable performance standards. In such cases, the Director would make a site-specific determination of the best technology available for minimizing adverse environmental impact. The Director would establish site-specific alternative requirements based on new and/or existing design and construction technologies, operational measures, and/or restoration measures that achieve an efficacy that is, in the judgment of the Director, as close as practicable to the applicable performance standards in § 125.103(b) of the rule without resulting in significantly greater costs than those considered by the Administrator for a like facility. Section 125.103(a)(5)(ii) provides that an existing facility may demonstrate that the costs of compliance under alternatives in § 125.103(a)(3) and (4) of the rule would be significantly greater than the benefits of complying with the applicable performance standards at that facility. In such cases, the Director would make a site-specific determination of best technology available for minimizing adverse environmental impact. The Director would establish site-specific alternative requirements based on new and/or existing design and construction technologies, operational measures, and/or restoration measures that achieve an efficacy that, in the judgment of the Director, is as close as practicable to the applicable performance standards in § 125.103(b) of the rule without resulting in costs significantly greater than the benefits of meeting the performance standards.

Facility's Costs Significantly Greater Than Costs Considered by EPA

If the Director determines that data specific to the facility indicate that the costs of compliance under § 125.103(a)(3) and (4) would be significantly greater than the costs considered by the Administrator for a like facility in establishing the applicable performance standards in § 125.103(b), a facility may request a site-specific determination of best technology available for minimizing adverse environmental impacts. A facility requesting this determination would submit a Comprehensive Cost Evaluation Study and a Site Specific Technology Plan (§ 125.104(b)). The Comprehensive Cost Evaluation Study would include: engineering cost estimates in sufficient detail to document the costs of implementing design and construction technologies, operational measures, and/or restoration measures at the facility that would be needed to meet the applicable performance standards of § 125.103(b); a demonstration that the documented costs significantly exceed the costs considered by EPA for a like facility in establishing the applicable performance standards; and engineering cost estimates in sufficient detail to document the costs of implementing alternative design and construction technologies, operational measures, and/or restoration measures in the facility's Site-Specific Technology Plan developed in accordance with § 125.104(b).

To make the demonstration that compliance costs are significantly greater than those considered by EPA, the facility would first determine its actual compliance costs. To do this, the facility first should determine the costs for any new design and construction technologies, operational measures, and/or restoration measures that would be needed to meet the applicable performance standards in § 125.103(b), which may include the following cost categories: the installed capital cost of the technologies or measures; the net operation and maintenance (O&M) costs for the technologies or measures (that is,

the O&M costs for the final suite of technologies and measures once all new technologies and measures have been installed less the O&M costs of any existing technologies and measures); the net revenue losses (lost revenues minus saved variable costs) associated with net construction downtime (actual construction downtime minus that portion which would have been needed anyway for repair, overhaul or maintenance); and any pilot study costs associated with on-site verification and/or optimization of the technologies or measures. Costs should be annualized using a 7 percent discount rate, with an amortization period of 10 years for capital costs and 30 years for pilot study costs and construction downtime net revenue losses. Annualized costs should be converted to 2002 dollars ($2002), using the engineering news record construction cost index (*see Engineering News-Record*. New York: McGraw Hill). The annual average index value is 6538 for year 2002). Costs for permitting and post-construction monitoring should not be included in this estimate, as these are not included in the EPA-estimated costs against which they would be compared, as described below. Because existing facilities already incur monitoring and permitting costs and will continue to do so regardless of the compliance option selected, and these are largely independent of the specific performance standards adopted and technologies selected to meet them, EPA believes it is both simpler and more appropriate to conduct the cost comparison required in this provision using direct compliance costs (capital, net O&M, net construction downtime, and pilot study) only. Adding permitting and monitoring costs to both sides of the comparison would complicate the analysis without substantially changing the results.

To facilitate the comparison of the facility-derived costs with those considered by the Agency in establishing the proposed requirements, EPA has developed an automated cost estimating tool. This cost test tool estimates the costs using all of the same assumptions that EPA considered in developing costs for the proposed rule and would be made available to both the facility and the permitting authority. In fact, EPA used this same algorithm to estimate the incremental cost impact for this proposed rulemaking. This approach differs from the approach used in the Phase II regulations; however, EPA believes that this will provide an easier, more exact methodology for estimating those costs. In particular, EPA believes that this tool is appropriate because of the type of data on each facility that was available for this rulemaking. EPA surveyed only a segment of the Phase III universe and, therefore had data on a limited number of facilities, which required EPA to extrapolate costs for the universe of facilities potentially covered by this proposed rule. EPA therefore used a model facility approach in costing manufacturing facilities, which is the same methodology that is used in the development of most of EPA's technology-based effluent guidelines. This does not allow for providing a table that would give EPA's cost estimates for every Phase III existing facility as was done for Phase II. EPA requests comments on the use of this Cost Test Algorithm and has provided a version for review in DCN 7–0004. For more details on the cost-test algorithm, see the cost-test tool in section VIII and the Technical Development Document.

Facilities requesting site-specific performance requirements would be required to submit a Site-Specific Technology Plan. This plan is developed based on the results of the Comprehensive Cost Evaluation Study and would be required to contain the following information:

- A narrative description of the design and operation of all existing and proposed design and construction technologies, operational measures, and/or restoration measures selected in accordance with § 125.103(a)(5);
- An engineering estimate of the efficacy of the proposed and/or implemented design and construction technologies or operational measures, and/or restoration measures. This estimate would include a site-specific evaluation of the suitability of the technologies or operational measures for reducing impingement mortality and/or entrainment (as applicable) of all life stages of fish and shellfish based on representative studies (*e.g.*, studies that have been conducted at cooling water intake structures located in the same waterbody type with similar biological characteristics) and, if applicable, site-specific technology prototype or pilot studies. If restoration measures will be used, a Restoration Plan that includes the elements described in § 125.104(b) would be provided;
- A demonstration that the proposed and/or implemented design and construction technologies, operational measures, and/or restoration measures achieve an efficacy that is as close as practicable to the applicable performance standards of § 125.103(b) without resulting in costs significantly greater than either the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards, or, if employing the cost-benefit test described in B below, the benefits of complying with the applicable performance standards at your facility; and,
- Design and engineering calculations, drawings, and estimates prepared by a qualified professional to support the elements of the Plan.

Facility's Costs Significantly Greater Than the Benefits of Complying With Performance Standards

A facility demonstrating that its costs are significantly greater than the benefits of complying with performance standards would produce and submit a Comprehensive Cost Evaluation Study, a Benefits Valuation Study, and a Site-Specific Technology Plan.

The Comprehensive Cost Evaluation Study is discussed in the previous section. It would require the same information for a cost-benefit site-specific determination as for a cost-cost site-specific determination, except that the demonstration in § 125.104(b) would show that the facility's actual compliance costs significantly exceed the benefits of meeting the applicable performance standards at the facility.

The Benefits Valuation Study would require that a facility use a comprehensive methodology to fully value the impacts of impingement mortality and entrainment at its site and the benefits of complying with the applicable performance standards. In addition to the valuation estimates, the benefit study would include the following:

- A description of the methodology(ies) used to value commercial, recreational, and ecological benefits (including any non-use benefits, if applicable);
- Documentation of the basis for any assumptions and quantitative estimates. If the facility plans to use an entrainment survival rate other than zero, they would submit a determination of entrainment survival at the facility based on a study approved by the Director;
- An analysis of the effects of significant sources of uncertainty on the results of the study;
- If requested by the Director, a peer review of the items submitted in the Benefits Valuation Study. The facility would be required to choose the peer reviewers in consultation with the Director who 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. Peer reviewers would be required to have appropriate

qualifications depending upon the materials to be reviewed.

• A narrative description of any non-monetized benefits that would be realized at the site if they were to meet the applicable performance standards and a qualitative assessment of their magnitude and significance.

All benefits, whether expressed qualitatively or quantitatively, should be addressed in the Benefits Valuation Study and considered by the Director in determining whether the costs of compliance would significantly exceed benefits.

The benefits assessment should begin with an impingement mortality and entrainment study, which quantifies both the baseline mortality as well as the expected change from rule compliance. The benefits assessment should include a qualitative and/or quantitative description of the benefits that would be produced by compliance with the applicable performance standards at the facility site and, to the extent feasible, monetized (dollar) estimates of all significant benefits categories using well established and generally accepted valuation methodologies. The first benefit category that would be considered is use benefits, which includes such benefits as those to commercial and recreational fishermen. Well-established revealed preference and market proxy methods exist for valuing use benefits, and these should be used in all cases where the impingement mortality and entrainment study identifies substantial impacts to harvested or other relevant species.

The second benefit category that would be considered is non-use benefits. Non-use benefits may arise from reduced impacts to ecological resources that the public considers important, such as threatened and endangered species. Non-use benefits can generally only be monetized through the use of stated preference methods. When determining whether to monetize non-use benefits, permittees and permit writers should consider the magnitude and character of the ecological impacts implied by the results of the impingement mortality and entrainment study and any other relevant information.

• In cases where an impingement mortality and entrainment characterization study identifies substantial harm to a threatened or endangered species, to the sustainability of populations of important species of fish, shellfish or wildlife, or to the maintenance of community structure and function in a facility's waterbody or watershed, non-use benefits should be monetized.[41]

• In cases where an impingement mortality and entrainment characterization study does not identify substantial harm to a threatened or endangered species, to the sustainability of populations of important species of fish, shellfish or wildlife, or to the maintenance of community structure and function in a facility's waterbody or watershed, monetization is not necessary.

Permittees should consult with their permitting authority regarding their plans for assessing ecological and non-use benefits, including whether they plan to conduct a stated preference study and if so, the basic design of the study, including such items as target population, sampling strategy, approximate sample size, general survey design, and other relevant information. When conducting quantitative benefits assessments, permittees should carefully review and follow accepted best practices for such studies. A discussion of best practices regarding valuation can be found in EPA's Guidelines for Preparing Economic Analyses (EPA 2000, EPA 240–R–00–003, September 2000) and OMB Circular A–4: Regulatory Analysis (September 17, 2003, *http://www.whitehouse.gov/omb/inforeg/circular_a4.pdf*). In the benefits assessment, permittees should present the results, as well as clearly describe the methods used, the assumptions made, and the associated uncertainties.

It is recommended that the permittee and Director seek peer review of the major biological and economic aspects of the final benefits assessment. The goal of the peer review process is to ensure that scientific and technical work products receive appropriate levels of critical scrutiny from independent scientific and technical experts as part of the overall decision-making process. In designing and implementing peer reviews, permittees and permit writers could look to EPA's Science Policy Council Handbook—Peer Review (EPA 100–B–98–00, January 1998, *http://www.epa.gov/osa/spc/index.htm*) for guidance.

The Site Specific Technology Plan, as described in the previous section, would require the same information for a cost-benefit site-specific determination as for a cost-cost site-specific determination, except that the demonstration in § 125.104(b) would show that the proposed and/or implemented technologies and measures achieve an efficacy that is as close as practicable to the applicable performance standards without resulting in costs significantly greater than the benefits of complying with the applicable performance standards at your facility.

[41] In cases where harm cannot be clearly explained to the public, monetization is not feasible because stated preference methods are not reliable when the environmental improvement being valued cannot be characterized in a meaningful way for survey respondents.

D. New Offshore Oil and Gas Extraction Facilities

Under today's proposed rule, new offshore oil and gas extraction facilities would be required to submit the application requirements consistent with § 122.21(r)(2), (3), and (4) and § 125.136 of Subpart N if they are fixed facilities and choose to comply with the Track I or II requirements in § 125.134(b) or (c). A fixed facility is defined as a bottom founded offshore oil and gas extraction facility permanently attached to the seabed or subsoil of the outer continental shelf (*e.g.*, platforms, guyed towers, articulated gravity platforms) or a buoyant facility securely and substantially moored so that it cannot be moved without a special effort (*e.g.*, tension leg platforms, permanently moored semi-submersibles) and which is not intended to be moved during the production life of the well. This definition does not include mobile offshore drilling units (MODUs) (*e.g.*, drill ships, temporarily moored semi-submersibles, jack-ups, submersibles, tender-assisted rigs, and drill barges). The Track I and Track II requirements are generally consistent with the Phase I requirements for new facilities (66 FR 65256). Under Track I, this includes source water baseline biological characterization data, velocity information, source waterbody flow information, and a design and construction technology plan. Track II requirements include source waterbody flow information and Track II comprehensive demonstration study (including source water biological study, evaluation of potential cooling water intake structure effects, and verification monitoring plan). These requirements are detailed later in this section.

As described in § 125.135, fixed facilities would also have the opportunity to conduct a cost-to-cost test and provide data to determine if compliance with the Subpart N requirements would result in compliance costs wholly out of proportion to those EPA considered in establishing the requirement, or would result in significant adverse impacts on local water resources other than

impingement or entrainment, or significant adverse impacts on energy markets. In this case, alternative requirements may be imposed in the permit. See the Phase I final preamble for a more detailed explanation of this cost-cost test which is different than the cost-cost test for existing sources (66 FR 65256).

Fixed facilities with seachests and all non-fixed (or ''mobile'') facilities would not be required to comply with standards for entrainment. Fixed facilities with seachests may choose either Track I or Track II to comply with impingement mortality performance standards. Non-fixed facilities must comply with the 0.5 feet per second through-screen design intake flow velocity performance standard for impingement mortality of Track I. In addition, the Director may determine additional design and construction technologies to minimize impingement mortality are necessary where there are either protected species of concern within the hydrologic zone of influence of the cooling water intake structure, or based on other information from fishery management services or agencies. The new mobile facility, when applying to operate under a general permit, would identify where it expects to be operating. The Director consults with the fishery management agencies, considers their data as well as any other relevant data, and decides whether to propose additional requirements based on any concerns the Director identifies (*see* § 125.134(b)(4)). For example, Region 10 has established a general permit for Cooks Inlet that established a 0.1 feet per second through-screen design intake flow velocity performance standard. However, non-fixed facilities would not be required to submit the source water baseline biological characterization data and some aspects of the source water physical data requirements. Requirements for non-fixed facilities are described later in this section.

EPA notes that some mobile facilities (*e.g.* some jack-ups) may not have seachests and therefore could feasibly install entrainment controls. EPA proposes not to require entrainment controls for these mobile facilities due to the transient nature of their operations and an expectation that they are not likely to cause significant impacts. EPA took a similar approach in its Phase II rule when the Agency did not require entrainment controls at power plants that operate less than 15 percent of the year. EPA solicits comment and data on its proposal to only require impingement controls at mobile facilities that do not have seachests.

1. For New Offshore Oil and Gas Extraction Fixed Facilities, What Information Is Required To Be Collected for the NPDES Application?

Source Water Baseline Biological Characterization Data (§ 122.21(r)(4)) (Both Track I and II)

Under today's proposed rule, new offshore oil and gas extraction fixed facilities would be required to submit source water baseline biological characterization data as required under Phase I. The data would be used to characterize the biological community in the vicinity of the cooling water intake structure and to characterize the operation of the cooling water intake structure. The data would include existing data (if available) supplemented with new field studies as necessary. Detailed data requirements are at § 122.21(r)(4). Under today's proposed rule, a group of fixed facilities may choose to conduct a regional study to collect this information as approved by the Director. EPA recognizes that many offshore oil and gas extraction facilities are regulated under NPDES general permits and that regional studies are typically conducted as part of the general permit requirements. EPA anticipates the regional studies would be conducted once each permit cycle. Under today's proposed rule, the regional study would also include annual monitoring requirements.

Velocity Information (Track I)

Today's proposed rule would require that new offshore oil and gas extraction fixed facilities submit velocity information consistent with § 125.136(b)(2). The information would be used to demonstrate to the Director that the facility is complying with the requirement to meet a maximum through-screen design intake velocity of no more than 0.5 feet per second at the cooling water intake structure. The following information would be required to be submitted: (1) A narrative description of the design, structure, equipment, and operation used to meet the velocity requirement; and (2) design calculations showing that the velocity requirement would 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 or, if the facility uses devices other than a surface intake screen, at the point of entry to the device.

Source Waterbody Flow Information (Track I and II)

Today's proposed rule would also require that new offshore oil and gas extraction fixed facilities submit source waterbody flow information in accordance with § 125.136(b)(2) or (c)(1). The information would be used to demonstrate to the Director that the facility's cooling water intake structure meets the proportional flow requirements at § 125.134(b)(3) or (c)(2). These requirements would include specific provisions for fixed facilities located on estuaries or tidal rivers to provide greater protection for these sensitive waters. Specifically, the proposed rule would require that the total design intake flow over one tidal cycle of ebb and flow must be no greater than one (1) percent of the volume of the water column within the area centered about the opening of the intake with a diameter defined by the distance of one tidal excursion at the mean low water level. Calculations and guidance on determining the tidal excursion is found in the preamble to the final Phase I rule at section VII.B.1.d.

Design and Construction Technology Plan (Track I)

Today's proposed rule would also require that new offshore oil and gas extraction fixed facilities submit a design and construction technology plan consistent with Subpart N requirements at § 125.136(b)(3). The design and construction technology plan would demonstrate that the facility has selected and will implement the design and construction technologies necessary to minimize impingement mortality and/or entrainment in accordance with § 125.134(b)(4) and/or (5). The design and construction technology plan would require delineation of the hydrologic zone of influence for the cooling water intake structure; a description of the technologies implemented (or to be implemented) at the facility; the basis for the selection of that technology; the expected performance of the technology, and design calculations, drawings and estimates to support the technology description and performance. The Agency recognizes that the selection of a specific technology or a group of technologies would depend on the individual facility and waterbody conditions.

Track II Comprehensive Demonstration Study (Track II)

If a fixed facility chooses to comply under the Track II approach, the facility would perform and submit the results of

a Comprehensive Demonstration Study (Study). This information would be used 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 the cooling water intake structure reduce the impacts to fish and shellfish to levels comparable to those the facility would achieve were it to implement the applicable requirements in § 125.134(b)(2) and, for facilities without seachests, § 125.134(b)(5). To meet the ''comparable level'' requirement, the facility would demonstrate that it has reduced both impingement mortality and entrainment of all life stages of fish and shellfish to 90 percent or greater of the reduction that would be achieved through the applicable requirements in § 125.134(b)(2) and, for facilities without seachests, § 125.134(b)(5).

Similar to the Proposal for Information Collection required in Phase II, the facility would develop and submit a plan to the Director containing a proposal for how information will be collected to support the study. The plan would include:

- A description of the proposed and/or implemented technology(ies) to be evaluated in the Study;
- 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 the facility proposes to rely on existing source waterbody data, the data must be no more than 5 years old, and the facility would demonstrate that the existing data are sufficient to develop a scientifically valid estimate of potential impingement mortality and entrainment impacts, and provide documentation showing that the data were collected using appropriate quality assurance/quality control procedures;
- Any public participation or consultation with Federal or State agencies undertaken in developing the plan; and
- A sampling plan for data that will be collected using actual field studies in the source waterbody. The sampling plan would document all methods and quality assurance procedures for sampling, and data analysis. The sampling and data analysis methods proposed would be appropriate for a quantitative survey and based on consideration of methods used in other studies performed in the source waterbody. The sampling plan would 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.

The facility would submit documentation of the results of the Study to the Director. Documentation of the results of the Study would include: Source Water Biological Study, an evaluation of potential cooling water intake structure effects, and a verification monitoring plan as described below.

Source Water Biological Study. The Source Water Biological Study would include:

(1) 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;

(2) An identification of all threatened or endangered species that might be susceptible to impingement and entrainment by the proposed cooling water intake structure(s); and

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

Evaluation of potential cooling water intake structure effects. This evaluation would include:

(1) Calculations of the reduction in impingement mortality and, if applicable, entrainment of all life stages of fish and shellfish that would need to be achieved by the technologies selected to implement to meet requirements under Track II. To do this, the facility would determine the reduction in impingement mortality and entrainment that would be achieved by implementing the requirements of § 125.134(b)(2) and, for facilities without seachests, § 125.134(b)(5).

(2) An engineering estimate of efficacy for the proposed and/or implemented technologies used to minimize impingement mortality and, if applicable, entrainment of all life stages of fish and shellfish and maximize survival of impinged life stages of fish and shellfish. The facility would demonstrate that the technologies reduce impingement mortality and, if applicable, entrainment of all life stages of fish and shellfish to a comparable level to that which would be achieved if the facility were to implement the requirements in § 125.134(b)(2) and, for facilities without seachests, § 125.134(b)(5). The efficacy projection would 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. 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.

Verification monitoring plan. The fixed facility would include in the Study a plan to conduct, at a minimum, two years of monitoring to verify the full-scale performance of the proposed or implemented technologies, and/or operational measures. The verification study would 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 impingement mortality and entrainment to the level documented under the evaluation of potential cooling water intake structure effects. The plan would describe the frequency of monitoring and the parameters to be monitored. The Director would use the verification monitoring to confirm that the facility is meeting the level of impingement mortality and entrainment reduction required in § 125.134(c), and that the operation of the technology has been optimized.

2. As an Owner or Operator of a New Offshore Oil and Gas Extraction Fixed Facility, What Monitoring Is Required?

Monitoring requirements for new offshore oil and gas extraction fixed facilities include impingement mortality and entrainment if the facility does not have a seachest. If the fixed facility has a seachest, monitoring requirements include impingement mortality only.

Under today's proposal, monitoring would characterize the impingement and, if applicable, entrainment rates of 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)(3) or the Comprehensive Demonstration Study required by § 125.136(c)(2), depending on whether the facility has a seachest.

The monitoring methods used would 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 § 125.136(c)(2).

The fixed facility would be required to 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 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.

Impingement sampling. The facility would 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.

Entrainment sampling. If the fixed facility does not use a seachest, it would collect samples to monitor entrainment rates (simple enumeration) for each species over a 24-hour period and no less than biweekly 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 § 125.136(c)(2). Samples would be collected only when the cooling water intake structure is in operation.

Velocity monitoring. If the facility uses a surface intake screen system, it would be required to monitor head loss across the screens and correlate the measured value with the design intake velocity. The head loss across the intake screen would be measured at the minimum ambient source water surface elevation (using best professional judgment based on available hydrological data). The maximum head loss across the screen for each cooling water intake structure would be used to determine compliance with the velocity requirement in § 125.134(b)(2). If the facility uses devices other than surface intake screens, it would monitor velocity at the point of entry through the device. Head loss or velocity would be monitored during initial facility startup, and thereafter, at the frequency specified in the NPDES permit, but no less than once per quarter.

Visual or remote inspections. The facility would conduct visual inspections or employ remote monitoring devices during the period the cooling water intake structure is in operation. Visual inspections would be conducted at least weekly to ensure that any design and construction technologies required in § 125.134(b)(4), (b)(5), (c), and/or (d) are maintained and operated to ensure that they will continue to function as designed. Alternatively, the facility would be required to inspect via remote monitoring devices to ensure that the impingement and entrainment technologies are functioning as designed.

3. What Recordkeeping and Reporting Is Required for New Offshore Oil and Gas Extraction Fixed Facilities?

Owners and operators of new offshore oil and gas extraction fixed facilities would be required to keep records of all the data used to complete the permit application and show compliance with the requirements, any supplemental information developed under § 125.136, and any compliance monitoring data submitted under § 125.137, for a period of at least three years from the date of permit issuance. The Director may require that these records be kept for a longer period.

Additionally, today's proposal would require that new offshore oil and gas extraction fixed facilities submit the following in a yearly status report:

- Biological monitoring records for each cooling water intake structure as required by § 125.137(a);
- Velocity and head loss monitoring records for each cooling water intake structure as required by § 125.137(b); and
- Records of visual or remote inspections as required in § 125.137(c).

4. For New Non-Fixed (Mobile) Offshore Oil and Gas Extraction Facilities, What Information Is Required To Be Collected for the NPDES Application?

Velocity Information (Track I)

Today's proposed rule would require that new nonfixed (mobile) offshore oil and gas extraction facilities submit velocity information consistent with § 125.136(b)(1). The information would be used to demonstrate to the Director that the facility is complying with the requirement to meet a maximum through-screen design intake velocity of no more than 0.5 feet per second at the cooling water intake structure. The following information would be required to be submitted: (1) A narrative description of the design, structure, equipment, and operation used to meet the velocity requirement; and (2) design calculations showing that the velocity requirement would 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.

Design and Construction Technology Plan (Track I)

Today's proposed rule would require that new nonfixed (mobile) offshore oil and gas extraction facilities submit a design and construction technology plan only when required by the Director consistent with § 125.134(b)(4). The design and construction technology plan would demonstrate that the facility has selected and will implement the design and construction technologies necessary to minimize impingement mortality in accordance with § 125.134(b)(4). The design and construction technology plan would require delineation of the hydrologic zone of influence for the cooling water intake structure; a description of the technologies implemented (or to be implemented) at the facility; the basis for the selection of that technology; the expected performance of the technology, and design calculations, drawings and estimates to support the technology description and performance. The Agency recognizes that the selection of a specific technology or a group of technologies would depend on the individual facility and waterbody conditions.

5. As an Owner or Operator of a New Non-Fixed (Mobile) Offshore Oil and Gas Extraction Facility, What Monitoring Is Required?

Under today's proposal, the Director may require monitoring to characterize the impingement of commercial, recreational, and forage base fish and shellfish species as specified by the Director in accordance with § 125.134(b)(4) or § 125.134(d).

Velocity monitoring. If the mobile facility uses a surface intake screen system, it would be required to monitor head loss across the screens and correlate the measured value with the design intake velocity. The head loss across the intake screen would be measured at the minimum ambient source water surface elevation (using best professional judgment based on available hydrological data). The maximum head loss across the screen for each cooling water intake structure would be used to determine compliance with the velocity requirement in § 125.134(b)(2). If the facility uses devices other than surface intake screens, it would monitor velocity at the

point of entry through the device. Head loss or velocity would be monitored during initial facility startup, and thereafter, at the frequency specified in the NPDES permit, but no less than once per quarter.

Visual or remote inspections. The facility would conduct visual inspections or employ remote monitoring devices during the period the cooling water intake structure is in operation. Visual inspections would be conducted at least weekly to ensure that any design and construction technologies required in § 125.134(b)(4), (b)(5), (c), and/or (d) are maintained and operated to ensure that they will continue to function as designed. Alternatively, the facility would be required to inspect via remote monitoring devices to ensure that the impingement technologies are functioning as designed.

6. What Recordkeeping and Reporting Is Required for New Non-Fixed (Mobile) Offshore Oil and Gas Extraction Facilities?

Owners and operators of new mobile offshore oil and gas extraction facilities would be required to keep records of all the data used to complete the permit application and show compliance with the requirements, any supplemental information developed under § 125.136, and any compliance monitoring data submitted under § 125.137, for a period of at least three years from the date of permit issuance. The Director may require that these records be kept for a longer period.

Additionally, today's proposal would require that new mobile offshore oil and gas extraction facilities submit the following in a yearly status report:

- Velocity and head loss monitoring records for each cooling water intake structure as required by § 125.137(b); and
- Records of visual or remote inspections as required in § 125.137(c).

E. What Are the Respective Federal, State, and Tribal Roles?

Section 316(b) requirements are implemented through NPDES permits. Under 40 CFR 123.62(e), any existing approved State or Tribal section 402 permitting program would be revised to be consistent with new program requirements within one year from the date of promulgation, unless the NPDES-authorized State or Tribe amends or enacts a statute to make the required revisions. If a State or Tribe amends or enacts a statute to conform with any promulgated Phase III rule, the revision would be required to be made within two years of promulgation. States and Tribes seeking new EPA authorization to implement the NPDES program would be required to comply with the requirements when authorization is requested.

This proposed regulation would not alter State authority under section 510 of the Clean Water Act. EPA recognizes that some States have invested considerable effort in developing section 316(b) regulations and implementing programs. EPA is proposing regulations that would allow States to continue to use these programs by including in this national rule a provision that allows States to use their existing program if the State establishes that such programs would achieve comparable environmental performance. Specifically, the proposed rule would allow any State to demonstrate to the Administrator that it has adopted alternative regulatory requirements that would result in environmental performance within each relevant watershed that is comparable to the reductions in impingement mortality and entrainment that would be achieved under § 125.103.

In addition to updating their programs to be consistent with today's proposed rule, States and Tribes authorized to implement the NPDES program would be required to implement the cooling water intake structure requirements following promulgation of the proposed regulations. The requirements would have to be implemented upon the issuance or reissuance of permits containing the requirements of Subpart K or N. Duties of an authorized State or Tribe under this regulation may include:

- Review and verification of permit application materials, including a permit applicant's determination of source waterbody classification and the flow or volume of certain waterbodies at the point of the intake;
- Determination of the standards in § 125.103(b) or § 125.134 that apply to the facility, or authorize alternative requirements in § 125.135;
- Verification of a permit applicant's determination of whether it meets or exceeds the applicable performance standards or requirements;
- Verification that a permit applicant's Design and Construction Technology Plan demonstrates that the proposed alternative technologies would reduce the impacts to fish and shellfish to levels required;
- Verification that a permit applicant meets the cost test and that permit conditions developed on a site-specific basis are justified based on documented costs, and, if applicable, benefits;
- Verification that a permit applicant's proposed restoration measures would meet regulatory standards (existing facilities only);
- Development of draft and final NPDES permit conditions for the applicant implementing applicable section 316(b) requirements pursuant to this rule; and
- Ensuring compliance with permit conditions based on section 316(b) requirements.

EPA also will implement these requirements where States or Tribes are authorized to implement the NPDES program but do not have sufficient authority to implement these requirements.

In the discussion of Federal, State and Tribal roles in the preamble to the Phase II final regulations (69 FR 41643, 3rd col.), EPA stated that ''EPA will implement these requirements where States or Tribes are not authorized to implement the NPDES program. EPA also will implement these requirements where States or Tribes are authorized to implement the NPDES program but do not have sufficient authority to implement these requirements.'' EPA notes that the second sentence in this quote incorrectly stated EPA's authority. In fact, EPA does not have authority to issue NPDES permits where States or Tribes are authorized to administer the NPDES program except after EPA vetoes a permit. (See § 123.61(c) and § 123.44(h).) Today's preamble correctly states that States and Tribes authorized to implement the NPDES program would need to have or obtain sufficient authority to implement final Phase III regulations. EPA intends to issue guidance to clarify that, pursuant to § 123.25(a)(36), States and Tribes authorized to implement the NPDES program must have or obtain sufficient authority to implement the Phase II regulations.

F. Are Permits for Phase III Facilities Subject to Requirements Under Other Federal Statutes?

EPA's NPDES permitting regulations at 40 CFR 122.49 contain a list of Federal laws that might apply to Federally issued NPDES permits. These include the Wild and Scenic Rivers Act, 16 U.S.C. 1273 *et seq.*; the National Historic Preservation Act of 1966, 16 U.S.C. 470 *et seq.*; the Endangered Species Act, 16 U.S.C. 1531 *et seq.*; the Coastal Zone Management Act, 16 U.S.C. 1451 *et seq.*; and the National Environmental Policy Act, 42 U.S.C. 4321 *et seq.* See 40 CFR 122.49 for a brief description of each of these laws. In addition, the provisions of the Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. 1801 *et seq.*, relating to essential

fish habitat might be relevant. Nothing in this proposed rulemaking would authorize activities that are not in compliance with these or other applicable Federal laws.

VIII. Economic Impact Analysis

The discussion in this section summarizes EPA's analysis of total social cost and economic impacts for three co-proposed options for existing facilities: the ''50 MGD for All Waterbodies'' option, the ''200 MGD for All Waterbodies'' option, and the ''100 MGD for Certain Waterbodies'' option. These options are described more fully in section VI. EPA also conducted analyses for other potential regulatory definitions, including applying requirements to all facilities with design intake flow of at least 2 MGD. This definition would have included all 683 potentially regulated Phase III facilities. This and other potential regulatory specifications are not being proposed because of economic practicability concerns, but analyses for them can be found in *''Economic Analysis for the Proposed Section 316(b) Rule for Phase III Facilities''* (hereafter referred to as the ''EA''; DCN 7–0002). This section also presents EPA's estimates of total social cost and economic impacts for new offshore oil and gas extraction facilities. EPA's assessment of costs and economic impacts, including results for all analyzed regulatory definitions, can be found in the EA.

A. Existing Phase III Facilities: Manufacturers and Electric Power Producers

1. Overview of Affected Industry Sectors

For the economic analyses, EPA distinguished between the types of facilities as follows:

- Manufacturing and Other Industries (''Manufacturers'')—facilities in the paper, aluminum, steel, chemicals, petroleum and other industries. In addition to engaging in production activities, some of these facilities also generate electricity for their own use and occasionally for sale.
- Electric power producers (''Electric Generators'')—facilities owned by investor-owned utilities, municipalities, States, Federal authorities, cooperatives, and non-utilities.

Within the Manufacturers group, EPA focused its analysis on five manufacturing industries—Paper, Chemicals, Petroleum, Aluminum, and Steel (the ''Primary Manufacturing Industries'')—as the industries using the largest amounts of cooling water outside of the electric power generating industry. EPA's economic analysis for these industries is based on a statistically-valid survey sample of facilities in these five industries. This analysis also considers the effect of the regulation on facilities in other industries (''Other Industries'') that use cooling water to a lesser extent than the five Primary Manufacturing Industries and that are also covered by the proposal. The analysis for Other Industries is restricted to a limited sample of facilities for which EPA received detailed surveys but which are not part of the statistically valid sample. As a result, EPA's analysis of facilities in the Other Industries group is limited to the known facilities in this group. EPA has not specifically estimated the total number of facilities in the Other Industries group that may be subject to the regulation because EPA does not believe that this number can be reliably extrapolated from the number of known facilities in this group. However, because the six surveyed industries (including electric power) account for 99% of total cooling water withdrawals, EPA believes that few additional facilities in the Other Industries group are potentially subject to today's proposed regulation. EPA seeks comment and data on the number of facilities in the Other Industries group that may be subject to today's proposal.

EPA's analysis also reflects a limited number facilities in the Virgin Islands and Puerto Rico for which EPA received detailed survey responses. These facilities have also been included in EPA's economic analysis. EPA is clarifying today's proposal would apply to any facility meeting the applicability criteria in § 125.101. EPA seeks comment and data on the total number of facilities that may be subject to today's proposal.

EPA's review of the engineering characteristics of cooling water intake and use in the Other Industries group indicates that cooling water intake and use in these industries do not differ materially from cooling water intake and use in the Primary Manufacturing Industries and the electric power industry. In addition, EPA specifically analyzed the economic impacts of the proposed options on known facilities in the Other Industries group. EPA believes that its findings of no economic impact to the known facilities in Other Industries and the practicability of the proposed options are generally applicable to the full breadth of industries within the regulation's scope. EPA is seeking comment and data on the economic impact and practicability of the proposed options on facilities in the Other Industries group.

EPA estimates that as many as 566 facilities in the Manufacturers segment (including 537 facilities in the Primary Manufacturing Industries and 29 known facilities in Other Industries), and 117 Electric Generators are potentially subject to this rulemaking, based on a design intake flow applicability threshold of greater than 2 MGD. EPA excluded from the analysis for each option those facilities that are below the option's design intake flow applicability threshold and would therefore not incur compliance costs. In addition, EPA's analyses identified existing facilities that are in severe financial distress independent of regulation. These facilities, referred to as ''baseline closures,'' were determined as likely to terminate business operations independent of the proposed options and were also excluded from the analyses presented in this section.

Exhibit VIII–1 presents, by waterbody type and industry, EPA's estimates of (1) the number of existing facilities potentially subject to this rulemaking, (2) the number of baseline closures, and (3) the number of existing facilities subject to national requirements under five different design intake flow applicability thresholds.

EXHIBIT VIII–1.—PHASE III EXISTING FACILITY COUNTS, BY WATERBODY TYPE AND INDUSTRY

Industry	Potentially subject to regulation	Baseline closure	Facilities subject to national requirements with DIF applicability threshold of greater than or equal to (in MGD), excluding baseline closures				
			2	20	50	100	200
All Waterbodies							
Primary Man. Industries	537	73	464	290	127	58	23
Other Industries	29	4	25	12	9	5	2

EXHIBIT VIII–1.—PHASE III EXISTING FACILITY COUNTS, BY WATERBODY TYPE AND INDUSTRY—Continued

Industry	Potentially subject to regulation	Baseline closure	Facilities subject to national requirements with DIF applicability threshold of greater than or equal to (in MGD), excluding baseline closures				
			2	20	50	100	200
Electric Generators	117	3	114	51	0	0	0
Total	683	80	603	353	136	63	25
Total DIF (MGD)	40,441	4,440	36,001	33,683	26,714	21,587	16,144
Coastal and Great Lakes							
Primary Man. Industries	110	17	94	67	35	17	10
Other Industries	9	3	6	5	4	2	1
Electric Generators	11	0	11	4	0	0	0
Total	130	20	111	76	39	19	11
Total DIF (MGD)	11,010	2,423	8,587	8,179	7,190	5,747	4,418
Inland							
Primary Man. Industries	427	56	371	223	92	41	13
Other Industries	20	1	19	7	5	3	1
Electric Generators	106	3	103	47	0	0	0
Total	553	60	493	277	97	44	14
Total DIF (MGD)	29,431	2,017	27,414	25,504	19,524	15,841	11,726

2. Method for Estimating Costs to Manufacturers and Electric Generators

EPA estimated capital costs of technologies, annual operation and maintenance costs, installation downtime costs, and permitting costs. The cost estimates reflect the incremental costs attributed only to today's proposal. For example, facilities with closed-cycle recirculating systems already meet the proposed performance standards, and therefore would not incur costs for new technologies, additional annual operational costs, or downtime costs (though such facilities would still incur some components of permitting costs).

For estimating the incremental compliance costs attributable to the proposed options, EPA developed both facility-specific and model facility costs. Facility-specific compliance costs require detailed process information about many, if not all, facilities in the industry. These data typically include production, capacity, water use, wastewater generation, monitoring results, geographic location, financial conditions, technologies and practices already in place, and other facility-specific data. EPA used a detailed technical survey of Electric Generators and Manufacturers to collect these data (see section III for more information on EPA's detailed survey). These data and detailed process information were used to determine whether new controls would be necessary to meet the standards of the proposed rule, and to estimate the cost of installing any new or additional controls. While the Agency is confident that the suite of available technologies can achieve compliance with the proposed performance requirements (60–90 percent reduction in entrainment and 80–95 percent reduction in impingement mortality relative to the calculation baseline), EPA lacks sufficient data and resources to determine the precise cost and performance of each technology on a site-specific basis. Therefore, EPA first calculated the facility-specific costs for 348 facilities for which detailed information was available, and applied the model facility approach to the remaining facilities to calculate the industry-level costs for the approximately 700 existing Manufacturers and Electric Generators.

In costing each model facility, EPA, to a degree, departed from its traditional least-cost approach. The least-cost approach relies on the principle that the complying facility will choose the most cost-effective compliance alternative to meet the regulatory requirements. In most cases, this means the facility will install the least-cost technology that meets the minimum standard. Instead of selecting the least-cost compliance alternative (see section VI for a description of the compliance alternatives), a best-performing technology was assigned to a model facility utilizing a spreadsheet program called the ''cost-test tool.'' The cost-test tool determines one of two possible performance expectations: (1) Impingement requirements only or (2) both impingement and entrainment requirements. The cost-test tool then determines a compliance response for the facility/intake by accounting for existing technologies (such as wedgewire screens) and conditions (such as a shoreline intake location or the through-screen velocity). Next, the cost-test tool applies EPA's decision tree for assigning one of 12 technology modules as the best-performing technology to a site (*see* Figure 2–1 of the Phase III TDD for a schematic of this decision tree). This should not be construed to mean today's proposed options would require facilities to install the technologies selected by the cost-test tool. Under today's proposal, facilities could choose any technology, combination of technologies, or operational measures that would meet the requirements of the selected compliance alternative along with any other additional permit requirements. Finally, cost estimates are derived through a combination of calculations and functions that apply facility-specific data to the selected technology module. The cost outputs include capital costs, incremental operating and maintenance (O&M) costs, and installation downtime (in weeks).

Based on data from EPA's detailed technical survey, EPA believes that cooling water intake structures at Electric Generators are, in general, no different from those intake structures employed by Manufacturers. Therefore, the Phase II costs attributed to control technologies were used to calculate costs for potentially regulated existing Phase III Manufacturers and Electric Generators. EPA generally utilized the original methodology published in the Phase II NODA (68 FR 13522; March 19, 2003), accounting for comments received from the public. EPA also used the costing equations it developed for the final Phase II rule, along with the site-specific data obtained from the detailed surveys. EPA requests comment, including supporting data, on the use of technologies and costing equations from the Phase II rule in the Phase III analysis.

Permit costs, including costs for permitting, monitoring, permit reissuance, and recordkeeping, are not included in the cost-test tool. Costs for these activities were developed separately as part of the *Information Collection Request (ICR) for Cooling Water Intake Structures Phase III Proposed Rule* (''ICR''; DCN 7–0001). The per facility permit costs were added to the incremental compliance costs, along with installation downtime costs (where appropriate), in developing the total model facility cost. The per facility permit costs may be found in Chapter B1 of the EA.

In addition to the capital and annual operating costs of the selected technology module, 16 facilities (sample-weighted, with more than 50 MGD intake, and excluding baseline closures) incur downtime costs. Downtime costs generally reflect decreased revenues due to lost production or costs of supplemental power purchases during the retrofit of existing cooling water intake structures. EPA determined that an additional four facilities with multiple intakes could shut off any one intake and still meet their average intake flow without exceeding the total design intake flow of the remaining intakes. Furthermore, these facilities all have shoreline intakes, negating the need to maintain costly offshore equipment necessary to retrofit one intake at a time. EPA assumes these four facilities could retrofit one intake at a time, thereby avoiding downtime costs. In all other cases, the length of downtime (in weeks) and the general approach to estimating the cost of downtime are the same as used for the Phase II analysis. See chapter 5 of the TDD for more details. EPA solicits comment and supporting data on this approach to estimating downtime costs.

Total social costs are presented in section VIII.C of this preamble.

Under today's proposal, facilities have five compliance alternatives for meeting the performance standards. Not all of these compliance alternatives are addressed by the cost-test tool. The cost-test tool, and therefore total national costs, do not specifically adjust for site-specific requirements developed in accordance with compliance alternative 5 (see also section VI of this preamble). While costs for facilities requesting alternative requirements based on the cost-cost test should be comparable to EPA's estimated costs, costs for facilities requesting alternative requirements based on the cost-benefit test may be less. In addition, each model facility was costed for a single best-performing technology module, which does not necessarily reflect the most cost-effective compliance alternative. Thus, although EPA's costs for each model facility to install a specified compliance technology are believed to be accurate, the total national costs of today's proposal may be overstated.

EPA solicits comment on all aspects of this costing approach.

3. Social Cost for Manufacturers and Electric Generators

EPA calculated the social cost of the three co-proposed options for existing Manufacturers and Electric Generators using two discount rate values: 3 percent and 7 percent. All dollar values presented in this preamble are in 2003 dollars (average or mid-year). For the analysis of social costs, EPA discounted all costs to the beginning of 2007, the date at which this proposal is assumed to become effective. EPA assumed that all facilities subject to the regulation would achieve compliance between 2010 and 2014, and estimated the time profile of compliance and related costs over 30 years from the year of compliance for each complying facility.[42] Costs incurred by governments for administering the regulation were analyzed over the same time frame. The last year for which costs were tallied is 2043. At a 3 percent rate, EPA estimated total annualized social costs of $47.3 million for the ''50 MGD for All Waterbodies'' option, $22.8 million for the ''200 MGD for All Waterbodies'' option, and $17.6 million for the ''100 MGD for Certain Water bodies'' option. At a 7 percent rate, these values are $50.1 million for the 50 MGD option, $24.1 million for the 200 MGD option, and $18.3 million for the 100 MGD option. The largest component of social cost is the pre-tax cost of regulatory compliance incurred by complying facilities; these costs include pilot study costs, one-time technology costs of complying with the rule, one-time costs of installation downtime, annual operating and maintenance costs, and permitting costs (initial permit costs, annual monitoring costs, and permit reissuance costs). Social cost also includes implementation costs incurred by Federal and State governments. Exhibit VIII–2 presents the social cost of the proposed options, by type of cost and type of facility, using 3 percent and 7 percent discount rates.

EXHIBIT VIII–2.—ANNUALIZED SOCIAL COST

[In millions, 2003 $]

	50 MGD all waterbodies	200 MGD all waterbodies	100 MGD certain waterbodies
3% Discount Rate			
Direct Compliance Cost:			
Primary Manufacturing Industries	$42.7	$21.7	$16.7
Other Industries	4.1	1.0	0.7
Electric Generators	0.0	0.0	0.0

[42] Benefits are tallied and discounted in the same way, although the total time profile for recognition of benefits is longer than the profile for recognition of costs.

EXHIBIT VIII–2.—ANNUALIZED SOCIAL COST—Continued

[In millions, 2003 $]

	50 MGD all waterbodies	200 MGD all waterbodies	100 MGD certain waterbodies
Total Direct Compliance Cost	46.8	22.6	17.5
State and Federal Administrative Cost	0.6	0.1	0.2
Total Social Cost	47.3	22.8	17.6
7% Discount Rate			
Direct Compliance Cost:			
Primary Manufacturing Industries	45.1	23.1	17.4
Other Industries	4.4	0.9	0.7
Electric Generators	0.0	0.0	0.0
Total Direct Compliance Cost	49.5	24.0	18.1
State and Federal Administrative Cost	0.6	0.1	0.2
Total Social Cost	50.1	24.1	18.3

As shown in Exhibit VIII–2, compliance cost in the Manufacturers segment accounts for the substantial majority of total social cost and direct compliance cost under all three options. No Electric Generators would be subject to the national requirements under any of the three co-proposed options. On a per facility basis and at a 3 percent discount rate, annualized pre-tax costs in the Manufacturers segment amount to $349,000 under the ''50 MGD for All Waterbodies'' option, $920,000 under the ''200 MGD for All Waterbodies'' option, and $929,000 under the ''100 MGD for Certain Waterbodies'' option. The corresponding values using a 7 percent discount rate are $369,000 under the ''50 MGD for All Waterbodies'' option, $974,000 under the ''200 MGD for All Waterbodies'' option, and $962,000 under the ''100 MGD for Certain Waterbodies'' option. Because the 200 MGD option and the 100 MGD option apply national categorical requirements to a smaller number of higher flow facilities than the 50 MGD option, they result in a lower total national cost but a higher cost per regulated facility. Individual facilities that are subject to the requirements of the 200 MGD option or the 100 MGD option incur the same compliance costs as under the 50 MGD option (in which they are also included); however, the average costs per regulated facility are higher under the 200 MGD and 100 MGD options because only the higher flow, and therefore higher cost, facilities incur costs under these options.

EPA's estimate of Federal and State government costs for administering this proposal is comparatively minor in relation to the estimated direct cost of regulatory compliance. EPA estimates government annual administrative costs of approximately $0.6 million (50 MGD option), $0.1 million (200 MGD option), and $0.2 million (100 MGD option) under both discount rates.

4. Economic Impacts for Manufacturers and Electric Generators

The economic impact analyses assess how facilities, and the firms that own them, are expected to be affected financially by the analyzed options. The facility impact analysis starts with compliance cost estimates (see section VIII.A.2) and then calculates how these compliance costs would affect financial performance and other economic conditions.

a. Manufacturers (Primary Manufacturing Industries and Other Industries)

This section presents EPA's estimated economic impacts on Manufacturers for the three co-proposed options. Measures of economic impact include facility closures and associated losses in employment, financial stress short of closure (''moderate impacts''), and firm-level impacts. EPA eliminated from the analysis those facilities showing materially inadequate financial performance in the baseline, that is, in the absence of the rule. EPA judges these facilities, which are referred to as baseline closures, to be at substantial risk of financial failure regardless of any additional financial burden that might result from the proposed Phase III regulation.

For the remaining facilities, EPA identified a facility as a regulatory closure if it would have operated under baseline conditions but would fall below an acceptable financial performance level under the new regulatory requirements. EPA's analysis of regulatory closures is based on the estimated change in facility after-tax cash flow (cash flow) as a result of the regulation and specifically examines whether the change in cash flow would be sufficient to cause the facility's going concern business value to become negative. EPA calculated business value using a discounted cash flow framework in which cash flow is discounted at an estimated cost of capital to calculate the going concern value of the facility. The specific definition of cash flow used in these analyses is after-tax free cash flow available to all capital—equity and debt. Correspondingly, the cost of capital reflects the combined cost, after-tax, of equity and debt capital. For its analysis of economic/financial impacts on the Manufacturers industry segment, EPA used 7 percent as a real, after-tax cost of capital.

In these analyses, EPA first calculated the baseline going concern value of the facility using its baseline cash flow—*i.e.*, facility cash flow before compliance-related outlays. For this calculation, EPA used the three-year average of cash flow as reported in each facility's survey response and adjusted to constant 2003 dollars. In addition to adjusting facility cash flow values for inflation to 2003, EPA adjusted facility baseline cash flow to reflect the estimated *real* change (*i.e.*, independent of inflation) in business performance in the manufacturing industries from the time of the facility survey, 1996–1998, to the present. EPA also estimated an ongoing outlay for replacement of the facility's capital equipment and included this as an adjustment to baseline cash flow. EPA included an allowance of ongoing capital outlays in

the calculation of cash flow because such outlays for replacement and refurbishment of capital equipment occur in the ordinary course of business and represent a cash outlay for the business. EPA estimated these outlays based on an econometric analysis of actual capital outlays over an 11-year period by businesses in the five Manufacturers industry segments. This analysis accounted for national economic conditions, business conditions in the specific industry segments, and financial performance of the individual businesses (see EA, Chapter B3 for details of this analysis and the details of the cash flow calculation). Using this adjusted baseline cash flow, if EPA found the facility's estimated going concern value to be negative, then the facility was judged a baseline closure—*i.e.*, likely to fail financially, independent of incurrence of compliance costs—and removed the facility from further consideration in the impact analysis.

As the second step in the facility impact analysis, EPA adjusted the baseline cash flow to reflect the expected financial effects of compliance technology installation and operation. For this analysis, EPA assumed that *none* of the facility's compliance costs could be passed on to its customers as price and revenue increase—*i.e.*, all compliance costs must be absorbed within the facility's cash flow. EPA then recalculated the facility's business value using the adjusted post-compliance cash flow. If this analysis found that the facility's business value would become negative as a result of meeting compliance requirements, then EPA judged the facility to be a regulatory closure.

EPA also identified facilities that would likely incur moderate financial impacts, but that are not expected to close, as a result of the proposed rule. EPA established thresholds for two measures of financial performance and condition—interest coverage ratio (ICR) and pre-tax return on assets (PTRA)—and compared the facilities' performance before and after compliance under each regulatory option with these thresholds. EPA calculated ICR as pre-tax operating cash flow—earnings before interest, taxes, and depreciation—divided by interest expense. This measure provides insight into a business' ability to service its debt on the basis of current, ongoing financial performance and to borrow for capital investments. EPA calculated PTRA as the ratio of pre-tax operating income—earnings before interest and taxes—to assets. This ratio measures the operating performance and profitability of a business' assets independent of financial structure and tax circumstances. For this analysis, EPA developed industry-specific thresholds from data compiled by Risk Management Association, Inc. (RMA). The threshold values represent the 25th percentile values of PTRA and ICR for statements received by RMA for the eight years from 1994 to 2001 within relevant industries. Thresholds by sector ranged from 1.8% to 2.9% for PTRA and from 2.0 to 2.4 for ICR (see EA Chapter B3 for additional information). EPA attributed incremental moderate impacts to the rule if both financial ratios exceeded threshold values in the baseline (*i.e.*, there were no moderate impacts in the baseline), but at least one financial ratio fell below the threshold value in the post-compliance case.

i. Baseline Closure Analysis

Exhibit VIII–3 presents projected baseline closures for the estimated facilities in the Primary Manufacturing Industries and additional known facilities in Other Industries.[43] From the analysis as outlined above, EPA determined that 76 facilities (or 14 percent) of the estimated 532 regulated facilities in the five Primary Manufacturing Industries are baseline closures. The highest percentages of baseline closures occur in the Steel industry sector (43 percent) and Aluminum industry sector (33 percent). An additional four facilities (or 18 percent) of the 22 known facilities in Other Industries are projected to be baseline closures. These facilities were excluded from the post-compliance analysis of regulatory impacts.

EXHIBIT VIII–3.—SUMMARY OF BASELINE CLOSURES FOR MANUFACTURERS

Sector	Total number of facilities	Number of baseline closures	Percentage of baseline closures	Operating in baseline
Paper	230	32	13.9	198
Chemicals	178	4	2.2	173
Petroleum	36	5	13.9	30
Steel	68	29	42.6	40
Aluminum	21	7	33.3	14
Total Facilities in Primary Manufacturing Industries	532	76	14.3	456
Additional known facilities in Other Industries	22	4	18.2	18
Total Manufacturers	554	80	14.4	474

[43] The estimated number of Manufacturers considered in the impact analysis (554) differs from the number reported in the broader analyses (566) because of the exclusion of some sample surveys with missing data and the rescaling of the remaining surveys to extrapolate national impacts. EPA determined that the survey responses of 14 sample facilities lacked certain financial data needed for the facility impact analysis while containing sufficient data to support estimates of facility counts and compliance costs. EPA therefore retained these sample facilities (37 sample weighted facilities) in the broader analyses but excluded them from the impact analysis. When these sample facilities were excluded from the impact analysis, the sample weights for the remaining facilities within the affected sample frames were adjusted upwards to account for their removal. The difference in the reported facility totals in the impact and social cost analyses reflects the removal of these 14 facilities and the use of adjusted sample weights. The removal of specific sample facilities from the analysis universe and simultaneous adjustment of sample weights to account for their removal yields the same estimate of the total combined population of Manufacturers and Electric Generators for the analysis. However, as a result of the sample stratification methodology, the estimates of the total facility populations for Manufacturers only differ slightly between the two sample facility cases. Both values are valid statistical estimates of the same, but unknown, value of the Manufacturers facility population.

ii. Number of Facilities Passing the Baseline Closure Analysis and Subject to National Categorical Requirements

As described above, the number of Manufacturers subject to national categorical requirements differs according to (1) the options' design intake flow (DIF) applicability thresholds, and (2) the type of waterbodies to which they would apply. Of the three co-proposed options presented here, the ''100 MGD for Certain Waterbodies'' option would apply to the smallest number of the facilities that passed the baseline closure analysis (''baseline-pass facilities'')—20 facilities, or 18 facilities in the Primary Manufacturing Industries and two known facilities in Other Industries (*see* Exhibit VIII–4). The ''200 MGD for All Waterbodies'' option would apply to 24 baseline-pass facilities, or 22 facilities in the Primary Manufacturing Industries and two known facilities in Other Industries. The ''50 MGD for All Waterbodies'' would apply to 133 baseline-pass facilities, or 127 facilities in the Primary Manufacturing Industries and 6 known facilities in Other Industries.

EXHIBIT VIII–4.—NUMBER OF BASELINE-PASS MANUFACTURING FACILITIES SUBJECT TO NATIONAL CATEGORICAL REQUIREMENTS BY OPTION AND SECTOR

Sector	Total operating in baseline	Number of facilities subject to national categorical requirements					
		50 MGD all waterbodies		200 MGD all waterbodies		100 MGD certain waterbodies	
		Number	Percent	Number	Percent	Number	Percent
Paper	198	37	18.7	3	1.5	0	0.0
Chemicals	173	52	30.1	5	2.9	7	4.0
Petroleum	30	13	43.3	3	10.0	5	16.7
Steel	40	22	55.0	9	22.5	6	15.0
Aluminum	14	5	35.7	1	7.1	0	0.0
Total Facilities in Primary Manufacturing Industries	456	127	27.9	22	4.8	18	3.9
Additional known facilities in Other Industries	18	6	33.3	2	11.1	2	11.1
Total Manufacturers	474	133	28.1	24	5.1	20	4.2

Note: May not sum to totals due to independent rounding.

iii. Post-Compliance Impact Analysis; Summary of Impacts

Of the 474 Manufacturers potentially subject to regulation after baseline closures, EPA estimated that no facilities would close or incur employment losses as a result of the three co-proposed options considered here. EPA also found that none of the 474 baseline-pass facilities would incur a moderate economic impact as a result of the three co-proposed options.

Exhibit VIII–5 summarizes the estimated impacts of the proposed rule on Manufacturers by option, including facility impacts and total annualized compliance costs on an after-tax basis. The reported costs include no compliance costs for facilities assessed as baseline closures. The total annualized, after-tax compliance cost reported in Exhibit VIII–5 represents the cost actually incurred by complying firms, taking into account the reductions in tax liability resulting from compliance outlays and assuming no recovery of costs from customers through increased prices. The after-tax analysis uses a combined Federal/State tax rate, and accounts for facilities' baseline tax circumstances. Specifically, tax offsets to compliance costs are limited not to exceed facility-level tax payments as reported in facility questionnaire responses. The total annualized, after-tax compliance cost reported here is the sum of annualized, after-tax costs by facility at the year of compliance, using a 7 percent after-tax cost of capital. This cost calculation differs in concept from the calculation of compliance costs as included in the calculation of the total social costs of the regulation. For the social cost calculation, which is presented in section VIII.A.2, the year-by-year stream of total pre-tax compliance costs for all facilities is discounted to the assumed effectiveness date of the 316(b) Phase III final rule—beginning of year 2007—and then annualized. Two social discount rate values, 3 percent and 7 percent, are used in the social cost analysis.

EXHIBIT VIII–5.—FACILITY IMPACTS FOR MANUFACTURERS

	50 MGD all waterbodies	200 MGD all waterbodies	100 MGD certain waterbodies
Primary Manufacturing Industries			
Number of Facilities Operating in Baseline	456	456	456
Number of Facilities Subject to National Requirements	127	22	18
Percentage of Facilities Subject to National Requirements	27.9	4.8	3.9
Number of Closures (Severe Impacts)	0	0	0
Percentage of Facilities Closing	0.0	0.0	0.0
Number of Facilities with Moderate Impacts	0	0	0
Percentage of Facilities with Moderate Impacts	0.0	0.0	0.0
Annualized Compliance Costs (after tax, million $2003)	$32.8	$13.7	$15.8

EXHIBIT VIII–5.—FACILITY IMPACTS FOR MANUFACTURERS—Continued

	50 MGD all waterbodies	200 MGD all waterbodies	100 MGD certain waterbodies
Additional Known Facilities in Other Industries			
Number of Facilities Operating in Baseline	18	18	18
Number of Facilities Subject to National Requirements	6	2	2
Percentage of Facilities Subject to National Requirements	33.3	11.1	11.1
Number of Closures (Severe Impacts)	0	0	0
Percentage of Facilities Closing	0.0	0.0	0.0
Number of Facilities with Moderate Impacts	0	0	0
Percentage of Facilities with Moderate Impacts	0.0	0.0	0.0
Annualized Compliance Costs (after tax, million $2003)	$5.2	$0.7	$0.6

iv. Firm-Level Impact

In addition to analyzing the impact of the regulation at the facility level, EPA also examined the impact of the proposed rule on firms that own manufacturing facilities with cooling water intake structures. A firm that owns multiple facilities could be adversely affected due to the cumulative burden of regulatory requirements over these facilities. EPA also used the firm-level analysis to compare impacts on small versus large firms, as required by the Regulatory Flexibility Act as amended by the Small Business Regulatory Enforcement Fairness Act. Section XI.C of this preamble discusses RFA/SBREFA issues. For the assessment of firm-level effects, EPA calculated annualized after-tax compliance costs as a percentage of firm revenue and reports here the estimated number and percentage of affected firms incurring compliance costs in three cost-to-revenue ranges: less than 1 percent; at least 1 percent but less than 3 percent; and 3 percent or higher.

EPA's sample-based analysis of facilities in the Primary Manufacturing Industries supports specific estimates of the number of facilities expected to be affected by the regulation and the total compliance costs expected to be incurred in these facilities. However, the sample-based analysis does not support specific estimates of the number of firms that own facilities in the Primary Manufacturing Industries. In addition, and as a corollary, the sample-based analysis does not support specific estimates of the number of regulated facilities that may be owned by a single firm, or of the total of compliance costs across regulated facilities that may be owned by a single firm. For the firm-level analysis, EPA therefore considered two approximate bounding cases based on the sample weights developed from the facility survey. These cases provide a range of estimates for the number of firms incurring compliance costs and the costs incurred by any firm owning a regulated facility. The cases are as follows:

1. *Upper bound estimate of number of firms owning facilities that face requirements under the regulation; lower bound estimate of total compliance costs that a firm may incur.* For this case, EPA assumed (1) that a firm owns only the regulated sample facility(ies) that it is known to own from the sample analysis and (2) that this pattern of ownership, observed for sampled facilities and their owning firms, extends over the facility population represented by the sample facilities. This case minimizes the possibility of multi-facility ownership by a single firm and thus maximizes the count of affected firms, but also minimizes the potential cost burden to any single firm.

2. *Lower bound estimate of number of firms owning facilities that face requirements under the regulation; upper bound estimate of total compliance costs that a firm may incur.* For this case, EPA inverted the prior assumption and assumed that any firm owning a regulated sample facility(ies), owns the known sample facility(ies) and all of the sample weights associated with the sample facility(ies). This case yields an approximate lower bound estimate of the count of affected firms, and an approximate upper bound estimate of the potential cost burden to any single firm (see EA Chapter B3 for information on the analysis of firm-level impacts).

EPA included the additional known facilities in Other Industries in these analyses but since these facilities have no sample weight (*i.e.*, they are not modeled to represent facilities other than themselves), the upper and lower bound estimates were not applicable to them.

Exhibit VIII–6 summarizes the results of the firm-level analysis for these two analytic cases.

EXHIBIT VIII–6.—FIRM-LEVEL AFTER-TAX ANNUAL COMPLIANCE COSTS AS A PERCENTAGE OF REVENUE

Number of firms in the analysis	Pot. reg.	No costs		Number and percentage with after tax annual compliance costs/annual revenue of					
		Number	Percent	Less than 1%		1–3%		At Least 3%	
				Number	Percent	Number	Percent	Number	Percent
Primary Manufacturing Industries									
Case 1: Upper bound estimate of number of firms owning facilities that face requirements under the regulation; lower bound estimate of total compliance costs that a firm may incur									
50 MGD All Waterbodies	313	208	66	105	34	0	0	0	0
200 MGD All Waterbodies	313	292	93	21	7	0	0	0	0
100 MGD Certain Waterbodies	313	293	94	21	7	0	0	0	0

EXHIBIT VIII–6.—FIRM-LEVEL AFTER-TAX ANNUAL COMPLIANCE COSTS AS A PERCENTAGE OF REVENUE—Continued

Number of firms in the analysis	Pot. reg.	No costs		Number and percentage with after tax annual compliance costs/annual revenue of					
		Number	Percent	Less than 1%		1–3%		At Least 3%	
				Number	Percent	Number	Percent	Number	Percent
Case 2: Lower bound estimate of number of firms owning facilities that face requirements under the regulation; upper bound estimate of total compliance costs that a firm may incur									
50 MGD All Waterbodies	100	54	54	46	46	0	0	0	0
200 MGD All Waterbodies	100	86	86	14	14	0	0	0	0
100 MGD Certain Waterbodies	100	88	88	12	12	0	0	0	0
Other Industries									
50 MGD All Waterbodies	14	10	71	4	29	0	0	0	0
200 MGD All Waterbodies	14	13	93	1	7	0	0	0	0
100 MGD Certain Waterbodies	14	13	93	1	7	0	0	0	0

As presented in Exhibit VIII–6, EPA estimated that the number of firms owning regulated facilities in the Primary Manufacturing Industries range from 100 (Case 2 estimate) to 313 (Case 1 estimate), depending on the assumed ownership cases outlined above. An additional 14 firms are known to own facilities in Other Industries. No firms are estimated to incur total compliance costs equal to or exceeding 1 percent of revenue under any of the regulatory options.

b. Electric Generators

All Electric Generators with a design intake flow of 50 MGD or greater were already covered by the final Phase II regulation. As a result, no Electric Generators are subject to the national categorical requirements of the three co-proposed options.

B. New Offshore Oil and Gas Extraction Facilities

1. Overview of Affected Industry Sectors

The proposed rule establishes requirements for new facilities that would apply to new offshore oil and gas extraction facilities that employ a cooling water intake structure (CWIS) and are designed to withdraw greater than 2 million gallons per day (MGD) from waters of the United States.[44] Offshore oil and gas extraction facilities (''Oil and Gas Facilities'') are facilities primarily engaged in oil and gas production and drilling activities. This analysis includes oil and gas production platforms/structures and mobile offshore drilling units (MODUs). EPA estimates that 21 new oil and gas extraction platforms and 103 new MODUs would be subject to the national requirements of the proposed option, assuming a 20-year period of construction from 2007 (the assumed effective date of the rule) to 2026. Each newly-constructed facility is assumed to operate for 30 years, extending the entire analysis period over 49 years (2007 to 2055). Different methods of discounting over time are used for the social cost and impact analyses. Social costs are discounted to 2007, the assumed effective date of the rule, and then annualized over 30 years using 3% and 7% discount rates. For the impact analysis, compliance costs are discounted for each individual facility to the year of compliance (the year the vessel is launched or the platform/structure comes on line, which ranges from 2007 to 2026) and then summed to produce an aggregate present value of compliance costs. This aggregate present value is then annualized over 30 years using 3% and 7% discount rates.

2. Social Cost for New Offshore Oil and Gas Extraction Facilities

The total annualized social cost of the proposed option for new Oil and Gas facilities is estimated at $3.7 million using a 3 percent discount rate, and $3.0 million using a 7 percent discount rate. The largest component of social cost is the pre-tax cost of regulatory compliance incurred by complying facilities; these costs include one-time technology costs of complying with the rule, annual operating and maintenance costs, and permitting costs (initial permit costs, annual monitoring costs, and permit reissuance costs). Social cost also includes implementation costs incurred by the Federal government. EPA expects that for the most part, the proposed regulation would be implemented under general permits, two in the Gulf of Mexico, and one in Cook Inlet Alaska.[45] States are thus not likely to be involved in administering the permits for new regulated offshore oil and gas facilities because the facilities in the Gulf of Mexico operate in non-State waters (beyond the 3-mile limit) and Alaska does not have NPDES authority. EPA requests comment on its projections about the operating locations of new facilities.

EPA estimates that direct compliance costs would be $3.2 million and $2.7 million, using a 3 percent and 7 percent discount rate, respectively. The estimated Federal government cost for administering the rule for new facilities is comparatively minor in relation to the estimated direct cost of regulatory compliance. Federal administrative costs are estimated to be $0.4 million and $0.3 million per year under the 3 percent and 7 percent discount rates, respectively.

3. Economic Impacts for New Offshore Oil and Gas Extraction Facilities

The following two subsections present economic impacts for MODUs and production platforms/structures, respectively. Certain aspects of the methodology differ between the two segments. Oil and gas production operations involve production of a finite resource, which limits the potential life of a production platform. Thus, the analysis for production platforms/structures must account for the production and resulting exhaustion of the finite oil and gas resource. Key considerations in the platforms analysis are: (1) When does production

[44] *See* section II.B for a definition of a new offshore oil and gas extraction facility for the purposes of this proposal.

[45] Because individual permits are not issued, costs for pre-permitting and re-permitting studies are assumed to be shared among groups of new facilities expected to be covered by the general permits (*see* DCN 7–4036 for detailed information on how permitting costs are assumed to be shared under the general permits).

terminate? and (2) would the year of termination change due to regulation? The economic life of a MODU is not limited by such considerations and the analysis for MODUs is accordingly simpler. The EA and the rulemaking record contain additional data and details on the methodology and assumptions used in these analyses.

a. MODUs

EPA projects that 80 new jackups, 20 new semi-submersibles, and three new drill ships will be constructed over the 20 years for which new facility additions are analyzed. The economic impact analysis for these new MODUs is conducted at two levels: the vessel level and the firm level. EPA conducted two vessel-level analyses and one firm-level analysis:

- The first vessel-level analysis is a closure analysis, which assesses changes in vessel cash flow and net income. Because the financial condition of new vessels is unknown, EPA used financial information from representative existing vessels, collected in EPA's 316(b) survey of MODUs (DCN 7–0008), to represent the financial characteristics of new facilities. The financial information from these representative vessels is used for a general assessment of how well these vessels would perform financially if costs of the proposed option applied. This analysis is used as an alternative assessment of the potential for a barrier to entry.
- The second vessel-level analysis is a standard barrier-to-entry analysis for new facilities. This analysis computes the present value of estimated initial permitting costs, which are assumed to be incurred over five years prior to the incorporation of section 316(b) permit requirements in the applicable general permits (see DCN 7–4036) and are discounted to the year of compliance (the year the vessel is assumed to be launched). The one-time capital costs of compliance (assumed to be incurred in the year of compliance) are then added to this figure. These summed compliance costs are then compared to the baseline construction costs for each type of MODU. Neither recurring costs of compliance (*e.g.*, repermitting costs or recurring capital costs of CWIS controls) nor recurring baseline costs (*e.g.*, O&M, refitting costs) are considered in this analysis. The analysis compares baseline start-up costs and incremental start-up costs associated with the proposed rule.
- The firm-level analysis is a cost-to-revenue test which compares the annualized compliance costs for representative new vessels to the revenues of firms likely to construct MODUs, assuming each of these firms builds a share of the 103 new MODUs expected to be constructed over the 20-year construction time frame. This analysis was conducted on a pre-tax and after-tax basis.

i. Vessel-Level Closure Analysis

To estimate potential closures (or more precisely, decisions not to proceed with constructing and placing a vessel into service) as a result of today's proposal for new MODUs, EPA used two models: (1) A net income model, which computes the estimated present value of baseline after-tax net income (*i.e.*, without compliance costs) for representative MODUs (based on survey data from existing MODUs) over a 30-year operating period for each new facility,[46] and (2) an after-tax cost calculation model, which estimates the present value of after-tax compliance costs using engineering and permitting cost inputs. Comparing the results of these two models shows the potential effect of costs on vessel net income.

EPA estimated after-tax net income for eight MODUs, using data provided by surveyed operators of existing MODUs (EPA received economic surveys for three semi-submersibles, three jackups, and two drill ships). EPA was only able to undertake financial analysis for those MODUs with a positive net income for the three years of financial information provided in the survey (2000 to 2002). EPA assumed that any MODU whose net income is negative over the three years is unlikely to be a viable operation in the baseline and cannot be analyzed with respect to compliance costs.

EPA used the net income over the three years of survey data to create a moving cycle of net income over the period of analysis. Among the years of data collected (2000 to 2002), 2002 was generally a poor year of financial condition for the industry as a whole. EPA was thus able to represent industry financials in both good and bad years. The three-year cycle simulates the effect of volatility in oil and gas prices and other business conditions (*e.g.*, rig utilization rates) over each facility's 30-year operating period. Future operating periods are likely to include major swings in the prices of oil and gas, the driving force behind the level of operations, rig pricing, and, thus, financial performance of the newly constructed vessels. EPA assumed that net income will be flat, on a three-year average basis, over the 30 years of analysis and thus did not apply any factors to increase or decrease net income over the years of analysis. The net income figures from the survey, therefore, repeat every three years for 30 years. EPA then computed the present value of that stream of net income and compared it to the present value of after-tax compliance costs for the proposed option.

EPA used the estimated compliance cost elements—capital, O&M, and permitting costs—for each new MODU to calculate the present value of the after-tax cost of compliance with today's proposed requirements. Each compliance-related cost was accounted for in the year it is assumed to be incurred. Tax effects of compliance outlays were based on the owner company's marginal tax rate as determined from the firm's average taxable earnings over the three years of survey data (converted to a mid-year 2003 basis). EPA calculated depreciation for the compliance capital outlay using the modified accelerated cost recovery system (MACRS) and included it in the pre-tax compliance cost stream. The compliance cost stream was then reduced by the amount of avoided tax liability, based on the estimated marginal tax rate, to yield the after-tax compliance cost stream (for more information on these calculations, see DCN 7–4016). The final result of these calculations is the present value of after-tax compliance costs.

The present value of after-tax compliance costs was then subtracted from the present value of baseline net income for the vessel. If the present value of net income remained positive

[46] Consistent with generally accepted methods of business value analysis, EPA would have preferred to use the present value of after-tax cash flow instead of net income as the basis for this analysis. However, because it could not reliably estimate all of the elements of cash flow, the Agency instead used the present value of net income for its closure test. In particular, EPA was unable to estimate the ongoing capital outlays (apart from those resulting from regulatory compliance) that MODUs would need to make as part of their ordinary business operations. In performing the analysis in this way, the Agency essentially used the facility's reported depreciation and amortization—which, being non-cash items, are normally excluded from cash flow accounting—as an approximation of ongoing capital outlays. How use of reported depreciation and amortization, instead of a reliable estimate of capital outlays, affects the findings from this analysis cannot be precisely known. For some businesses—in particular those with relatively strong financial performance—depreciation and amortization may be less than ongoing capital outlays; for these businesses, the analysis will tend to overstate business value and understate the potential effect of compliance outlays on financial performance and business value. On the other hand, for some businesses—in particular those with relatively weak financial performance—depreciation and amortization may exceed ongoing capital outlays; for these businesses, the analysis will tend to understate business value and overstate the potential effect of compliance outlays on financial performance and business value.

after accounting for compliance costs, EPA assumed that the MODU would operate post-compliance. If the present value of net income became negative, EPA assumed that the new MODU would not be a financially viable project and was counted as a potential ''regulatory closure.''

The analysis is based on the assumption that costs cannot be passed through to customers. Because existing MODUs will not have to meet the requirements of the proposal, and new MODUs must compete with these existing MODUs, assuming zero cost pass-through provides a realistic estimate of potential economic impacts on new MODUs.

This analysis found that no new MODUs (based on an assumption that finances for new MODUs will look like those for existing MODUs) would be a regulatory closure as a result of the incremental compliance costs associated with the proposed option (detailed results are provided in the CBI portion of today's record; DCN 7–4020).

ii.Vessel-Level Barrier-to-Entry Analysis

The barrier-to-entry analysis compares the present value of compliance costs (including the present value of initial permitting costs discounted to the compliance year and first-time capital/installation costs, excluding recurring costs), to the costs of constructing a new MODU. If compliance costs comprised a small fraction of construction costs, EPA assumed that compliance costs would have no effect on the decision to build a new MODU.

EPA developed incremental compliance costs for new MODUs using estimated initial permitting costs and technology cost estimates. The initial permitting costs are based on each new MODU's share of regional permitting costs (EPA expects that facilities in a particular geographic region would collect data from representative facilities in that region) and individual administrative start-up and permit application costs. The technology costs are based on the weighted average cost of installing controls at existing MODUs, by type of MODU, for all existing MODUs with technical data. The estimated present value of the initial permitting cost stream, plus the first-time capital/installation costs of compliance costs, sum to $127,000 for semi-submersibles, $258,000 for jackups, and $247,000 for drill ships. According to IADC (May/June, 2003), the cost of new MODUs planned to be built in the next few years averages $250 million for semi-submersibles and $125 million for jackups. A drill ship completed in 1998 cost approximately $275 million (R&B Falcon's Pathfinder). The present value of initial permitting costs plus one-time capital/installation compliance costs is therefore estimated to range from 0.05 percent to 0.21 percent of construction costs for the three types of MODU. Because total up-front costs represent a very small fraction of total costs of construction (and even of contingency costs, which typically range from 10 percent to 20 percent of capital costs), EPA believes that these costs would not have a material effect on decisions to build new MODUs.

iii. Firm-Level Cost-to-Revenue Analysis

EPA's research showed that firms likeliest to build MODUs with a design intake flow of greater than 2 MGD are those that currently own such MODUs. EPA identified seven firms owning jackups, semi-submersibles, or drill ships that would be subject to the proposed requirements for new facilities if newly constructed. They also are among the largest firms in the industry and are thus likely to be involved in new construction. EPA estimates that these seven firms would own the 103 new MODUs subject to the proposed national requirements for new facilities. To determine the potential impact of the proposed option on the seven firms determined likely to build new MODUs subject to regulation, EPA used a cost-to-revenue test, which compares the annualized pre-tax and after-tax costs of compliance (calculated for representative new MODUs), with 2002 revenues reported by these firms. Because nearly all of the firms (other than foreign-owned) are publicly owned, EPA relied on revenue data compiled from corporate 10K reports (see Chapter C2 of the EA). EPA then assigned a number of MODUs potentially subject to regulation to each of the firms and used the average per-MODU compliance costs multiplied by the number of these MODUs to calculate the total compliance costs that might be faced by these firms.

Estimated total annual pre-tax compliance costs are approximately $15,000 for a semi-submersible, $33,000 for a jackup, and $37,000 for a drill ship. Estimated after-tax costs are approximately $10,000, $21,000, and $24,000, respectively, based on a 35 percent marginal corporate tax rate assumption. These annualized costs are very small compared to the revenues a MODU might receive for drilling even one exploratory well in deepwater, which could approach $25 to $30 million (DCN 7–4017). They are also small compared to the typical day rates (daily charges) paid to MODUs while drilling wells. These rates can range from $150,000 to $250,000 per day (DCN 7–4042). Five firms are assumed to build 12 jackups or semi-submersibles over the time frame of the analysis (approximately one MODU every other year). The two additional firms, GlobalSantaFe and Transocean, are the dominant firms in the industry. These two firms are each assumed to build 20 jackup or semi-submersibles, plus one drill ship and two drill ships, respectively, over the time frame of the analysis for a total of 21 or 22 MODUs in total. EPA used the higher cost of a jackup rig to represent the cost of compliance for both jackups and semi-submersibles. For simplicity, and to be conservative, EPA assumed that the annualized costs of compliance for all MODUs constructed over the period of analysis by each firm are incurred in one year for comparison to one year's revenues.

Using these assumptions, EPA estimates that the annualized pre-tax costs per firm range from $0.4 to $0.7 million, and the after-tax costs range from $0.3 to $0.5 million. The pre-tax cost-to-revenue ratio ranges from 0.03 percent to 0.06 percent, while the after-tax ratios range from 0.02 percent to 0.04 percent. Given that the highest estimated ratio is 0.06 percent, EPA concludes that firm-level impacts would not pose a barrier to entry.

b. Oil and Gas Production Platforms

EPA projects that 20 deepwater platforms and one Alaska platform will be constructed over the 20 years over which new facility additions are analyzed. The economic impact analysis for these new platforms is conducted at two levels: the platform level and the firm level. EPA conducted two platform-level analyses and one firm-level analysis:

- The first platform-level analysis assesses the potential effects of compliance costs on platform operation. Two effects of the proposed option are considered: (1) A reduction in the expected economic value of the platform, driven by all costs of compliance, which could prevent oil and gas resources from being brought into production, and (2) earlier production shut-in, driven by the increase in O&M costs. The baseline operating and financial profile for this analysis is based on data from existing platforms whose cooling water intake rates would cause them to be subject to the proposed rule if they were being newly constructed after rule promulgation. These existing platforms serve as a baseline model of the

operating and financial conditions of new platforms that would be regulated under the proposal. Estimated compliance costs are added to the baseline cost profile in the analysis of compliance costs on platform operations.

- The second platform-level analysis is a barrier-to-entry analysis for new facilities. This analysis compares the present value of estimated initial permitting costs plus the one-time capital costs of compliance (excluding any recurring costs) to the construction costs for each type of platform.
- The firm-level analysis is a cost-to-revenue test, which compares the annualized compliance costs for representative new platforms to the revenues of firms likely to construct new platforms/structures. This analysis assumes that each firm likely to build a deepwater platform/structure subject to regulation would bring four platforms/structures on line over the time frame of the analysis; and that only one firm will build an Alaska platform during the analysis period. For simplicity and to be conservative, firms assumed to bring four deepwater structures on line are assigned the annualized costs of compliance for four platforms in one year for comparison against one year's revenues. This analysis was conducted on a pre-tax and after-tax basis.

i. Platform-Level Production/Shut-In Analysis

Compliance costs resulting from the proposed option may affect a platform's financial performance and related operating decisions in two ways. First, increased costs from regulatory compliance will reduce the expected economic value of an oil and gas production project, and may prevent an otherwise financially viable project from being undertaken. Second, even if a project overall remains financially viable, increased operating costs may lead to an earlier production shut-in than would occur in the baseline. Details of the analysis of these effects are provided below.

For the analysis of these effects, EPA constructed a general platform analysis model, which simulates the operations and economics of oil and gas development and production. The platform model analyzes production over a period extending as long as 30 years. Pre-tax costs (including costs incurred in pre-production years, O&M, monitoring costs, and repermitting costs) are input into the model in the year in which they occur, until the model shows the platform is uneconomical to operate. To determine the shut-in year, projected net revenue is compared to operating costs in each production year. Net revenue is based on an assumed price of oil, current and projected production of oil and gas, well production decline rates, and severance and royalty rates. Operating costs are based on a calculated cost per barrel of oil equivalent (BOE) produced. The model simulates operations for the lesser of 30 years or to the year when operating costs exceed production revenue, at which point the operator is assumed to terminate production. The model calculates the lifetime of the project, total production, and the net present value of the operation (net income of the operation over the life of the project in terms of today's dollars). A comparison of the baseline model outputs to the post-compliance model outputs yields any losses of production and project lifetimes and the net present value of the operation. If the net present value of the operation is positive in the baseline but negative post-compliance, the project is considered nonviable post-compliance. It is assumed the platform would not be built.

The model uses as baseline data, financial information from representative existing platforms, collected in EPA's 316(b) survey of production platforms (DCN 7–0008) to represent the financial characteristics of future platforms that would be subject to this proposed regulation. EPA received an economic survey from only one deepwater platform with cooling water intake structure flows meeting the proposed regulatory criteria. EPA used data from this survey and from other sources of publicly available information, such as the Minerals Management Service, to develop a model new deepwater oil and gas production platform. EPA also received a survey from a platform in Alaska but did not include it in the analysis because the surveyed platform is a very old structure and at the end of its productive life. It is likely that it would not be representative of new platforms being built after the Phase III rule is finalized. The Alaska platform is therefore analyzed only in the barrier to entry analysis.

Analysis of Project Viability

As noted above, any increase in costs, whether operating, capital, or permitting, will reduce the expected economic value of an oil and gas project, as represented by the present value of project net income, and may cause an otherwise economic oil and gas production project to never be undertaken. In this case, the entire economic value of the project and its otherwise recoverable oil and gas production are assumed to be lost (note: this loss need not be permanent but may only be delayed until higher product prices, or reduced development and production costs allow the project to become financially viable). For this potential impact, EPA analyzed whether the reduction in value from all regulatory compliance outlays would be sufficient to cause the expected discounted net income of an otherwise economically viable oil and gas production project to be negative—at the outset. In this case, the operator is assumed not to proceed with development and production. If the platform has a positive net present value under baseline conditions but a negative net present value in the post-compliance scenario, EPA notes an impact on the platform and estimates the lost production resulting from the costs of regulatory compliance.

Analysis of Production Shut-In Effects

Although a project overall remains financially viable, the increased operating costs from regulatory compliance may lead to an earlier production shut-in than would occur in the baseline. Shut-in refers to lost production from non-production of producible reserves for reasons such as tests, repairs, or to await construction of gathering lines. Apart from the financial impact, an earlier shut-in will also lead to reduced production of otherwise economically recoverable oil and gas. For this analysis, projected net revenue is compared to operating costs at each year for the model project.[47] Net revenue (after subtracting royalties and severance, which are payments to the lease owner and a State, if relevant) is based on an assumed price of oil, current and projected production of oil and gas, well production decline rates, and severance and royalty rates. Operating costs are based on a calculated cost per barrel of oil equivalent (BOE) produced. The model simulates operations for the lesser of 30 years or to the year when operating costs exceed production revenue, at which point the operator is assumed to terminate production. A comparison of total production and total project lifetime in the baseline vs. post-compliance shows any differences in these variables following the imposition of compliance costs.

[47] Following engineering review of surveyed deepwater platforms/structures, only one was determined to have a total design CWIS intake flow rate meeting the proposed 316(b) thresholds for regulation of oil and gas facilities, had the structure been newly constructed, so only one model of deepwater structures was developed.

This analysis found no impacts on deepwater oil and gas development or production as a result of the incremental compliance costs associated with the proposed option for the one platform that was analyzed. Impacts on net present value were very small. (Detailed results are included in the CBI portion of today's record; DCN 7–4038.)

ii. Platform-Level Barrier-to-Entry Analysis

The barrier-to-entry analysis compares the present value of the initial permitting cost stream (discounted to the year of compliance) plus one-time capital/installation costs to the costs of constructing a new platform. If compliance costs comprise a small fraction of construction costs, EPA assumes that compliance costs would not have an effect on the decision to build a new platform.

The estimated total present values of incremental compliance costs are $291,000 for deepwater projects and $685,000 for Alaska projects. Costs for constructing new deepwater platforms are estimated to range from $114 million to $2.3 billion (see EA for the Synthetic Drilling Fluid Effluent Limitations Guidelines in the rulemaking record, DCN 7–4017). For Alaska, EPA used a value of $120 million (DCN 7–4028). The ratio of incremental compliance costs to current total construction costs therefore ranges from 0.01 percent to 0.3 percent for deepwater projects and 0.6 percent for an Alaska project. Because this represents a small fraction of total construction costs (and even of contingency costs), EPA believes that these costs would not have a material effect on decisions to build new platforms.

iii. Firm-Level Cost-to-Revenue Analysis

To determine the potential impact of the proposed option on firms, EPA used a cost-to-revenue test, which compares the annualized pre-tax and after-tax costs of compliance (calculated for a representative new platform times the maximum number of platforms assumed built by each firm in any one year), with 2002 revenues reported by all firms determined likely to be affected by this regulation. The firms that are considered affected are (1) those identified as currently having existing deepwater platforms or structures that would be subject to regulation if they were newly constructed and (2) the likeliest type of firm to build a new Alaska platform during the time frame of the analysis. EPA assumed each of the five firms operating in the deepwater Gulf would bring on-line four platforms during the period of analysis (for a total of 20 platforms). For simplicity and to be conservative, EPA assumes the four platforms come on line in one year for comparison with one year's revenues at each firm. One small firm is assumed to build the one Alaska platform over the period of analysis, and the annualized compliance cost is also compared to one year's revenues at that firm.

Using these assumptions, EPA estimates that the annualized pre-tax costs per firm are about $0.3 million, and the after-tax costs are about $0.2 million. The pre-tax cost-to-revenue ratio ranges from <0.001 percent to 0.01 percent, while the after-tax ratios range from <0.001 percent to 0.007 percent. Given that the highest estimated ratio is 0.01 percent, EPA concludes that firm-level impacts would not pose a barrier to entry.

c. Total Facility Compliance Costs and Impacts for All New Offshore Oil and Gas Extraction Facilities

Exhibit VIII–7 summarizes the total facility compliance costs and impacts associated with the proposed option for Phase III new offshore oil and gas extraction facilities. Annualized after-tax costs total $1.8 million per year for MODUs and $1.2 million per year for platforms, or a total of $3.1 million per year for all affected new oil and gas operations estimated to be constructed over the period of the analysis (using a 7 percent discount rate).[48]

EXHIBIT VIII–7.—SUMMARY OF PRIVATE COSTS AND IMPACTS FOR NEW OIL AND GAS FACILITIES

Type of O&G facility	Number of new facilities	Annualized private after-tax compliance costs (in millions, 2003 $)	Facility impacts	Firm impacts
MODUs	103	$1.8	0	0
Platforms	21	1.2	0	0
Total	124	3.1	0	0

Note: Component values may not sum to the reported total due to independent rounding.

C. Summary of Total Social Costs and Impacts

As discussed earlier, EPA is proposing national categorical requirements for existing Phase III facilities, as defined by one of the three co-proposed flow-threshold-based options, and is proposing requirements similar to certain provisions of the rule for new offshore oil and gas extraction facilities. EPA estimated a total annualized social cost for the ''50 MGD for All Waterbodies'' option for existing facilities and the proposed option for new oil and gas extraction facilities of $51.0 million at a 3 percent discount rate, and $53.1 million, at a 7 percent discount rate. EPA estimates that 260 facilities would be subject to national requirements and that none of these facilities would experience adverse impacts. Exhibit VIII–8 summarizes these findings.

[48] Costs are incurred assuming 20 years of new facility construction, with each facility incurring costs over a 30-year operating period, discounted to the year the facility is launched or comes on-line. The present value of private after-tax costs is less than the previously described present value of social costs, which are based on pre-tax costs, because of differences in the discounting for private costs and social costs. Private costs are discounted, for each analysis, only to the first year of compliance. In contrast, for the social cost calculation, all costs are discounted to the beginning of 2007, regardless of when new facilities come into operations. Because new facilities are scheduled to begin operation for a 20 year period following rule promulgation, the total effect of discounting is much greater for the present value of social cost calculation than for the private cost calculation. As a result, the present value of social costs, even though based on pre-tax costs, is less than the present value of private, after-tax cost.

EXHIBIT VIII–8.—SUMMARY OF ECONOMIC ANALYSIS: ''50 MGD FOR ALL WATERBODIES'' OPTION FOR EXISTING FACILITIES PLUS NEW OFFSHORE OIL AND GAS FACILITIES > 2 MGD

	Annualized social cost (in millions, 2003 $)		Number of facilities subject to national equirements	Number of facilities with impacts*
	3% Discount rate	7% Discount rate		
Direct Compliance Cost:				
Manufacturing Industries	$42.7	$45.1	127	0
Other Industries	4.1	4.4	9	0
Electric Generators	N/A	N/A	N/A	N/A
New O&G Facilities	3.2	2.7	124	0
Total	50.0	52.2	260	0
State and Federal Administrative Cost	1.0	0.9	.....	.....
Total Social Cost	51.0	53.1	.....	.....

* The impact measures for existing Manufacturers are facility closure and moderate financial impact (see also section VIII.A.3.a). The two impact measures for new Oil and Gas facilities are facility closures and barrier to entry (see also section VIII.B.3). Numbers may not add up to totals due to independent rounding.

EPA estimated a total annualized social cost for the ''200 MGD for All Waterbodies'' option for existing facilities and the proposed option for new oil and gas extraction facilities of $26.4 million at a 3 percent discount rate, and $27.2 million, at a 7 percent discount rate. EPA estimates that 149 facilities would be subject to national requirements and that none of these facilities would experience adverse impacts. Exhibit VIII–9 summarizes these findings.

EXHIBIT VIII–9.—SUMMARY OF ECONOMIC ANALYSIS: ''200 MGD FOR ALL WATERBODIES'' OPTION FOR EXISTING FACILITIES PLUS NEW OFFSHORE OIL AND GAS EXTRACTION FACILITIES

	Annualized social cost (in millions, 2003 $)		Number of facilities subject to national requirements	Number of acilities with impacts*
	3% Discount rate	7% Discount rate		
Direct Compliance Cost:				
Manufacturing Industries	$21.7	$23.1	23	0
Other Industries	1.0	0.9	2	0
Electric Generators	N/A	N/A	N/A	N/A
New O&G Facilities	3.2	2.7	124	0
Total	25.9	26.7	149	0
State and Federal Administrative Cost	0.5	0.4	.....	.....
Total Social Cost	26.4	27.2	.....	.....

*The impact measures for existing Manufacturers are facility closure and moderate financial impact (see also section VIII.A.3.a). The two impact measures for new Oil and Gas facilities are facility closures and barrier to entry (see also section VIII.B.3). Numbers may not add up to totals due to independent rounding.

EPA estimated a total annualized social cost for the ''100 MGD for Certain Waterbodies'' option for existing facilities and the proposed option for new oil and gas extraction facilities of $21.3 million at both a 3 percent and 7 percent discount rate. EPA estimates that 143 facilities would be subject to national requirements and that none of these facilities would experience adverse impacts. Exhibit VIII–10 summarizes these findings.

EXHIBIT VIII–10.—SUMMARY OF ECONOMIC ANALYSIS: ''100 MGD FOR CERTAIN WATERBODIES'' OPTION FOR EXISTING FACILITIES PLUS NEW OFFSHORE OIL AND GAS EXTRACTION FACILITIES

	Annualized social cost (in millions, 2003 $)		Number of facilities subject to national requirements	Number of facilities with impacts*
	3% Discount rate	7% Discount rate		
Direct Compliance Cost:				
Manufacturing Industries	$16.7	$17.4	17	0
Other Industries	0.7	0.7	2	0
Electric Generators	N/A	N/A	N/A	N/A
New O&G Facilities	3.2	2.7	124	0

EXHIBIT VIII–10.—SUMMARY OF ECONOMIC ANALYSIS: ''100 MGD FOR CERTAIN WATERBODIES'' OPTION FOR EXISTING FACILITIES PLUS NEW OFFSHORE OIL AND GAS EXTRACTION FACILITIES—Continued

	Annualized social cost (in millions, 2003 $)		Number of facilities subject to national requirements	Number of facilities with impacts*
	3% Discount rate	7% Discount rate		
Total	20.7	20.8	143	0
State and Federal Administrative Cost	0.6	0.5	.....	.....
Total Social Cost	21.3	21.3	.....	.....

*The impact measures for existing Manufacturers are facility closure and moderate financial impact (see also section VIII.A.3.a). The two impact measures for new Oil and Gas facilities are facility closures and barrier to entry (see also section VIII.B.3). Numbers may not add up to totals due to independent rounding.

IX. Benefits Analysis

A. Introduction

This section presents EPA's estimates of the national economic benefits of the three co-proposed regulatory options for the section 316(b) regulation for Phase III existing facilities: The ''50 MGD for All Waterbodies'' option, the ''200 MGD for All Waterbodies'' option, and the ''100 MGD for Certain Waterbodies'' option. The benefits occur due to the reduction in impingement mortality and entrainment at cooling water intake structures affected by this rulemaking (see section II for a description of the facilities to which this rulemaking potentially applies). By reducing impingement mortality and entrainment, the co-proposed options would increase the number of fish, shellfish, and other aquatic life in local aquatic ecosystems. This, in turn, will directly and indirectly generate use benefits such as those associated with recreational and commercial fishing. Other types of benefits that are independent of any current or anticipated uses of the resource could also be realized; these are known as non-use values. Section IX.D provides an overview of types and sources of benefits anticipated, how these benefits were estimated, and what level of benefits have been estimated for each of the three co-proposed options. For a comparison of social benefits and total social costs, refer to Section X.

To estimate the economic benefits of reducing impingement mortality and entrainment at cooling water intake structures, all the beneficial outcomes need to be identified and, where possible, quantified and assigned appropriate monetary values. Estimating economic benefits can be challenging because of the many steps of analysis that are necessary to link a reduction in impingement mortality and entrainment to changes in impacted fisheries and other aspects of relevant aquatic ecosystems, and then to link these ecosystem changes to the resulting changes in quantities and values for the associated environmental goods and services that ultimately are linked to human welfare. The methodologies used in the estimation of benefits of the proposed regulatory options are largely built upon those used for estimating benefits of the final rule for Phase II facilities (*see* 69 FR 41576). *The Regional Benefits Assessment for the Proposed Section 316(b) Rule for Phase III Facilities* (see DCN 7–0003), hereafter known as the Regional Analysis Document, provides EPA's analyses for the benefit assessment for the proposed options.

The benefit estimates for this rule are derived from a series of regional studies for a range of waterbody types throughout the U.S. Section IX.B provides detail on the regional study design. Sections IX.C and IX.D describe the methods EPA used to estimate impingement mortality and entrainment impacts at potentially regulated existing facilities and to derive an economic value of such losses. National benefits were estimated using a set of statistical weights for each potentially regulated facility. The weights were developed as part of EPA's design of the survey of the industries.

The benefit estimates presented in the following sections reflect changes in impingement mortality and entrainment reductions at existing facilities only. EPA was unable to assess benefits of reducing impingement and entrainment at new offshore oil and gas extraction facilities due to significant data gaps at the time of proposal. Therefore, the benefits estimates presented in this section should be compared only to the cost estimates for existing Phase III facilities. EPA solicits submission of data on impingement mortality and entrainment impacts at offshore oil and gas extraction facilities.

B. Study Design and Methods

EPA's evaluation of impingement mortality and entrainment data had four main objectives: (1) To develop a national estimate of the magnitude of impingement and entrainment at potentially regulated facilities; (2) to standardize impingement and entrainment rates using common biological metrics so that rates could be compared across species, years, facilities, and geographical regions; (3) to estimate changes in these metrics as a result of projected reductions in impingement and entrainment under the proposed rule options; and (4) to obtain data that can be used to estimate the national economic benefits of reduced impingement and entrainment.

Harvested species were the main focus of EPA's analysis, primarily because of the availability of economic methods for valuing these species. EPA's approach to estimating changes in harvest assumed that impingement and entrainment losses result in a reduction in the number of harvestable adults in the years following the time that individual fish are killed by impingement and entrainment and that future reductions in impingement and entrainment will lead to future increases in fish harvest. This approach only estimates the incremental yield that is foregone because of the number of deaths due to impingement and entrainment and is not intended to provide an estimate of absolute population levels. EPA intends to investigate the feasibility of applying a population modeling approach to estimate expected changes in harvest levels and fish population sizes. Such an approach would use available data and life-stage specific estimates of natural mortality, impingement and entrainment mortality, and fishing mortality, plus an explicit function describing density-dependent reproductive success to attempt to estimate long-term changes in average

harvest levels and stock sizes. A population model could serve as a supplement or as an alternative to the current modeling approach based on age one equivalent losses. EPA invites comment on ways that it might develop a population model to support an estimate of the national benefits of this rulemaking.

1. Extrapolation of Impingement and Entrainment Rates

To obtain a national estimate of losses at all potentially regulated facilities, it was necessary to extrapolate impingement and entrainment rates from facilities with data (model facilities) to facilities without data. Extrapolation of impingement and entrainment rates was necessary because not all potentially regulated facilities within a given region have conducted impingement and entrainment studies. Model facilities included both Phase II facilities and potentially regulated Phase III facilities,[49] based on the assumption that impingement and entrainment rates at Phase II and Phase III facilities are similar after normalization by intake flow. Phase II facilities were included to make use of the largest possible data set and to accommodate the lack of impingement and entrainment data from potentially regulated Phase III facilities in some regions. Impingement and entrainment data from 72 Phase II facilities and 16 potentially regulated Phase III facilities were evaluated.

Impingement and entrainment data were extrapolated on the basis of operational intake flow in millions of gallons per day (MGD), where MGD is the average operational flow over the period 1996–1998 as reported by facilities in response to EPA's survey of the industry. Operational flow at each facility was rescaled using factors reflecting the relative effectiveness of currently in-place technologies for reducing impingement and entrainment. The extrapolation procedure is described in Chapter A1 of Part A of the *Regional Analysis Document.* While there may be variations from these estimates in the actual losses (and benefits) per MGD across individual facilities, EPA believes that this method of extrapolation is a reasonable basis for developing an estimate of national-level benefits.

2. Study Regions and Facilities

EPA's analysis examined cooling water intake structure impacts and regulatory benefits at the regional scale, and then combined regional results to develop national estimates. The Agency evaluated the benefits of the proposed regulatory options in six study regions based on the locations of potentially regulated Phase III facilities and similarities in the affected ecosystems, aquatic species present, and characteristics of commercial and recreational fishing activities within each region. The four coastal regions (California, North Atlantic, Mid-Atlantic, and Gulf of Mexico) correspond to those of the National Oceanographic and Atmospheric Association (NOAA) Fisheries agency (formerly the National Marine Fisheries Service). The Great Lakes region includes all potentially regulated Phase III facilities that withdraw water from Lakes Ontario, Erie, Michigan, Huron, and Superior, or are located on a waterway with open fish passage to a Great Lake and within 30 miles of the lake. The Inland region includes the remaining facilities that withdraw water from freshwater lakes, rivers, and reservoirs. Exhibit IX–1 indicates the number of potentially regulated Phase III facilities in each study region. The exhibit also shows the number of facilities subject to national technology requirements under each of the co-proposed regulatory options.

EXHIBIT IX–1.—PHASE III FACILITIES IN EACH REGION

Region	Number of potentially regulated existing phase III facilities [a] (weighted)	Number of facilities subject to national technology requirements under proposed regulatory options [b] (weighted)		
		50 MGD all waterbodies	200 MGD all waterbodies	100 MGD certain waterbodies
California	9	1	0	0
North Atlantic	5	4	1	3
Mid-Atlantic	13	3	2	2
South Atlantic	4	0	0	0
Gulf of Mexico	11	7	2	7
Great Lakes	68	19	5	6
Inland	493	69	12	0
Total, Study Regions	599	103	22	18
National total [c]	603	103	22	18

[a] Potentially regulated existing Phase III facilities include electric generators with CWIS that withdraw more than 2 MGD but less than 50 MGD and manufacturers with CWIS that withdraw more than 2 MGD, that use at least 25% of the water for cooling purposes.
[b] Numbers of facilities reflect only those that are subject to technology requirements; those facilities that only have permitting costs are excluded.
[c] Eighty potentially regulated facilities estimated to close under the baseline scenario are excluded from this analysis.

3. Species Groups

Life history data are very limited for many of the species that are impinged and entrained, and as a result, there are many data gaps for individual species. To overcome this limitation in its national benefit analysis, EPA used available life history data to construct representative life histories for groups of closely related species. Aggregation of species into groups of similar species with a common life history type facilitated parameterization of the fisheries models used by EPA to evaluate facility impingement and entrainment monitoring data. Groups were based on family groups and groups used by NOAA Fisheries for landings

[49] ''Potentially regulated Phase III facilities'' refers to all existing facilities with design intake flows greater than 2 MGD, not regulated in the Phase II rule.

data. For example, bay goby, blackeye goby, yellowfin goby, and other gobies were grouped together as ''gobies.'' An exception was made for species of exceptionally high commercial or recreational value (*e.g.*, striped bass), which were evaluated as single species.

C. Impingement and Entrainment

EPA's analysis is based on facility-provided biological monitoring data. As discussed in Chapter A2 of Part A of the *Regional Analysis Document*, there are several types of uncertainty associated with these data. Major sources of uncertainty are the imperfect precision and accuracy of impingement and entrainment data reported by facilities and of growth and mortality rates obtained from the scientific literature. This results from unavoidable sampling and measurement errors. While these uncertainties may lead to imprecision in impingement and entrainment estimates, EPA found no evidence of statistical bias. Given the goal of its benefit analysis, EPA believes that the data available from facility studies are sufficiently robust for developing estimates of the relative magnitude of impingement and entrainment nationwide.

Using standard fishery modeling techniques,[50] EPA constructed models that combined facility-derived impingement and entrainment counts with relevant life history data to derive estimates of (1) age-one equivalent losses (the number of individuals of different ages impinged and entrained by facility intakes expressed as an equivalent number of age-one fish), and (2) foregone fishery yield (pounds of commercial harvest and numbers of recreational fish and shellfish that are not harvested due to impingement and entrainment). In addition to direct losses of harvested species, estimates of foregone fishery yield include the yield of harvested species that is lost due to losses of forage species, which provide food for harvested species. Details of the methods used to calculate these metrics are provided in Chapter A1 of Part A of the *Regional Analysis Document.* For all analyses, EPA used the impingement and entrainment estimates provided by the facility and assumed 100 percent entrainment mortality based on the analysis of entrainment survival studies presented in Chapter A7 of Part A of the *Regional Analysis Document.* If there is some entrainment survival, this last assumption may lead to some overestimate of baseline entrainment losses.

1. Summary of Current Annual Impingement and Entrainment by Region

Exhibit IX–2 presents EPA's estimates of current annual impingement and entrainment (I&E) in the study regions.

EXHIBIT IX–2.—CURRENT ANNUAL IMPINGEMENT AND ENTRAINMENT, BY REGION

Region	Impingement		Entrainment		Total I & E	
	Age-1 equivalents	Foregone fishery yield (lbs)	Age-1 equivalents	Foregone fishery yield (lbs)	Age-1 equivalents	Foregone fishery yield (lbs)
California	21,000	701	1,290,000	95,100	1,310,000	95,800
North Atlantic	20,100	141	2,320,000	44,800	2,340,000	45,000
Mid-Atlantic	3,890,000	540,000	19,400,000	381,000	23,200,000	920,000
South Atlantic	423,000	49,100	1,090,000	73,700	1,520,000	123,000
Gulf of Mexico	6,140,000	623,000	6,580,000	1,370,000	12,700,000	1,990,000
Great Lakes	31,800,000	413,000	2,570,000	76,400	34,400,000	489,000
Inland	28,600,000	232,000	15,700,000	263,000	44,200,000	495,000
National total[a]	70,900,000	1,860,000	48,900,000	2,300,000	120,000,000	4,160,000

The estimates in Exhibit IX–2 make use of data from available impingement and entrainment studies conducted at both Phase II and Phase III facilities. Using data solely from the limited number of Phase III studies available (4 studies for the Great Lakes region and 11 studies for the Inland region), estimates of loss of age-1 equivalents to impingement and entrainment are 5,160,000 at Great Lakes facilities and 14,700,000 at Inland facilities. Estimates of foregone fishery yield are 16,500 pounds at Great Lakes facilities and 250,000 pounds at Inland facilities.

2. Summary of Annual Reductions in Impingement and Entrainment for Three Options

Exhibit IX–3 presents EPA's estimates of annual impingement and entrainment reductions under the ''50 MGD for All Waterbodies'' option. Exhibit IX–4 presents EPA's estimates of annual impingement and entrainment reductions under the ''200 MGD for All Waterbodies'' option. Exhibit IX–5 presents results for the ''100 MGD for Certain Waterbodies'' option.

a. Reductions in Annual Impingement and Entrainment for the ''50 MGD for All Waterbodies'' Option

See Exhibit IX–3 for reductions in annual impingement and entrainment for the ''50 MGD for All Waterbodies'' option.

[50] Ricker, W.E. 1975. Computation and interpretation of biological statistics of fish populations. Fisheries Research Board of Canada, Bulletin 191; Hilbourn, R. and C.J. Walters. 1992. Quantitative Fisheries Stock Assessment, Choice, Dynamics and Uncertainty. Chapman and Hall, London and New York; Quinn, T.J., II. and R.B. Deriso. 1999. Quantitative Fish Dynamics. Oxford University Press, Oxford and New York; Dixon, D.A. 1999. Catalog of Assessment Methods for Evaluating the Effects of Power Plant Operations on Aquatic Communities. Final Report. Report number TR–112013.

EXHIBIT IX–3.—REDUCTIONS IN ANNUAL IMPINGEMENT AND ENTRAINMENT FOR THE ''50 MGD FOR ALL WATERBODIES'' OPTION, BY REGION

Region	Age-1 equivalents	Foregone fishery yield (lbs)
California	383,000	28,000
North Atlantic	930,000	17,900
Mid-Atlantic	13,400,000	600,000
Gulf of Mexico	8,380,000	1,250,000
Great Lakes	11,600,000	169,000
Inland	14,800,000	157,000
National total	49,500,000	2,220,000

The estimates in Exhibit IX–3 make use of data from available impingement and entrainment studies conducted at both Phase II and Phase III facilities. Using data solely from the limited number of Phase III studies available (4 studies for the Great Lakes region and 11 studies for the Inland region), estimates of reductions in loss of age-1 equivalents to impingement and entrainment are 1,700,000 at Great Lakes facilities and 5,450,000 at Inland facilities. Estimates of reductions of foregone fishery yield are 5,570 pounds at Great Lakes facilities and 93,000 pounds at Inland facilities.

b. Reductions in Annual Impingement and Entrainment for the ''200 MGD for All Waterbodies'' Option

See Exhibit IX–4 for reductions in annual impingement and entrainment for the ''200 MGD for All Waterbodies'' option.

EXHIBIT IX–4.—REDUCTIONS IN ANNUAL IMPINGEMENT AND ENTRAINMENT FOR THE ''200 MGD FOR ALL WATERBODIES'' OPTION, BY REGION

Region	Age-1 equivalents	Foregone fishery yield (lbs)
California	0	0
North Atlantic	198,000	3,800
Mid Atlantic	11,900,000	534,000
Gulf of Mexico	4,580,000	682,000
Great Lakes	7,710,000	116,000
Inland	9,650,000	107,000
National total	34,000,000	1,440,000

The estimates in Exhibit IX–4 make use of data from available impingement and entrainment studies conducted at both Phase II and Phase III facilities. Using data solely from the limited number of Phase III studies available (4 studies for the Great Lakes region and 11 studies for the Inland region), estimates of reductions in loss of age-1 equivalents to impingement and entrainment are 1,100,000 at Great Lakes facilities and 3,270,000 at Inland facilities. Estimates of reductions in foregone fishery yield are 3,690 pounds at Great Lakes facilities and 55,700 pounds at Inland facilities.

c. Reductions in Annual Impingement and Entrainment for the ''100 MGD for Certain Waterbodies'' Option

See Exhibit IX–5 for reductions in annual impingement and entrainment for the ''100 MGD for Certain Waterbodies'' option.

EXHIBIT IX–5.—REDUCTIONS IN ANNUAL IMPINGEMENT AND ENTRAINMENT FOR THE ''100 MGD FOR CERTAIN WATERBODIES'' OPTION, BY REGION

Region	Age-1 equivalents	Foregone fishery yield (lbs)
California	0	0
North Atlantic	754,000	14,500
Mid Atlantic	11,900,000	534,000
Gulf of Mexico	8,380,000	1,250,000
Great Lakes	8,740,000	130,000
National total	29,800,000	1,930,000

The estimates in Exhibit IX–5 make use of data from available impingement and entrainment studies conducted at both Phase II and Phase III facilities. Using data solely from the limited number of Phase III studies available (4 studies for the Great Lakes region), the estimate of reductions in loss of age-1 equivalents to impingement and

entrainment is 1,260,000 and the estimate of reductions in foregone fishery yield is 4,190 pounds at Great Lakes facilities.

d. Reductions in Annual Impingement and Entrainment for Other Policy Options

EPA considered a wide range of policy options in developing the proposed section 316(b) regulation for the Phase III facilities. The Regional Analysis Document provides results for all evaluated options considered in this rulemaking.

D. National Benefits

1. Overview

Economic benefits of the co-proposed options for the section 316(b) regulation for Phase III existing facilities can be broadly defined according to categories of goods and services provided by the species affected by impingement and entrainment by cooling water intake structures.

The first category includes benefits that pertain to the use (direct or indirect) of the affected fishery resources. Use value reflects the value of all current direct and indirect physical uses of a good or service (Mitchell and Carson, 1989; DCN 5–1287). The direct use benefits can be further categorized according to whether or not affected goods and services are traded in the market. The ''direct use'' benefits of the section 316(b) regulation stem both from''market'' commodities (*e.g.*, commercial fisheries) and from ''nonmarket'' goods (*e.g.*, recreational angling). Indirect use benefits also can be linked to either market or nonmarket goods and services—for example, the manner in which reduced impingement and entrainment-related losses of forage species leads through the aquatic ecosystem food web to enhance the biomass of species targeted for commercial (market) and recreational (nonmarket) uses.

The second category includes benefits that are independent of any current or anticipated use of the resource; these are known as ''non-use'' or ''passive use'' values.[51] Non-use values include ''nonmarketed'' goods and services, which reflect human values associated with existence, bequest, and altruistic motives. Existence value is the value that individuals may hold for simply knowing that a particular good exists regardless of their present or expected use. For example, ecological goods and services such as diversity of aquatic and terrestrial species and habitat for threatened and endangered species are often valued for their existence. Bequest value exists when someone gains utility through the knowledge that an amenity will be available for others (family or future generations) in the future (Fisher and Raucher, 1984; DCN 4–0043). Altruistic values arise from interpersonal concerns (valuing the happiness that others get from enjoying the resource).

The economic value of benefits from the proposed options for Phase III facilities is estimated using a range of valuation methods, with the specific approach being dependent on the type of benefit category, data availability, and other suitable factors. Commercial fishery benefits are valued using market data. Recreational angling benefits are valued using a combination of primary and secondary research methods. Methodologies for estimating use values for recreational (non-market values) and commercial (market values) species are well developed, and some of these species have been extensively studied. As a result, these values are relatively easy to estimate. A detailed description of the approaches used for valuing commercial and recreational benefits of the proposed options can be found in Chapters A4 and A5 of the *Regional Analysis Document*.

Estimating benefits from reduced impingement and entrainment of forage species is more challenging because these species are not targeted directly by commercial or recreational anglers and have no direct use values that can be observed in markets or inferred from revealed actions of anglers. To estimate a portion of the indirect use benefits from reducing impingement and entrainment losses to forage species, EPA used a trophic transfer model that translates changes in impingement and entrainment losses of forage fish into changes in the harvest of commercial and recreational species that are subject to impingement and entrainment (*i.e.*, not the whole food web). This method is described in Chapter A1 of Part A of the *Regional Analysis Document*.

Stated preference methods, or benefit transfer based on stated preference studies, are the generally accepted techniques for estimating non-use values.

Stated preference methods rely on carefully designed surveys, which ask people either to state their willingness to pay for particular ecological improvements, such as increased protection of aquatic species or habitats with particular attributes; or to choose between competing hypothetical ''packages'' of ecological improvements and household cost. In either case, analysis of survey responses allows estimation of values.

Economists generally consider non-use values more difficult to assess than use values for several reasons:

a. Non-use values are not associated with easily observable behavioral trails;

b. Non-use values may be held by both users and non-users of a resource, and non-users may be less familiar with particular services provided by affected resources;

c. The development of a defensible stated preference survey that meets the NOAA blue ribbon panel requirements is often a time and resource intensive process,[52] and

d. Even carefully designed surveys may be subject to certain biases associated with the hypothetical nature of survey responses (Mitchell and Carson 1989).

Reducing impingement and entrainment losses of fish and shellfish may result in both use and non-use benefits. Of the organisms which are anticipated to be protected by the proposed options for the section 316(b) regulation for Phase III facilities, approximately 3.3 percent will eventually be harvested by commercial and recreational fishers and therefore can be valued with direct use valuation techniques. Unharvested fish, which have no direct use value, represent 96.7 percent of the total loss. These unlanded fish include forage fish and the unlanded portion of the stock of harvested species. Because unlanded fish contribute to the yield of harvested fish, they have an indirect use value that is captured by the direct use value of the fish that are caught. However, this indirect use value represents only a portion of the total value of unlanded fish. In fact, society may value both landed and unlanded fish for reasons unrelated to their use value. Such non-use values include the value that people may hold simply for knowing these fish exist. While non-use values are difficult to quantify, EPA believes it is important to consider such values, particularly since 96.7 percent of impinged and entrained organisms have no direct use value.

EPA considered several approaches to quantifying non-use values for the

[51] The benefits analysis of the proposed options for potentially regulated Phase III facilities does not assess option value as a distinct component of value because it is increasingly recognized that option value ''cannot be a separate component of value'' (Freeman, 2003; p. 249).

[52] The NOAA blue ribbon panel provided an extensive set of guidelines for survey construction, administration, and analysis to ensure that ''* * * CV produces estimates reliable enough to be the starting point of a judicial process of damage assessment, including passive-use values [*i.e.* non-use values]'' (see FR 58:10 pp.4601–4614, 1993).

proposed rule, including a stated preference study and meta-analysis of surface water valuation studies. The Agency has begun exploring the development of a stated preference survey that would measure non-use benefits from reduced impingement and entrainment attributable to the proposed options for the section 316(b) regulation for Phase III facilities. Although this primary study effort could not be completed in time for the publication of the proposed regulation, EPA expects to complete the study in time to rely on its findings for the final regulation. A number of studies have found that meta-analysis has considerable promise in benefits transfer and that meta-analysis can produce more reliable results than other benefit transfer methods (Bergstrom and De Civita, 1999, DCN 6–3109; Florax *et al.*, 2002, pp. 117–135, DCN 7–5132). However, the usefulness of meta-analysis results is dependent on both the quality of the underlying studies and their applicability to the policy question at hand. Given the difficulties in estimating non-use benefits at the national level using benefit transfer methods and the small number of studies that have attempted to value fish losses, particularly those related to impingement and entrainment at cooling water intake sites, EPA has not included monetary measures of non-use values in the benefit analysis for the proposed options. Instead, the Agency analyzed potential non-use benefits of the proposed options qualitatively.

2. Timing of Benefits

Discounting is the economic conversion of future benefits and costs to their present values, accounting for the fact that individuals tend to value future outcomes less than comparable near-term outcomes. Discounting is important when the value of benefits (or costs) may vary from year to year and when the time profiles of benefits and costs are not the same. Discounting enables a consistent comparison of benefits to costs across time periods.

For the section 316(b) rulemaking, the difference in timing in costs and benefits arises from two sources. First, facilities are not expected to achieve compliance with the regulation until several years after its promulgation. Benefits are equal to zero from the promulgation of the rule (*i.e.*, beginning of 2007) until facilities reach compliance. Thus, EPA discounted the benefits from each facility by the number of years between the year in which the rule is promulgated and the year in which the facility complies. Since benefits were estimated on a regional basis, EPA estimated benefits from each facility by multiplying total regional benefits by the percentage of total regional flow that is attributable to each facility. EPA used current permit expiration information for model facilities to identify the projected year of compliance for each facility in the analysis.

The second difference in timing in costs and benefits arises from the fact that additional time will pass between implementation of best technology available and resulting increased fishery yields. This is because one or more years may pass between the time an organism is spared impingement and entrainment and the time of its ultimate harvest. For example, a larval fish spared from entrainment (in effect, at age 0) may be caught by a recreational angler at age 3, meaning that a 3-year time lag arises between the installation of best technology available and the realization of the estimated recreational benefit. Likewise, if a 1-year old fish is spared from impingement and is then harvested by a commercial fisherman at age 2, there is a 1-year lag between the installation of best technology available and the subsequent commercial fishery benefit.

Recognizing that avoided fish deaths occur mainly in fish that are younger than harvestable age (eggs, larvae and juveniles), and that the benefits from avoided impingement and entrainment of these fish would be realized typically 3–4 years after their avoided death, EPA developed a benefits recognition schedule for facilities in each region. The benefits schedule is based on an estimate of benefit delay that reflects the estimated age and species composition of impingement and entrainment losses, by region. Following achievement of compliance, benefits from facilities in most regions are assumed to increase over a 7-year period to a long-term, steady State average, equal to the approximated per-facility benefit value discussed above, according to a numerical profile of < 0.0, 0.1, 0.2, 0.8, 0.9, 0.95, 1.0 >. This profile indicates the fraction of the steady State benefit value that is realized in each of the first seven years following the achievement of compliance at a facility. After seven years, this fraction remains 1.0 for 23 additional years. After these combined 30 years the facility is assumed to cease compliance, which is consistent with the time period over which costs are evaluated. In the same way that the benefits profile builds up over time following compliance, the benefits profile declines at the end of the compliance period. Specifically, in the seven years following the end of compliance, the fraction of the steady State benefit value achieved follows the profile of < 1.0, 0.9, 0.8, 0.2, 0.1, 0.05, 0.0 >. Therefore, the analysis of benefits encompasses a 37-year period starting with the first year of compliance. There are 35 years when benefits do not equal zero for a facility; 25 years when benefits are 100%; 10 years when benefits are a percentage of the total. These profile values are approximations based on a review of the age-specific fishing mortality rates that were used in the impingement and entrainment analysis and best professional judgment. Although EPA believes this approach is sufficient for this analysis, EPA could potentially refine these profile values through the use of a population model and will consider the feasibility of doing so.

For regions with a relatively high contribution of impingement to total impingement and entrainment (Inland, Great Lakes, and the Gulf of Mexico regions), EPA used an adjusted benefits profile of < 0.1, 0.2, 0.8, 0.9, 0.95, 1.0 >. This adjusted profile reflects that impinged fish are usually larger and older than entrained fish and thus benefits will be realized sooner in these regions.

EPA used these profiles of benefits to calculate a total present value of benefits and then to calculate a constant annual equivalent value (annualized value) of the present value. EPA performed the calculations of present value and annualized value using two discount rate values: a rate of 3% and a rate of 7%. As described above, the time profile of benefits, and therefore the discounting analysis, varies by facility. For all facilities, the first year of the analysis is 2007 (the promulgation of the rule). However, the first year in which benefits are realized varies by facility. Following this year, as outlined above, benefits increase over a six-or seven-year period, remain constant until the 30th year, and then decline over a six-or seven-year period. For a detailed discussion of the discounting methodology, refer to Chapter A8, ''Discounting Benefits'' and for a discussion of the time line of benefits, refer to Chapter H1, ''Total National Benefits'' in the *Regional Analysis Document* (DCN 7–0003).

3. Recreational Fishing Valuation

The recreational fishing benefits of the proposed options for the section 316(b) rule for Phase III facilities were estimated for six study regions (North Atlantic, Mid-Atlantic, Gulf of Mexico, California, Great Lakes, Inland) based on similarities in the affected ecosystems, aquatic species present, and characteristics of recreational fishing

activities within each of the six regions. To estimate recreational benefits of the proposed options for Phase III facilities, EPA developed a benefit transfer approach based on a meta-analysis of recreational fishing valuation studies designed to measure the various factors that determine willingness-to-pay for catching an additional fish per trip. To validate the meta-analysis results, EPA also used regional models of recreational fishing behavior developed for the Phase II analysis (DCN 6–0003) to estimate benefits from reduced impingement and entrainment at potentially regulated Phase III facilities for the four coastal regions and the Great Lakes region.[53]

a. Valuation Methods for Recreational Fishing

As the first step in its recreational fishing analysis, EPA conducted a comprehensive review of recreational fishing valuation literature to identify prior estimates of recreational use benefits that may be applicable to the section 316(b) regulation. Based on this review, EPA identified 48 studies that use established economic estimation techniques to measure the value of changes in marine or freshwater recreational catch (DCN 7–0003). All of these studies provide estimates of the marginal value to fishermen of catching an additional fish, or provide enough information for EPA to calculate such a value.

To examine the relative influence of methodology, sample, and fishery characteristics on the marginal value of catching an additional fish, EPA conducted a regression-based meta-analysis of these 48 studies. Although the valuation studies include estimates for a large number of different species, for the purposes of the model these species were aggregated into groups of similar species, including four saltwater species groups (big game, small game, flatfish, and other saltwater), two anadromous species groups (salmon and steelhead trout), and six freshwater species groups (panfish, bass, walleye/pike, muskellunge, rainbow trout, and other trout). The other saltwater group includes bottom fish species, species caught by anglers not targeting any particular species, and species that did not clearly fit in one of the other groups. The panfish group includes freshwater species such as yellow perch, catfish, and other warm water species. For the meta-analysis, some species groups were modeled interactively with regional variables to allow for variation in species value across different geographic regions.

The regression results from this analysis reveal both statistically significant and intuitively correct patterns in the way that factors influence the value to fishermen of catching an additional fish. These results allow for calculation of the marginal value per fish for different species based on resource and policy context characteristics. Additional detail on the methods EPA used in this analysis can be found in Chapter A5 of the *Regional Analysis Document.*

b. Validating the Recreational Analysis Based on the Region-Specific RUM Models

EPA also analyzed recreational fishing benefits from reduced impingement and entrainment based on region-specific random utility models (RUM) of recreational anglers' behavior for the four coastal regions and the Great Lakes region. These models were initially developed by the Agency for analysis of the final section 316(b) regulation for Phase II facilities.[54] For that regulation, EPA developed original RUM models for three of the four coastal regions (California, the Mid-Atlantic, and the Gulf of Mexico) and the Great Lakes region. For the North Atlantic region, EPA used a model developed by the National Marine Fisheries Service (NMFS) by Hicks *et al.* (Hicks, Steinback, Gautam, and Thunberg, 1999. Volume II: The Economic Value of New England and Mid-Atlantic Sportfishing in 1994—DCN 5–1271). Chapter A11 of the Phase II *Regional Analysis Document* provide more detailed discussion of the methodology used in EPA's RUM analysis (DCN 7–0003).

The regional recreational fishing studies used information on recreational anglers' behavior to infer anglers' economic value for the quality of fishing in the case study areas. The models' main assumption is that anglers will get greater satisfaction, and thus greater economic value, from sites where the catch rate is higher due to reduced impingement and entrainment, all else being equal. This benefit may occur in two ways: first, an angler may get greater enjoyment from a given fishing trip when catch rates are higher, and thus get a greater value per trip; second, anglers may take more fishing trips when catch rates are higher, resulting in greater overall value for fishing in the region. EPA modeled an angler's decision to visit a site as a function of site-specific cost, fishing trip quality, and additional site attributes such as presence of boat launching facilities or fish stocking at the site.

The Agency used 5-year historical catch rates per hour of fishing as a measure of baseline fishing quality in the regional studies. Catch rate is a policy variable of concern because catch rate is a function of fish abundance, which is affected by fish mortality caused by impingement and entrainment.

The Agency used the estimated model coefficients in conjunction with the estimated changes in impingement and entrainment in a given region to estimate per-day welfare gain to recreational anglers due to the proposed regulatory options for Phase III facilities. For the North Atlantic region, EPA used model coefficients estimated by Hicks *et al.* (1999) (DCN 5–1271).

To estimate the total economic value to recreational anglers for changes in catch rates resulting from changes in impingement and entrainment in a given region, EPA multiplied the total number of fishing days for a given region by the estimated per-day welfare gain due to the regulation. EPA estimated that the proposed regulatory options for Phase III facilities would cause only negligible changes in recreational fishing participation due to the improved quality of the fishing sites. Therefore, the welfare estimates for the four coastal regions and the Great Lakes are based on estimates of baseline recreational fishing participation provided by NOAA Fisheries and the Fish and Wildlife Service's *Annual Survey of Fishing, Hunting, and Wildlife-Related Recreation* (U.S. Department of the Interior, 2001, DCN 6–3231).

Results of the RUM models are presented in Chapter B4 through F4 of the *Regional Analysis Document.* In general, the RUM-based results fall within the range of values estimated based on the meta-model.[55] That the values from the two independent analyses are relatively close corroborates the use of meta-analysis in

[53] No RUM model was generated in the Phase II analysis for the Inland region because of a lack of data for that region so we could not verify the meta-analysis results for the Inland region.

[54] The RUM models for the North Atlantic, Mid-Atlantic, Gulf of Mexico, and California have not changed from the Phase II analysis. The Great Lakes RUM model was slightly refined for the Phase III analysis. The main differences between the Phase III and Phase II models include: (1) The ability to estimate separate values for yellow perch and bass and (2) the inclusion of site amenity effects in the site choice model (Besedin *et al.*, 2004: DCN 7–5000).

[55] The RUM models produced lower estimated recreational benefits in the Gulf of Mexico, Mid-Atlantic, and California regions, and higher estimates in the Great Lakes and North Atlantic regions. But no RUM estimates were outside of the lower and upper bound meta analysis values computed using the Krinksy and Robb approach.

estimating the value of incremental recreational fishing improvments resulting from the proposed section 316(b) regulation for Phase III facilities.

c. Application of the Meta-Analysis Results to the Analysis of Recreational Benefits of the Proposed 316(b) Rule

This section briefly discusses the use of the meta-analysis results to estimate the recreational benefits of the regulatory options evaluated for the proposed rule. Additional detail on this analysis, including EPA's treatment of uncertainty in per fish values, can be found in the *Regional Analysis Document* in Chapter A5. EPA began by calculating per fish values from the meta-analysis regression coefficients, based on regional and species specific values of the input variables. Because estimates from regression meta-models are subject to uncertainty, EPA used the Krinksy and Robb approach to estimate lower and upper bound marginal values for each species (DCN 6–3160). EPA also conducted a sensitivity analysis to determine how per fish values could change based on different selections for the independent variables. The per fish values and bounds used in this analysis of the recreational benefits of the regulatory options are based on EPA's best estimates of values for independent variables. The resulting per fish values are presented in Exhibit IX–6.

EXHIBIT IX–6.—ESTIMATED MARGINAL VALUE PER FISH TO RECREATIONAL ANGLERS

Region	Marginal value per fish caught, by region: saltwater fish [a] (June 2003 $)					
	Small game	Flatfish	Other saltwater [b]			
California	$12.57	$15.61	$4.52			
North Atlantic	7.64	8.06	4.20			
Mid-Atlantic	6.87	6.91	3.73			
Gulf of Mexico	5.32	.....	2.88			
Region	**Marginal value per fish caught, by region: freshwater fish [a] (June 2003 $)**					
	Small game [c]	Walleye/ Pike	Bass	Panfish	Salmon	Trout [d]
Great Lakes		$4.58	$5.90	$1.06	$11.19	$7.99
Inland	$7.38	5.15	6.96	0.97	.....	2.79

[a] Marginal values per fish are presented only for species in regions in which they are affected by one of the regulatory options evaluated for the proposed rule.
[b] Other saltwater species include bottom fish and other miscellaneous species.
[c] Anadromous species such as striped bass and American shad can be found in freshwater coastal rivers as well as in saltwater.
[d] The trout category includes all trout species except rainbow trout and lake trout.

To estimate the benefits of the alternative regulatory options, EPA multiplied the per fish values from Exhibit IX–6 by the number of additional fish that would be caught by anglers under each regulatory option due to reductions in impingement and entrainment, compared to current levels of recreational catch. Exhibits IX–7, IX–8, and IX–9 present the results of these calculations for the ''50 MGD for All Waterbodies,'' ''200 MGD for All Waterbodies,'' and ''100 MGD for Certain Waterbodies'' options. The proportion of impingement and entrainment losses of fishery species that were valued as lost recreational catch was determined from stock-specific fishing mortality rates, which indicate the fraction of a stock that is harvested by recreational anglers. Because fishing mortality rates are typically less than 20 percent, a proportion of the losses of fishery species were not valued in the recreational benefits analysis.

Exhibit IX–7 shows the annual increase in total recreational catch and resulting monetized benefits resulting from the ''50 MGD for All Waterbodies'' option. The exhibit shows that compared to the current national level of recreational catch, anglers would catch 620,000 additional fish per year under this option, resulting in total undiscounted benefits of $2.12 million per year. The annualized value of these additional fish is $1.77 million and $1.39 million, evaluated at 3 percent and 7 percent discount rates, respectively. Increased recreational catch is largest in the Gulf of Mexico region, where the rule would increase annual recreational catch by 183,000 fish, resulting in an undiscounted recreational welfare gain of $0.67 million.

Exhibit IX–7 also presents lower and upper confidence bounds for the benefits of the ''50 MGD for All Waterbodies'' option. These bounds are based on using the Krinsky and Robb technique to estimate the 95th and 5th confidence limits on the marginal value per fish predicted by the meta-analysis. Undiscounted national benefits of this option range from $1.02 million to $4.47 million per year, and benefits in the Gulf of Mexico region range from $0.30 million to $1.50 million per year, based on 90 percent confidence limits on the marginal value per fish predicted by the meta-analysis.

EXHIBIT IX–7.—RECREATIONAL BENEFITS UNDER THE ''50 MGD FOR ALL WATERBODIES'' OPTION

Region	Increase in annual recreational catch compared to current recreational catch (thousands of fish)	Annualized benefits (thousands, 2003 $) [a]		
		Low	Mean	High
California	5	$12	$28	$66

EXHIBIT IX–7.—RECREATIONAL BENEFITS UNDER THE ''50 MGD FOR ALL WATERBODIES'' OPTION—Continued

Region	Increase in annual recreational catch compared to current recreational catch (thousands of fish)	Annualized benefits (thousands, 2003 $) [a]		
		Low	Mean	High
North Atlantic	13	36	77	169
Mid-Atlantic	159	290	612	1,301
Gulf of Mexico	183	298	667	1,499
Great Lakes	92	192	385	756
Inland	167	189	358	675
National total (undiscounted) [b]	620	1,016	2,127	4,466
National total (evaluated at 3%) [c]	620	843	1,765	3,704
National total (evaluated at 7%) [c]	620	665	1,391	2,919

[a] Lower and upper bounds are calculated using the Krinsky and Robb technique to estimate the 95th and 5th percentile limits on the marginal value per fish predicted by the meta-analysis.
[b] Undiscounted benefits are calculated from the annual increase in recreational catch, evaluated at a steady State condition. All regional results presented in this table are undiscounted. Undiscounted benefits are not directly comparable to cost.
[c] Annualized benefits represent the value of all recreational benefits generated over the time frame of the analysis, discounted to 2007, and then annualized over a thirty year period. For a more detailed discussion of the discounting methodology, refer to section IX.D.2 of this preamble.

Exhibit IX–8 shows the annual increase in recreational catch and resulting monetized benefits resulting from the ''200 MGD for All Waterbodies'' option. The exhibit shows that compared to the current national level of recreational catch, anglers would catch 419,000 additional fish per year under this option, resulting in total undiscounted benefits of $1.43 million per year. The annualized value of these additional fish is $1.18 million and $0.92 million, evaluated at 3 percent and 7 percent, respectively. Increased recreational catch is largest in the Mid-Atlantic region, where this option would increase annual recreational catch by 141,000 fish, resulting in an undiscounted welfare gain of $0.55 million.

The exhibit also presents lower and upper confidence bounds for the benefits of the ''200 MGD for All Waterbodies'' option. Undiscounted national benefits of this option range from $0.69 million to $2.99 million per year, and benefits in the Mid-Atlantic region range from $0.26 million to $1.16 million per year, based on 90 percent confidence limits on the marginal value per fish predicted by the meta-analysis.

EXHIBIT IX–8.—RECREATIONAL BENEFITS UNDER THE ''200 MGD FOR ALL WATERBODIES'' OPTION

Region	Increase in annual recreational catch compared to current recreational catch (thousands of fish)	Annualized benefits (thousands, 2003 $) [a]		
		Low	Mean	High
California	0	$0	$0	$0
North Atlantic	3	8	16	36
Mid-Atlantic	141	258	545	1,158
Gulf of Mexico	100	163	364	819
Great Lakes	64	132	266	523
Inland	111	128	242	456
National total (undiscounted) [b]	419	689	1,434	2,991
National total (evaluated at 3%) [c]	419	567	1,181	2,463
National total (evaluated at 7%) [c]	419	443	922	1,922

[a] Lower and upper bounds are calculated using the Krinsky and Robb technique to estimate the 95th and 5th percentile limits on the marginal value per fish predicted by the meta-analysis.
[b] Undiscounted benefits are calculated from the annual increase in recreational catch, evaluated at a steady State condition. All regional results presented in this table are undiscounted. Undiscounted benefits are not directly comparable to cost.
[c] Annualized benefits represent the value of all recreational benefits generated over the time frame of the analysis, discounted to 2007, and then annualized over a thirty year period. For a more detailed discussion of the discounting methodology, refer to section IX.D.2 of this preamble.

Exhibit IX–9 shows the annual increase in recreational catch and resulting monetized benefits resulting from the ''100 MGD for Certain Waterbodies'' option. The exhibit shows that compared to the current national level of recreational catch, anglers would catch 407,000 additional fish per year under this option, resulting in total undiscounted benefits of $1.57 million per year. The annualized value of these additional fish is $1.29 million and $1.01 million, evaluated at 3 percent and 7 percent, respectively. Increased recreational catch is largest in the Gulf of Mexico, where this option would increase annual recreational catch by 183,000 fish, resulting in an

undiscounted welfare gain of $0.67 million.

The exhibit also presents lower and upper confidence bounds for the benefits of the ''100 MGD for Certain Waterbodies'' option. Undiscounted national benefits of this option range from $0.73 million to $3.38 million per year, and benefits in the Gulf of Mexico region range from $0.30 million to $1.50 million per year, based on 90 percent confidence limits on the marginal value per fish predicted by the meta-analysis.

EXHIBIT IX–9.—RECREATIONAL BENEFITS UNDER THE ''100 MGD FOR CERTAIN WATERBODIES'' OPTION

Region	Increase in annual recreational catch compared to current recreational catch (thousands of fish)	Annualized benefits (thousands, 2003 $) [a]		
		Low	Mean	High
California	0	$0	$0	$0
North Atlantic	11	29	63	137
Mid-Atlantic	141	258	545	1,158
Gulf of Mexico	183	298	667	1,499
Great Lakes	72	148	299	586
Inland	0	0	0	0
National total (undiscounted) [b]	407	733	1,573	3,380
National total (evaluated at 3%) [c]	407	602	1,292	2,779
National total (evaluated at 7%) [c]	407	468	1,006	2,164

[a] Lower and upper bounds are calculated using the Krinsky and Robb technique to estimate the 95th and 5th percentile limits on the marginal value per fish predicted by the meta-analysis.

[b] Undiscounted benefits are calculated from the annual increase in recreational catch, evaluated at a steady State condition. All regional results presented in this table are undiscounted. Undiscounted benefits are not directly comparable to cost.

[c] Annualized benefits represent the value of all recreational benefits generated over the time frame of the analysis, discounted to 2007, and then annualized over a thirty year period. For a more detailed discussion of the discounting methodology, refer to section IX.D.2 of this preamble.

d. Limits and Uncertainties

Benefit transfers by definition are characterized by a difference between the context in which resource values are estimated and that in which benefit estimates are desired. The ability of meta-analysis to adjust for the influence of study, economic, and resource characteristics on recreational values can minimize, but not eliminate, potential biases. The meta-analysis model presented here provides a close but not perfect match to the context in which values are desired. Some of the key limitations inherent to the meta-model and the subsequent benefit transfer are the following:

A. The per fish values estimated from the model depend on the values of the input variables in the meta-analysis. EPA assigned values to the input variables based on established economic theory and characteristics of the affected species and regions. However, because the input values for some variables are uncertain, the resulting per fish values and benefits estimates are also uncertain.

B. As mentioned above, the economic and resource characteristics of the 48 studies used in the meta-analysis are not perfectly matched to the economic and resource characteristics of sites affected by the regulatory options evaluated for the proposed rule. In particular, although most of the Inland studies take place in the Great Lakes region, the regulatory options affect sites all across the Inland region. However, EPA believes that regional differences in per fish values for specific Inland species are relatively small.

C. By aggregating species into categories, EPA was able to improve the fit of the meta-analysis model. However, this aggregation results in a lower level of detail in the values that can be predicted. In particular, the panfish category and other saltwater category include relatively diverse species.

D. Projected changes in recreational catch may be overestimated because potential compensatory effects in affected species' reproduction or survival rates were not taken into account.

E. In estimating recreational fishery losses, EPA used impingement and entrainment data provided by the facilities. While EPA used the most current data available, in some cases these data are 20 years old or older. Thus, they may not reflect current conditions. Also, data from Phase II facilities may not be representative of Phase III facilities.

F. Impingement and entrainment estimates include only individuals directly lost to impingement and entrainment, not their progeny, and may therefore be underestimates.

G. In estimating the benefits of improved recreational angling, the Agency only assigned a monetary benefit to the increases in consumer surplus for the baseline number of fishing days. Thus, benefits will be understated if participation increases in response to increased availability of fishery species as a result of reduced impingement and entrainment. This approach omits the portion of recreational fishing benefits that arise when improved conditions lead to higher levels of participation. Empirical evidence suggests that the omission of increased angling days can lead to an underestimate of total recreational fishing benefits. However, the magnitude of this error is likely to be small.

4. Commercial Fishing Valuation

Reductions in impingement and entrainment at cooling water intake structures are expected to benefit the commercial fishing industry. The effect is straightforward: Reducing the number of fish killed will probably increase the number of fish available for harvest. Measuring the benefits of this effect is less straightforward. This section presents the methods EPA used to estimate commercial benefits, as well as the resulting benefits estimates.

a. Methods

EPA estimated commercial benefits by first estimating the value of total losses under current impingement and entrainment conditions (or the total

benefits of eliminating all impingement and entrainment). Then, based on review of the empirical literature, EPA assumed that producer surplus is equal to 40 percent of baseline losses. Finally, EPA estimated benefits under different options for the proposed section 316(b) rule for Phase III facilities by applying the estimated percentage reduction in impingement and entrainment to the estimated producer surplus to obtain the estimated increase in producer surplus attributable to the option. This methodology was applied in each region except the Inland region (which does not include any significant commercial fishing). See Chapter A4 of the *Regional Analysis Document* for details about EPA's methodology.

To determine regional losses and benefits, EPA conducted several analyses. EPA estimated losses to commercial harvest (in pounds of fish) attributable to impingement and entrainment under current conditions by modeling these fish losses by applying a linear stock-to-harvest assumption (*i.e.*, a 10 percent change in the stock would result in a 10 percent change in harvest). The percentage of fish harvested is based on data on historical fishing mortality rates. EPA estimated gross revenue of lost commercial catch (*i.e.*, the increase in gross revenue that would be expected if all current impingement and entrainment were eliminated) by using landings and dockside prices ($/lb) as reported by the NOAA Fisheries for the period 1991–2001. The conceptually suitable measure of benefits is the sum of any changes in producer and consumer surplus. The methods used for estimating the change in surplus depend on whether the physical impact on the commercial fishery market appears sufficiently small such that it is reasonable to assume there will be no appreciable price changes in the markets for the impacted fisheries.

For the regions and magnitude of losses included in this analysis, it is reasonable to assume no change in price, which implies that the welfare change is limited to changes in producer surplus. This change in producer surplus is assumed to be equivalent to a portion of the change in gross revenues. EPA assumes a range of 0 percent to 40 percent of the estimated gross revenue losses as a means of estimating the change in producer surplus. This is based on a review of empirical literature and is consistent with recommendations made in comments on the Phase II proposal.

EPA believes this is a reasonable approach to estimating producer surplus when there are no anticipated price changes. EPA's (2000) Guidelines for Preparing Economic Analyses (EPA 240–R–00–003) describes options for estimating ecological benefits for fisheries, and notes that ''if changes in service flows are small, current market prices can be used as a proxy for expected benefit * * * a change in the commercial fish catch might be valued using the market price for the affected species.'' In EPA's review of the commercial fishing literature two alterative methods for computing producer surplus as a percentage of gross revenues also came to the fore. The more common approach to calculating benefits relies on estimating normal profit as a percentage of gross revenue. In the surveyed studies this percentage of gross review ranges from -5 percent to 91.2 percent. The second approach to estimating commercial benefits, which may produce the more appropriate measure of welfare, computes the producer surplus as a percentage of gross revenue. The studies that use this method return percentages that range from 0 to 37, due to reduced profit estimates that include a return to the owners as part of costs. In light of these findings EPA has chosen to use 0 percent to 40 percent as the estimated range of percent of gross revenue that best captures the additional benefit that will accrue to commercial fishers.

Once the commercial surplus losses associated with impingement and entrainment under baseline conditions have been estimated, EPA estimates the percentage reduction in impingement and entrainment at each facility under each regulatory option. This analysis is conducted for each region.

b. Results

Exhibit IX–10 presents the estimated annualized commercial fishing benefits attributable to three co-proposed options: The ''50 MGD for All Waterbodies'' option (50 MGD All); the ''200 MGD for All Waterbodies'' option (200 MGD All); and the ''100 MGD for Certain Waterbodies'' option (100 MGD oceans, estuaries, tidal rivers, or one of the Great Lakes). The results reported include the total reduction in losses in pounds of fish and the value of this reduction discounted at 0 percent, 3 percent, and 7 percent. Total annualized commercial fishing benefits, applying a 3 percent discount rate, are estimated to be $0 to $132,000 per year for the 50 MGD option, $0 to $79,000 per year for the 200 MGD option, and $0 to $118,000 per year for the 100 MGD for certain waterbodies option. When a 7 percent discount rate is applied, the total annualized commercial fishing benefits for the 50 MGD option are estimated to be $0 to $104,000, under the 200 MGD option benefits equal $0 to $79,000, and for the 100 MGD for certain waterbodies option the discounted benefits are $0 to $93,000.

EXHIBIT IX–10.—ANNUALIZED COMMERCIAL FISHING BENEFITS FOR IMPINGED AND ENTRAINED FISH EXPECTED UNDER THE CO-PROPOSED OPTIONS [a]

Region [b]	Reduction in lost yield (thousands of lbs)			Benefits (thousands; $ 2003) [c d]		
	50 MGD all	200 MGD all	100 MGD certain waterbodies	50 MGD all	200 MGD all	100 MGD certain waterbodies
California	16	0	0	$6	$0	$0
North Atlantic	8	2	6	4	1	3
Mid-Atlantic	459	408	408	31	27	27
Gulf of Mexico	313	171	313	93	51	93
Great Lakes	86	59	66	25	17	19
National total, [e] (undiscounted)	882	640	794	159	96	143
National total, (evaluated at 3%)	882	640	794	132	79	118
National total, (evaluated at 7%)	882	640	794	104	62	93

[a] Benefits are upper bound benefits based on 40% of gross revenue. The lower bound is $0.
[b] No significant commercial fishing takes place in the Inland region, and thus this region is excluded from this analysis.
[c] Discounted to account for lag in implementation and lag in time required for fish lost to I&E to reach a harvestable age.

[d] Annualized benefits represent the value of all commercial benefits generated over the time frame of the analysis, discounted to 2007, and then annualized over a thirty year period. For a more detailed discussion of the discounting methodology, refer to Section IX.D.2 of this preamble.
[e] Undiscounted benefits are not comparable to costs.

c. Limitations and Uncertainties

Some of the major uncertainties and assumptions of EPA's commercial fishing analysis include:

A. The analysis only includes individuals that are directly killed by impingement and entrainment, not their progeny and may therefore underestimate projected changes in harvest.

B. Projected changes in commercial catch may be overestimated because potential compensatory effects in affected species' reproduction or survival rates were not taken into account.

C. Projected changes in harvest may be too high or too low because interactions with other stressors are not considered.

D. EPA used impingement and entrainment data provided by the facilities. While EPA used the most current data available, in some cases these data are 20 years old or older. Thus, they may not reflect current conditions. Also data from Phase II facilities may not be representative of Phase III facilities.

E. EPA assumes a linear stock to harvest relationship (*i.e.*, a 10 percent change in stock would have a 10 percent change in landings); this may be low or high, depending on the condition of the stocks. Region-specific fisheries regulations also will affect the validity of the linear assumption.

F. EPA assumes that NOAA Fisheries landings data are accurate and complete. However, in some cases prices and/or quantities may be reported incorrectly.

G. EPA currently estimates that the increase in producer surplus as a result of the rule will be between 0 percent and 40 percent of the estimated change in gross revenues. The research used to develop this range is not region-specific; thus the true value may fall outside this range for some regions and species.

5. Non-Use Benefits

To assess public policy significance or importance of the ecological gains from the proposed regulation for Phase III facilities, EPA developed the relevant information and considered non-use benefits of the proposed options qualitatively. This assessment is discussed below.

a. Qualitative Assessment

EPA is able to assign direct use value to only a very small fraction of the fish lost to impingement and entrainment. As shown in Exhibit IX–11, fish with a direct use value, which include only those fish that are harvested, account for only 3.3 percent of the total age-1 equivalent impingement and entrainment loss. Unharvested fish (*i.e.*, forage fish and the unlanded portion of the stock of harvested species), which have no direct use value, represent 96.7 percent of the total loss. A portion of the total benefits of these unharvested commercial, recreational, and forage species, can be derived indirectly from the estimated use values of the harvested animals. As noted in section IX.D.1, society may value both landed and unlanded fish for reasons unrelated to their use value. Such non-use values include the value that people may hold simply for knowing these fish exist. EPA believes it is important to consider such values, at least qualitatively, particularly since such a large percentage of impinged and entrained organisms have no direct use value.

EXHIBIT IX–11.—NUMBER AND PERCENTAGE OF BASELINE IMPINGEMENT AND ENTRAINMENT LOSSES BY SPECIES CATEGORY

Region	Age-1 adult equivalents (millions)				
	All species	Forage species	Commercial and recreational species	Harvested commercial and recreational species	I&E of harvested species as percentage of total I&E
California	1.31	0.666	0.642	0.0594	4.54
North Atlantic	2.34	1.77	0.572	0.0542	2.32
Mid-Atlantic	23.2	14.8	8.47	1.46	6.29
South Atlantic	1.52	0.78	0.74	.011	7.41
Gulf of Mexico	12.7	3.71	9.01	1.2	9.43
Great Lakes	34.4	32.8	1.54	0.543	1.58
Inland	44.2	35.6	8.6	0.511	1.15
National total[a]	120	90.2	29.6	3.94	3.29

[a] The national total includes baseline impingement and entrainment losses at four sample-weighted potentially regulated facilities in the South Atlantic region.

Changes in cooling water intake system design or operations resulting from the proposed section 316(b) regulations for Phase III facilities are expected to reduce impingement and entrainment losses of fish, shellfish, and other aquatic organisms and, as a result, are expected to increase the numbers of individuals present and benefit local and regional fishery populations. Depending on the nature and magnitude of the reduced losses and of conditions at a given site, this may ultimately contribute to the enhanced environmental functioning of affected waterbodies (rivers, lakes, estuaries, and oceans) and associated ecosystems. EPA does not have the data to determine whether reducing impingement and entrainment losses at Phase III facilities will have significant ecological benefits. However, the discussion that follows describes benefits that may result from reducing impingement and entrainment losses generally.

EPA believes that reducing fish mortality from impingement and

entrainment would contribute to the health and sustainability of the affected fish populations by reducing the overall level of mortality for those populations. Fish populations suffer from numerous sources of mortality; some are natural and others are anthropogenic. Natural sources include weather, predation by other fish, and the availability of food. Human impacts that affect fish populations include fishing, pollution, habitat changes, and impingement and entrainment losses at cooling water intake structures. Fish populations decline when they are unable to sufficiently compensate for their overall level of mortality. Lowering the overall mortality level increases the probability that a population will be able to compensate for mortality at a level sufficient to maintain the long-term health of the population.

In addition to their importance in providing food and other goods of direct use to humans, the organisms lost to impingement and entrainment may be critical to the continued functioning of the ecosystems of which they are a part depending on the magnitude of the actual impingement and mortality losses attributable to Phase III facilities. The discussion that follows describes the kinds of impacts that EPA believes may be due to impingement mortality and entrainment losses generally, not necessarily those at Phase III facilities. Fish are essential for energy transfer in aquatic food webs, regulation of food web structure, nutrient cycling, maintenance of sediment processes, redistribution of bottom substrates, the regulation of carbon fluxes from water to the atmosphere, and the maintenance of aquatic biodiversity (Peterson and Lubchenco, 1997; Postel and Carpenter, 1997; Holmlund and Hammer, 1999; Wilson and Carpenter, 1999). Examples of impacts on ecological conditions, functions and services that may result from impingement and entrainment include: (1) Decreased numbers of ecological keystone, rare, sensitive, or threatened and endangered species; (2) decreased numbers of popular commercial and recreational fish species that are not fished, perhaps because the fishery is closed; (3) increased numbers of exotic or disruptive species that compete well in the absence of species lost to impingement and entrainment (impingement and entrainment may also help remove some exotic or disruptive organisms); (4) disruption of ecological niches and ecological strategies used by aquatic species; (5) disruption of energy transfer through the food web; (6) decreased local biodiversity; (7) disruption of predator-prey relationships; (8) disruption of age class structures of species; (9) disruption of natural succession processes. Many of these functions and services can only be maintained by the continued presence of all life stages of fish and other aquatic species in their natural habitats. While some ecological services of aquatic species have been studied, other ecosystems services, relationships, and interrelationships are unknown or poorly understood. To the extent that the latter are not captured in the benefits analyses, total benefits may be underestimated.

Scientific and public interest in protecting ecosystem services is increasing with the recognition that these services are vulnerable to a wide range of human activities and are difficult, if not impossible, to replace with human technologies (Meffe, 1992; DCN 7–5250). Reducing impingement and entrainment losses could contribute to restoring (or preserving) the biological integrity of the ecosystems of substantial national importance.

In the 1987 amendments to the CWA, Congress established the National Estuary Program because the ''Nation's estuaries are of great importance to fish and wildlife resources and recreation and economic opportunity * * * [, and] maintaining the health and ecological integrity of these estuaries is in the national interest (Water Quality Act of 1987 (Pub. L. 100–4), § 317(a)(1)(A) and (B) adding § 320 to the CWA, 33 US.C. 1330). So far, there are 28 estuaries designated under the National Estuary Program (NEP). In addition, the largest estuary in the United States, Chesapeake Bay, is protected under its own Federally mandated program, separate but related to NEP. Of the 15 estuaries from which the potentially regulated Phase III facilities withdraw cooling water, 12 are nationally significant estuaries designated under NEP or the Chesapeake Bay Program.

Substantial Federal and State resources have been directed to NEP to enhance conservation and knowledge about the estuaries designated under this program. Since 1998, more than $95 million dollars has been devoted to NEP to benefit the health of the nationally significant estuaries (NEP, 2004, DCN 7–5125).

Reducing impingement and entrainment at potentially regulated Phase III facilities may also benefit freshwater ecosystems of national significance, including the Great Lakes Basin, Mississippi River, and Columbia River. These waterbodies are subject to large-scale ecosystem restoration efforts that are good indicators of great public interest in restoring the ecological health of these ecosystems (U.S. Fish and Wildlife Service, 2004, DCN 7–5126; U.S. Department of the Interior, 2004, DCN 7–5127; Northeast Midwest Institute, 2004, DCN 7–5128; The Upper Mississippi River Basin Association, 2004, DCN 7–5129). The ecosystem restoration efforts focus on many issues, including coastal habitat restoration, protection of fish species, conservation of migratory birds and endangered species. For example, between 1992 and 2001, more than $17 million was devoted to projects to restore and conserve the Great Lakes ecosystem, and $102 million was spent on improving the Mississippi River ecosystem (U.S. EPA, 2004, DCN 7–5130; and Brescia, 2002, DCN 7–5131). Reducing impingement and entrainment of aquatic organisms may improve the quality of aquatic habitat and contribute to improvement of the biological integrity and health of these ecosystems.

Finally, reducing impingement and entrainment in waterbodies that do not have national significance may contribute to restoration or protection of ecosystems of regional or local importance.

Today's proposed rule may also help preserve threatened and endangered species by reducing the number of individuals lost to impingement and entrainment. Threatened and endangered (T&E) and other special status species directly affected by impingement and entrainment include, pallid sturgeon, delta smelt, Sacramento splittail, and longfin smelt. Threatened and endangered species can also suffer indirect impacts if impingement and entrainment at cooling water intake structures disrupts their food source or their critical habitat. The loss of individuals of listed species from impingement and entrainment is particularly important because, by definition, these species are already rare and at risk of irreversible decline because of other stressors. EPA explored several methods for valuing reductions in threatened and endangered species losses. However, EPA has not included quantitative measures of non-use values associated with protection of threatened and endangered species in the proposed section 316(b) rule for Phase III facilities benefit analysis due to current uncertainty about the extent of Phase III facilities' impact on threatened and endangered species at the national level and EPA's inability to monetize such benefits given the available economic valuation literature. Details about possible non-use benefits valuation approaches are presented in Chapter A9

of the 316(b) Regional Analysis Document (DCN 7–0003).

6. National Benefits

Quantifying and monetizing reduction in impingement and entrainment losses due to today's proposed rule is challenging, and the preceding sections discuss specific limitations and uncertainties associated with estimation of commercial, recreational, and non-use benefit categories. National benefit estimates are subject to uncertainties inherent in valuation approaches used for assessing the three benefits categories. The combined effect of these uncertainties is of unknown magnitude or direction (*i.e.*, the estimates may over or under state the anticipated national-level benefits); however, EPA has no data to indicate that the results for each benefit category are atypical or unreasonable. Since the Agency was unable to monetize non-use benefits, the estimates of total benefits reflect use values only.

Exhibit IX–13 presents EPA's estimates of the total monetized benefits from impingement and entrainment reduction under the ''50 MGD for All Waterbodies'' option. The annualized use benefits from impingement and entrainment reduction post regulation are $1.90 million per year (2003$), with lower and upper bounds of $0.98 million and $3.84 million, discounted at three percent. Discounted at seven percent, annualized use benefits are $1.50 million per year, with lower and upper bounds of $0.77 million and $3.02 million.

EXHIBIT IX–13.—SUMMARY OF MONETIZED SOCIAL BENEFITS ''50 MGD FOR ALL WATERBODIES'' OPTION

[Thousands; 2003 $] [a]

Region	Annualized commercial fishing benefits	Annualized recreational fishing benefits			Total annualized value of monetizable impingement and entrainment reductions [b]		
		Low	Mean	High	Low	Mean	High
Evaluated at a 3 percent discount rate							
California	$0–$5	$10	$24	$57	$16	$29	$62
North Atlantic	0–3	29	63	138	32	66	141
Mid-Atlantic	0–25	235	497	1,057	260	522	1,082
Gulf of Mexico	0–78	249	558	1,254	327	636	1,332
Great Lakes	0–20	157	316	621	178	337	641
Inland [c]	0	162	306	577	162	306	577
National total	0–132	843	1,765	3,704	975	1,897	3,836
Evaluated at a 7 percent discount rate							
California	0–4	9	20	47	13	24	51
North Atlantic	0–2	22	49	107	25	51	109
Mid-Atlantic	0–19	181	382	811	200	401	830
Gulf of Mexico	0–62	198	444	998	260	506	1,061
Great Lakes	0–16	122	246	483	138	262	499
Inland [c]	0	133	251	473	133	251	473
National total	0–104	665	1,391	2,919	769	1,495	3,023

[a] All benefits presented in this exhibit are annualized. These annualized benefits represent the value of all benefits generated over the time frame of the analysis, discounted to 2007, and then annualized over a thirty year period. For a more detailed discussion of the discounting methodology, refer to section IX.D.2 of this preamble.

[b] The total monetizable value of impingement and entrainment reductions includes use benefits only. EPA evaluated non-use benefits only qualitatively. A range of recreational fishing benefits is provided, based on the Krinsky and Robb technique to estimate the 95th and 5th percentile limits on the marginal value per fish predicted by the meta-analysis. Commercial fishing benefits are computed based on a range from 0 percent to 40 percent of the change in gross revenue, as explained in the text. To calculate the total monetizable value columns (low, mean, and high), the high end value for commercial fishing benefits is added to the low, medium and high values for recreational fishing benefits respectively.

[c] There are no commercial fishing benefits in the Inland region.

Exhibit IX–14 presents EPA's estimates of the total monetized benefits from impingement and entrainment reduction under the ''200 MGD for All Waterholes'' option. The annualized use benefits from impingement and entrainment reduction post regulation are $1.26 million per year (2003$), with lower and upper bounds of $0.65 million and $2.54 million, discounted at three percent. Discounted at seven percent, annualized use benefits are $0.98 million per year, with lower and upper bounds of $0.51 million and $1.98 million.

EXHIBIT IX–14.—SUMMARY OF MONETIZED SOCIAL BENEFITS ''200 MGD FOR ALL WATERBODIES'' OPTION

[Thousands; 2003 $] [a]

Region	Annualized commercial fishing benefits	Annualized recreational fishing benefits			Total annualized value of monetizable impingement and entrainment reductions [b]		
		Low	Mean	High	Low	Mean	High
Evaluated at a 3 percent discount rate							
California	$0	$0	$0	$0	$0	$0	$0
North Atlantic	0–1	6	13	28	7	14	29
Mid-Atlantic	0–22	208	440	934	230	462	956
Gulf of Mexico	0–43	136	305	685	179	347	728
Great Lakes	0–14	108	216	425	122	230	439
Inland [c]	0	110	207	390	110	207	390
National total	0–79	567	1,181	2,463	647	1,260	2,542
Evaluated at a 7 percent discount rate							
California	0	0	0	0	0	0	0
North Atlantic	0	4	10	21	5	10	21
Mid-Atlantic	0–17	158	334	709	175	350	726
Gulf of Mexico	0–34	108	243	545	142	277	579
Great Lakes	0–11	83	166	326	93	177	337
Inland [c]	0	90	170	321	90	170	321
National total	62	443	922	1,922	505	984	1,984

[a] All benefits presented in this exhibit are annualized. These annualized benefits represent the value of all benefits generated over the time frame of the analysis, discounted to 2007, and then annualized over a thirty year period. For a more detailed discussion of the discounting methodology, refer to section IX.D.2 of this preamble.
[b] The estimate of the total monetizable value of impingement and entrainment reductions includes use benefits only.
[c] There are no commercial fishing benefits in the Inland region.

Exhibit IX–15 presents EPA's estimates of the total monetized benefits from impingement and entrainment reduction under the ''100 MGD for Certain Waterbodies'' option. The annualized use benefits from impingement and entrainment reduction post regulation are $1.41 million per year (2003$), with lower and upper bounds of $0.72 million and $2.90 million, discounted at three percent. Discounted at seven percent, annualized use benefits are $1.10 million per year, with lower and upper bounds of $0.56 million and $2.26 million.

EXHIBIT IX–15.—SUMMARY OF MONETIZED SOCIAL BENEFITS ''100 MGD FOR CERTAIN WATERBODIES'' OPTION

[Thousands; 2003 $] [a]

Region	Annualized commercial fishing benefits	Annualized recreational fishing benefits			Total annualized value of monetizable impingement and entrainment reductions [b]		
		Low	Mean	High	Low	Mean	High
Evaluated at a 3 percent discount rate							
California	$0	$0	$0	$0	$0	$0	$0
North Atlantic	0–2	24	52	113	26	54	115
Mid-Atlantic	0–22	208	440	934	230	462	956
Gulf of Mexico	0–78	249	558	1,254	327	636	1,332
Great Lakes	0–16	121	243	478	137	259	494
Inland [c]	0	0	0	0	0	0	0
National total	0–118	602	1,292	2,779	720	1,411	2,897
Evaluated at a 7 percent discount rate							
California	0	0	0	0	0	0	0
North Atlantic	0–2	19	40	88	20	42	90
Mid-Atlantic	0–17	158	334	709	175	350	726
Gulf of Mexico	0–62	198	444	998	260	506	1,061
Great Lakes	0–12	93	188	368	105	200	381
Inland [c]	0	0	0	0	0	0	0

EXHIBIT IX–15.—SUMMARY OF MONETIZED SOCIAL BENEFITS ''100 MGD FOR CERTAIN WATERBODIES'' OPTION—Continued

[Thousands; 2003 $] [a]

Region	Annualized commercial fishing benefits	Annualized recreational fishing benefits			Total annualized value of monetizable impingement and entrainment reductions [b]		
		Low	Mean	High	Low	Mean	High
National total	0–93	468	1,006	2,164	561	1,099	2,257

[a] All benefits presented in this exhibit are annualized. These annualized benefits represent the value of all benefits generated over the time frame of the analysis, discounted to 2007, and then annualized over a thirty year period. For a more detailed discussion of the discounting methodology, refer to section IX.D.2 of this preamble.
[b] The estimate of the total monetizable value of impingement and entrainment reductions includes use benefits only.
[c] There are no commercial fishing benefits in the Inland region.

EPA considered a wide range of policy options in developing the proposed section 316(b) regulation for the Phase III facilities. The Regional Analysis Document provides EPA's complete benefit assessment for the alternative policy options considered in this rulemaking.

X. Comparison of Benefits and Costs

This section presents two measures that compare the benefits and costs of the regulatory options: (1) A benefit-cost analysis, and (2) a break-even analysis of the minimum non-use benefits required for total annualized benefits to equal total annualized costs, on a per household basis. Each measure is presented by study region.

A. Benefit-Cost Analysis

The benefit-cost analysis for each of the co-proposed regulatory options compares total annualized use benefits to total annualized pre-tax costs (social costs) at existing facilities that remain open in the baseline.[56] Benefits and costs were discounted using both a 3 percent and 7 percent discount rate. The cost estimates include costs of compliance to facilities subject to the proposed rule as well as administrative costs incurred by State and local governments and by the Federal government. The benefits estimates include monetized benefits to commercial and recreational fishing. The total monetizable benefits include only use benefits. The non-use benefits were evaluated qualitatively. Thus, the benefit-cost analysis compares a generally complete measure of social costs with an incomplete measure of social benefits and should be interpreted bearing in mind this inconsistency.

1. Benefit-Cost Analysis Results

Exhibit X–1 presents a summary of total annualized use benefits, total annualized costs, and net benefits for the ''50 MGD for All Waterbodies'' option. Under this option, 136 facilities (excluding baseline closures) are subject to the regulation. Of those facilities, it is assumed that 103 are required to install technologies to reduce impingement mortality and entrainment, and 32 will incur permitting costs only. The exhibit shows that the use benefits of the 50 MGD option are not projected to exceed the costs in any of the study regions. In the California region, costs exceed use benefits by $0.8 million or $0.9 million when discounted at 3 percent and 7 percent respectively. In the Inland region, costs are $19.4 million or $20.4 million greater than the use benefits. At the national level, EPA projects the costs of this option to exceed its use benefits by $45.4 million per year, discounted at 3 percent, or by $48.6 million per year, discounted at 7 percent.

EXHIBIT X–1.—SUMMARY OF SOCIAL BENEFITS AND COSTS ''50 MGD FOR ALL WATERBODIES'' OPTION

[Millions; $ 2003]

Study region	Number of facilities subject to option	Number of facilities installing technology	Total annualized use value of I&E reductions [a]			Total annualized costs [b]	Net benefits [c]		
			Low	Mean	High		Low	Mean	High
Evaluated at a 3% discount rate									
California	1	1	$0.02	$0.03	$0.06	$0.8	−$0.8	−$0.8	−$0.8
North Atlantic	5	4	0.03	0.07	0.14	4.6	−4.5	−4.5	−4.5
Mid-Atlantic	3	3	0.26	0.52	1.08	2.6	−2.3	−2.0	−1.5
Gulf of Mexico	7	7	0.33	0.64	1.33	9.1	−8.7	−8.4	−7.7
Great Lakes	23	19	0.18	0.34	0.64	10.1	−9.9	−9.7	−9.4
Inland	97	69	0.16	0.31	0.58	19.7	−19.5	−19.4	−19.1
National total	136	103	0.97	1.90	3.84	47.3	−46.4	−45.4	−43.5
Evaluated at a 7% discount rate									
California	1	1	0.01	0.02	0.05	1.0	−1.0	−0.9	−0.9
North Atlantic	5	4	0.02	0.05	0.11	5.0	−5.0	−5.0	−4.9
Mid-Atlantic	3	3	0.20	0.40	0.83	2.4	−2.2	−2.0	−1.6

[56] This section only includes benefits and costs for existing facilities because EPA was unable to assess benefits of reducing impringement mortality and entrainment at new offshore oil and gas facilities.

EXHIBIT X–1.—SUMMARY OF SOCIAL BENEFITS AND COSTS ''50 MGD FOR ALL WATERBODIES'' OPTION—Continued

[Millions; $ 2003]

Study region	Number of facilities subject to option	Number of facilities installing technology	Total annualized use value of I&E reductions [a]			Total annualized costs [b]	Net benefits [c]		
			Low	Mean	High		Low	Mean	High
Gulf of Mexico	7	7	0.26	0.51	1.06	10.2	−9.9	−9.7	−9.1
Great Lakes	23	19	0.14	0.26	0.50	10.2	−10.1	−9.9	−9.7
Inland	97	69	0.13	0.25	0.47	20.6	−20.5	−20.4	−20.2
National total	136	103	0.77	1.50	3.02	50.1	−49.3	−48.6	−47.1

[a] The total monetizable value of I&E reductions includes use benefits only. EPA evaluated non-use benefits only qualitatively. The ranges (low, medium, and high) for annualized use value is computed by adding the high end value for commercial fishing benefits (based on assumed producer surplus of 40% of gross revenue) to the low, mean, and high values for recreational fishing benefits respectively (see Section IX).

[b] Total costs are based on pre-tax facility costs. National total costs also include State, local, and Federal administrative costs of $0.6 million that cannot be attributed to individual study regions.

[c] Net benefits are computed by subtracting total annualized costs from total annual use values. The net benefits presented here are based on the comparison of a generally complete measure of social costs with an incomplete measure of social benefits, and should be interpreted with caution.

Exhibit X–2 presents a summary of total annualized benefits, total annualized costs, and net benefits for the ''200 MGD for All Waterbodies'' option. Under this option, 25 facilities (excluding baseline closures) are subject to the regulation. Of those facilities, it is assumed that 22 are required to install technologies to reduce impingement mortality and entrainment. The exhibit shows that the use benefits of the 200 MGD option are not projected to exceed the costs in any of the study regions. In the North Atlantic region, costs exceed use benefits by $0.5 million, evaluated at both the 3 percent and 7 percent discount rates. In the Inland region, costs are $12.1 million or $13.5 million greater than the use benefits. At the national level, EPA projects the costs of this option to exceed its use benefits by $21.5 million per year, discounted at 3 percent, or by $23.1 million per year, discounted at 7 percent.

EXHIBIT X–2.—SUMMARY OF SOCIAL BENEFITS AND COSTS ''200 MGD FOR ALL WATERBODIES'' OPTION

[Millions; $2003]

Study region	Number of facilities subject to option	Number of facilities installing technology	Total annualized use value of I&E reductions [a]			Total annualized costs [b]	Net benefits [c]		
			Low	Mean	High		Low	Mean	High
Evaluated at a 3% discount rate									
California	0	0	$0.00	$0.00	$0.00	$0.0	$0.0	$0.0	$0.0
North Atlantic	1	1	0.01	0.01	0.03	0.5	−0.5	−0.5	−0.5
Mid-Atlantic	2	2	0.23	0.46	0.96	2.0	−1.7	−1.5	−1.0
Gulf of Mexico	2	2	0.18	0.35	0.73	3.8	−3.6	−3.5	−3.1
Great Lakes	5	5	0.12	0.23	0.44	4.1	−3.9	−3.8	−3.6
Inland	14	12	0.11	0.21	0.39	12.3	−12.2	−12.1	−11.9
National total	25	22	0.65	1.26	2.54	22.8	−22.1	−21.5	−20.2
Evaluated at a 7% discount rate									
California	0	0	$0.00	$0.00	$0.00	$0.0	$0.0	$0.0	$0.0
North Atlantic	1	1	0.00	0.01	0.02	0.5	−0.5	−0.5	−0.4
Mid-Atlantic	2	2	0.17	0.35	0.73	1.8	−1.6	−1.4	−1.1
Gulf of Mexico	2	2	0.14	0.28	0.58	4.4	−4.2	−4.1	−3.8
Great Lakes	5	5	0.09	0.18	0.34	3.7	−3.6	−3.5	−3.3
Inland	14	12	0.09	0.17	0.32	13.7	−13.6	−13.5	−13.4
National total	25	22	0.51	0.98	1.98	24.1	−23.6	−23.1	−22.1

[a] The total monetizable value of I&E reductions includes use benefits only. EPA did not estimate non-use benefits quantitatively. The low and high use values reflect the range of recreational fishing values presented in Section 9 of the preamble. They were calculated using the Krinsky and Robb technique to estimate the 95th and 5th percentile limits on the marginal value per fish predicted by the meta-analysis.

[b] Total costs are based on pre-tax facility costs. National total costs also include State, local, and Federal administrative costs of $0.1 million that cannot be attributed to individual study regions.

[c] The net benefits presented here are based on the comparison of a generally complete measure of social costs with an incomplete measure of social benefits, and should be interpreted with caution.

Exhibit X–3 presents a summary of total annualized benefits, total annualized costs, and net benefits for the regulatory option with a design intake flow of 100 MGD or more for facilities withdrawing from oceans, estuaries, and tidal rivers, or the Great Lakes (''100 MGD for Certain Waterbodies''). Under this option, 19 facilities (excluding baseline closures) are subject to the regulation. Of those facilities, it is assumed that 18 are required to install technologies to reduce impingement mortality and entrainment, and one will incur permitting costs only. The exhibit shows that the use benefits of the 100 MGD for certain waterbodies option are not projected to exceed the costs in any of the study regions. In the Mid-Atlantic region, costs exceed use benefits by $1.5 million or $1.4 million, evaluated at 3 percent and 7 percent discount rates. In the Gulf of Mexico region, costs are $8.4 million or $9.7 million greater than the use benefits. At the national level, EPA projects the costs of this option to exceed its use benefits by $16.2 million per year, discounted at 3 percent, or by $17.2 million per year, discounted at 7 percent.

EXHIBIT X–3.—SUMMARY OF SOCIAL BENEFITS AND COSTS 100 MGD FOR CERTAIN WATERBODIES'' OPTION

[millions; $2003]

Study region	Number of facilities subject to option	Number of facilities installing technology	Total annualized use value of I&E reductions [a]			Total annualized Costs [b] [d]	Net benefits [c]		
			Low	Mean	High		Low	Mean	High
Evaluated at a 3% discount rate									
California	0	0	$0.00	$0.00	$0.00	$0.0	$0.0	$0.0	$0.0
North Atlantic	3	3	0.03	0.05	0.12	2.0	−2.0	−1.9	−1.9
Mid Atlantic	2	2	0.23	0.46	0.96	2.0	−1.7	−1.5	−1.0
Gulf of Mexico	7	7	0.33	0.64	1.33	9.1	−8.7	−8.4	−7.7
Great Lakes	8	6	0.14	0.26	0.49	4.5	−4.3	−4.2	−4.0
Inland	0	0	0.00	0.00	0.00	0.0	0.0	0.0	0.0
National total	19	18	0.72	1.41	2.90	17.6	−16.9	−16.2	−14.7
Evaluated at a 7% discount rate									
California	0	0	$0.00	$0.00	$0.00	$0.0	$0.0	$0.0	$0.0
North Atlantic	3	3	0.02	0.04	0.09	2.0	−2.0	−2.0	−1.9
Mid Atlantic	2	2	0.17	0.35	0.73	1.8	−1.6	−1.4	−1.1
Gulf of Mexico	7	7	0.26	0.51	1.06	10.2	−9.9	−9.7	−9.1
Great Lakes	8	6	0.11	0.20	0.38	4.1	−4.0	−3.9	−3.7
Inland	0	0	0.00	0.00	0.00	0.0	0.0	0.0	0.0
National total	19	18	0.56	1.10	2.26	18.3	−17.7	−17.2	−16.0

[a] The total monetizable value of I&E reductions includes use benefits only. EPA did not estimate non-use benefits quantitatively. The low and high use values reflect the range of recreational fishing values presented in Section 9 of the preamble. They were calculated using the Krinsky and Robb technique to estimate the 95th and 5th percentile limits on the marginal value per fish predicted by the meta-analysis.

[b] Total costs are based on pre-tax facility costs. National total costs also include State, local, and Federal administrative costs of $0.2 million that cannot be attributed to individual study regions.

[c] The net benefits presented here are based on the comparison of a generally complete measure of social costs with an incomplete measure of social benefits, and should be interpreted with caution.

B. Break-even Analysis

Estimating non-use values is an extremely challenging and uncertain exercise, particularly when, due to time and resource constraints, primary research using stated preference methods was not a feasible option for this proposed rule. In Section IX.D.5 above, EPA described possible alternative approaches for developing non-use benefit estimates based on benefits transfer and associated methods. Due to the uncertainties of providing estimates of the magnitude of non-use values associated with the regulatory options considered for this proposal, this section provides an alternative approach for evaluating the significance of non-use values. The approach used here applies a ''break-even'' analysis to identify what non-use values would have to be in order for the options to have monetized benefits that are equal to costs.

The break-even approach uses EPA's estimated commercial and recreational use benefits for the regulatory options and subtracts them from the estimated annual compliance costs incurred by existing facilities subject to the regulatory options. The resulting ''net cost'' enables one to work backwards to estimate what non-use values would need to be in order for total annual benefits to equal annualized costs. EPA computed the per household willingness-to-pay for all three options proposed today and found that the non-use values necessary to equate total annual benefits with total annual social cost ranged from $1.43 per household, for the ''100 MGD for Certain Waterbodies'' option discounted at 3 percent, to $2.13 per household for the ''50 MDG for All Water bodies'' option discounted at 7 percent. EPA also calculated the break-even non-use value per (age-1 equivalent) fish saved. The per fish value necessary to have the total annual costs and benefits of the proposed options equate range from $0.54 for the ''100 MGD for Certain Waterbodies'' option, discounted at 3 percent, to $0.98 for the ''50 MDG for All Water bodies'' option, discounted at 7 percent. For a detailed discussion of the estimation and results of both the per household and per fish break-even values see the Regional Analysis Document.

XI. Statutory and Executive Order Reviews

A. E.O. 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the Agency must determine whether the regulatory action is ''significant'' and therefore subject to Office of Management and Budget (OMB) review and the requirements of the Executive Order. The order defines a ''significant regulatory action'' as one that is likely to result in a rule that may:

- Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or Tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that this proposed rule is a ''significant regulatory action.'' As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record.

B. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the *Paperwork Reduction Act,* 44 U.S.C. 3501 *et seq.* The Information Collection Request (ICR) document prepared by EPA has been assigned EPA ICR number 2169.01.

The information collected under today's proposed rule would assist EPA in regulating environmental impacts, namely impingement mortality and entrainment, at cooling water intake structures at Phase III facilities and new offshore oil and gas extraction facilities. This information would be used by these parties to prepare comprehensive demonstration studies, monitor impingement mortality and entrainment, verify compliance, and prepare annual/biennial reports as required under today's proposal. The information collected would be reviewed by EPA and State Directors to ensure that appropriate National Pollutant Discharge Elimination System (NPDES) permit conditions regulating cooling water intake structures would be developed. Compliance with the applicable information collection requirements imposed under this proposed rule is mandatory (*see* §§ 122.21(r), 125.136, 125.137, 125.138, 125.104, 125.105, 125.106, 125.107, 125.108).

EPA does not consider the specific data that would be collected under this proposed rule to be confidential business information. However, if a respondent does consider this information to be confidential, the respondent may request that such information be treated as confidential. All confidential data will be handled in accordance with 40 CFR 122.7, 40 CFR Part 2, and EPA's Security Manual Part III, Chapter 9, dated August 9, 1976.

Today's proposed rule would modify regulations at § 122.21 to require existing Phase III facilities and new offshore oil and gas extraction facilities to prepare and submit some of the same information required for Phase I and Phase II facilities. The proposed application requirements would require owners or operators of Phase III existing facilities to submit two general categories of information when they apply for a reissued NPDES permit. The general categories of information would include (1) permit application information, and (2) verification monitoring data. A detailed list of required data items is provided below.

As discussed in section II of the preamble, EPA is proposing three regulatory options for existing facilities in today's proposed rule based on design intake flow including: (1) A 50 MGD option for facilities withdrawing water from all waterbody types; (2) a 200 MGD option for facilities withdrawing water from all waterbody types; and (3) a 100 MGD option for facilities which withdraw water specifically from an ocean, estuary, tidal river, or one of the Great Lakes. Under the co-proposed 50 MGD threshold-based option, the total average annual burden, during the first three years after promulgation of the rule, of the information collection requirements associated with today's proposed rule is estimated at 215,885 hours. The corresponding estimates of average annual cost other than labor (labor and non-labor costs are included in the total cost of the proposed rule discussed in section VIII of this preamble) is $2.81 million for 87 facilities (56 existing manufacturers and 31 new offshore oil and gas facilities) and 45 States and one Territory during the first three years after promulgation of the rule. Under the co-proposed 200 MGD threshold-based option, the total average annual burden, during the first three years after promulgation of the rule, of the information collection requirements is estimated at 62,280 hours. The corresponding average annual non-labor cost is $1.46 million for 44 facilities (13 existing manufacturers and 31 new offshore oil and gas facilities), and 45 States and one Territory during the first three years after promulgation of the rule. Under the co-proposed 100 MGD threshold-based option, the total average annual burden, during the first three years after promulgation of the rule, of the information collection requirements is estimated at 85,622 hours. The corresponding average annual non-labor cost is $1.62 million for 42 facilities (11 existing manufacturers and 31 new offshore oil and gas facilities), and 45 States and one Territory during the first three years after promulgation of the rule.

Non-labor costs include activities such as capital costs for remote monitoring devices, laboratory services, photocopying, and the purchase of supplies. The burden and costs are for the information collection, reporting, and recordkeeping requirements for the three-year period beginning with the assumed effective date of today's rule. Additional information collection requirements will occur after this initial three-year period as existing facilities continue to be issued permit renewals, new offshore oil and gas extraction facilities are issued permits, and such requirements will be counted in a subsequent information collection request.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

Studies to be submitted by both Phase III existing facilities and new offshore oil and gas extraction facilities under today's proposed rule are listed below. Both Phase III existing facilities and

new offshore oil and gas fixed platforms would be required to collect the general information listed below.

- Source Water Physical Data (§ 122.21(r)(2)) (both Phase III existing facilities and new offshore oil and gas facilities)
- Cooling Water Intake Structure Data (§ 122.21(r)(3)) ((both Phase III existing facilities and new offshore oil and gas facilities)
- Cooling Water System Description (§ 122.21(r)(5)) (Phase III existing facilities only)

Depending on the compliance alternative selected by the individual facility, Phase III existing facilities may be required to submit the following information:

- Proposal for Information Collection (§ 125.104(b)(1))
- Source Waterbody Flow Information (§ 125.104(b)(2))
- Impingement Mortality and/or Entrainment Characterization Study (§ 125.104(b)(3))
- Technology Compliance and Assessment Information (§ 125.104(b)(4))
- Restoration Plan (§ 125.104(b)(5))
- Information to Support Site-specific Determination of Best Technology Available for Minimizing Adverse Environmental Impact (§ 125.104(b)(6))
- Verification Monitoring Plan (§ 125.104(b)(7))

New offshore oil and gas extraction facilities would be required to submit the following information under Track I:

- Source Water Baseline Biological Characterization Data (§ 122.21(r)(4)) (not required for non-fixed facilities)
- Velocity Information (§ 125.136(b)(2))
- Source Waterbody Flow Information (§ 125.136(b)(3)) (not required for non-fixed facilities)
- Design and Construction Technology Plan (§ 125.136(b)(4))

In addition to the information requirements of the permit renewal application, NPDES permits normally specify monitoring and reporting requirements to be met by the permitted entity. Existing facilities that fall within the scope of this proposed rule would be required to perform biological monitoring as required by the Director to demonstrate compliance. New offshore oil and gas extraction fixed facilities would be required to perform monitoring as determined by the Track I or Track II requirements in § 125.136. Additional ambient water quality monitoring may also be required of facilities depending on the specifications of their permits. New offshore oil and gas extraction facilities would be expected to analyze the results from their monitoring efforts and provide these results in an annual status report to the permitting authority. Existing Phase III facilities would be required to submit a status report every two years that included appropriate monitoring data and any other information specified by the Director. Finally, facilities would be required to maintain records of all submitted documents, supporting materials, and monitoring results for at least three years. (Note that the Director may require that records be kept for a longer period to coincide with the life of the NPDES permit.)

All impacted facilities would carry out the specific activities necessary to fulfill the general information collection requirements. The estimated burden includes developing a water balance diagram that can be used to identify the proportion of intake water used for cooling, make-up, and process water. Facilities would also gather data to calculate the reduction in impingement mortality and entrainment of all life stages of fish and shellfish that would be achieved by the technologies and operational measures they select. The burden estimates include sampling, assessing the source waterbody, estimating the magnitude of impingement mortality and entrainment, and reporting results in a comprehensive demonstration study. The burden may also include conducting a pilot study to evaluate the suitability of the technologies and operational measures based on the species that are found at the site.

Some of the Phase III existing facilities (those choosing to use restoration measures to maintain fish and shellfish) would need to prepare a plan documenting the restoration measures they would implement and how they would demonstrate that the restoration measures were effective. However, for purposes of this paperwork burden analysis, EPA assumed all facilities would comply using design and construction technologies.

Some facilities may choose to request a site-specific determination of best technology available because of costs significantly greater than those EPA considered in establishing the performance standards or because costs are significantly greater than the benefits of complying with the performance standards. These facilities would be required to perform a comprehensive cost evaluation study and, if applicable, a valuation of the monetized benefits of reducing impingement mortality and entrainment, as well as submitting a site-specific technology plan characterizing the design and construction technologies, operational measures and restoration measures they have selected. However, for purposes of this paperwork burden estimate, EPA assumed all facilities would comply by meeting the applicable performance standards.

The assumption that facilities will not use restoration or request a site-specific determination of best technology available may lead to an underestimate of paperwork burden, since there are additional documentation requirements associated with both of these approaches. However, since both are optional, EPA assumes that facilities would not choose them unless total burden, including both paperwork burden and compliance costs is less than the total burden under the approach EPA assumed for its PRA analysis.

Exhibits XI–1 through 3 present a summary of the average burden estimates for a facility to prepare a permit application and monitor and report on cooling water intake structure operations for the three options for existing manufacturers as required by this proposed rule. Exhibit XI–4 presents a summary of the average burden estimates for a facility to prepare a permit application and monitor and report on cooling water intake structure operations for new offshore oil and gas extraction facilities as required by this proposed rule. For the purpose of estimating the average burden for new offshore oil and gas extraction facilities, EPA assumed all facilities would pursue Track I of today's proposed rule. It is unknown how many facilities would select Track I versus Track II so the actual burden estimate may be slightly higher or lower than that presented in this section.

EXHIBIT XI–1.—AVERAGE ANNUAL REPORTING BURDEN AND COSTS PER FACILITY FOR NPDES PERMIT APPLICATION AND MONITORING AND REPORTING ACTIVITIES

[50 MGD all waterbodies option]

Activities	Annual hours per facility	Annual labor cost per facility	Annual capital cost per facility	Annual O&M cost per facility [a]	Three year respondent total	Average annual frequency of responses	Average annual hours	Average annual cost [b]
Start-up Activities	43	2,121	0	50	56	19	803	40,527
Permit Application Activities	247	9,951	0	510	56	19	4,611	195,279
Proposal for Collection of Information for Comprehensive Demonstration Study	272	12,344	0	770	43	14	3,899	187,964
FW River/Stream Source Water Body Flow Information	100	3,381	0	200	15	5	500	17,904
FW Lake/Reservoir Source Water Body Flow Information	112	3,946	0	200	2	1	75	2,764
Design and Construction Technology Plan (Impingement)	31	1,368	0	0	31	10	320	14,132
Design and Construction Technology Plan (Entrainment)	31	1,368	0	0	20	7	207	9,117
Design and Construction Technology Plan (All)	30	922	0	380	33	11	330	14,322
Freshwater Baseline Monitoring for Impingement Mortality and/or Entrainment Study	2,210	102,549	0	1,538	23	13	29,460	1,387,834
Freshwater Monitoring for Impingement Mortality Study	1,105	51,544	0	773	23	13	14,727	697,560
Freshwater Monitoring for Entrainment Study	845	39,727	0	39,596	4	3	2,252	211,527
Marine Baseline Monitoring for Impingement Mortality and/or Entrainment Study	2,841	131,350	0	1,970	20	19	53,041	2,488,651
Marine Monitoring for Impingement Mortality Study	1,414	65,430	0	981	16	15	21,680	1,018,309
Marine Monitoring for Entrainment Study	1,076	50,083	0	51,451	20	19	20,090	1,895,311
Impingement Mortality & Entrainment Characterization Study Initial Analysis	373	22,042	0	0	43	14	5,346	315,931
Impingement Mortality & Entrainment Characterization Study Final Report	399	18,875	0	614	33	11	4,389	214,381
Pilot Study Impingement Monitoring (Freshwater) for Pilot Study	661	33,927	804,252	0	1	0	220	279,393
Pilot Study Entrainment Monitoring (Freshwater) for Pilot Study	541	28,473	0	6,000	1	0	180	11,491
Pilot Study Impingement Monitoring (Marine) for Pilot Study	831	41,572	189,062	0	10	3	2,768	768,781
Pilot Study Entrainment Monitoring (Marine) for Pilot Study	675	34,482	0	7,800	10	3	2,248	140,941
Pilot Study Entrainment Monitoring (All) for Pilot Study	354	17,487	0	1,020	11	4	1,298	67,858
Technology Installation and Operation Plan	52	2,372	0	80	35	12	607	28,611

EXHIBIT XI–1.—AVERAGE ANNUAL REPORTING BURDEN AND COSTS PER FACILITY FOR NPDES PERMIT APPLICATION AND MONITORING AND REPORTING ACTIVITIES—Continued

[50 MGD all waterbodies option]

Activities	Annual hours per facility	Annual labor cost per facility	Annual capital cost per facility	Annual O&M cost per facility [a]	Three year respondent total	Average annual frequency of responses	Average annual hours	Average annual cost [b]
Verification Monitoring Plan	128	5,918	0	410	35	12	1,493	73,827
Total for NPDES Permit Application Activities	.....	.....	.....	.....	56	227	170,544	10,082,416
Average Burden and Costs per Facility for Annual Monitoring and Reporting Activities								
Annual Monitoring for Impingement (Freshwater)	379	18,504	0	510	11	5	2,021	101,406
Annual Monitoring for Impingement (Marine)	482	23,564	0	660	12	5	2,569	129,193
Annual Monitoring for Entrainment (Freshwater)	614	30,376	0	8,310	4	2	1,228	77,371
Annual Monitoring for Entrainment (Marine)	776	38,069	0	10,800	14	7	5,173	325,790
Biannual Status Report Activities	324	16,618	0	770	27	9	2,916	156,492
Verification Study	118	6,772	0	510	27	9	1,062	65,540
Total for Annual Activities	.....	.....	.....	.....	27	37	14,969	855,792

[a] Cost of supplies, filing cabinets, photocopying, boat renting, etc.

[b] Costs for restoration activities and site-specific studies were not estimated as EPA cannot determine how many facilities would choose to select this option and the option is voluntary.

EXHIBIT XI–2.—AVERAGE ANNUAL REPORTING BURDEN AND COSTS PER FACILITY FOR NPDES PERMIT APPLICATION AND MONITORING AND REPORTING ACTIVITIES

[200 MGD all waterbodies option]

Activity	Annual hours per facility	Annual labor cost per facility	Annual capital cost per facility	Annual O&M cost per facility [a]	Three year respondent total	Average annual frequency of responses	Average annual hours	Average annual cost
Start-up Activities	43	$2,121	$0	$50	13	4	186	$9,408
Permit Application Activities	247	9,951	0	510	13	4	1,070	45,333
Proposal for Collection of Information for Comprehensive Demonstration Study	272	12,344	0	770	9	3	816	39,341
FW River/Stream Source Water Body Flow Information	100	3,381	0	200	1	0	33	1,194
FW Lake/Reservoir Source Water Body Flow Information	.....	0	0	200	.....	0	0	0
Design and Construction Technology Plan (Impingement)	31	1,368	0	0	5	2	52	2,279
Design and Construction Technology Plan (Entrainment)	31	1,368	0	0	4	1	41	1,823
Design and Construction Technology Plan (All)	30	922	0	380	5	2	50	2,170
Freshwater Baseline Monitoring for Impingement Mortality and/or Entrainment Study	2,210	102,549	0	1,538	2	1	2,210	104,088
Freshwater Monitoring for Impingement Mortality Study	1,105	51,544	0	773	2	1	1,105	52,317
Freshwater Monitoring for Entrainment Study	.....	0	0	39,596	.....	0	0	0

EXHIBIT XI–2.—AVERAGE ANNUAL REPORTING BURDEN AND COSTS PER FACILITY FOR NPDES PERMIT APPLICATION AND MONITORING AND REPORTING ACTIVITIES—Continued

[200 MGD all waterbodies option]

Activity	Annual hours per facility	Annual labor cost per facility	Annual capital cost per facility	Annual O&M cost per facility[a]	Three year respondent total	Average annual frequency of responses	Average annual hours	Average annual cost
Marine Baseline Monitoring for Impingement Mortality and/or Entrainment Study	2,841	131,350	0	1,970	7	6	17,049	799,923
Marine Monitoring for Impingement Mortality Study	1,414	65,430	0	981	6	5	7,541	354,194
Marine Monitoring for Entrainment Study	1,076	50,083	0	51,451	7	6	6,458	609,207
Impingement Mortality & Entrainment Characterization Study Initial Analysis	373	22,042	0	0	9	3	1,119	66,125
Impingement Mortality & Entrainment Characterization Study Final Report	399	18,875	0	614	5	2	665	32,482
Pilot Study Impingement Monitoring (Freshwater) for Pilot Study	661	33,927	804,252	0	1	0	220	279,393
Pilot Study Entrainment Monitoring (Freshwater) for Pilot Study	541	28,473	0	6,000	1	0	180	11,491
Pilot Study Impingement Monitoring (Marine) for Pilot Study	831	41,572	183,241	0	4	1	1,107	299,751
Pilot Study Entrainment Monitoring (Marine) for Pilot Study	675	34,482	0	7,800	4	1	899	56,376
Pilot Study Entrainment Monitoring (All) for Pilot Study	354	17,487	0	1,020	5	2	590	30,845
Technology Installation and Operation Plan	52	2,372	0	80	6	2	104	4,905
Verification Monitoring Plan	128	5,918	0	410	6	2	256	12,656
Total for NPDES Permit Application Activities	.....	.....	.....	.....	13	50	41,752	2,815,302
Average Burden and Costs per Facility for Annual Monitoring and Reporting Activities								
Annual Monitoring for Impingement (Freshwater)	379	18,504	0	510	1	1	253	12,676
Annual Monitoring for Impingement (Marine)	482	23,564	0	660	3	1	482	24,224
Annual Monitoring for Entrainment (Freshwater)	614	30,376	0	8,310	1	0	205	12,895
Annual Monitoring for Entrainment (Marine)	776	38,069	0	10,800	3	1	776	48,869
Biannual Status Report Activities	324	16,618	0	770	5	2	540	28,980
Verification Study	118	6,772	0	510	5	2	197	12,137
Total for Annual Activities	.....	.....	.....	.....	5	7	2,452	139,780

[a] Cost of supplies, filing cabinets, photocopying, boat renting, etc.

EXHIBIT XI–3.—AVERAGE ANNUAL REPORTING BURDEN AND COSTS PER FACILITY FOR NPDES PERMIT APPLICATION AND MONITORING AND REPORTING ACTIVITIES

[100 MGD certain waterbodies option]

Activity	Annual hours per facility	Annual labor cost per facility	Annual capital cost per facility	Annual O&M cost per facility [a]	Three year respondent total	Average annual frequency of responses	Aveage annual hours	Average annual cost
Start-up Activities	43	$2,121	$0	$50	11	4	158	$7,961
Permit Application Activities	247	9,951	0	510	11	4	906	38,358
Proposal for Collection of Information for Comprehensive Demonstration Study	272	12,344	0	770	11	4	997	48,084
FW River/Stream Source Water Body Flow Information	—	0	0	0	—	0	0	0
FW Lake/Reservoir Source Water Body Flow Information	—	0	0	0	—	0	0	0
Design and Construction Technology Plan (Impingement)	31	1,368	0	0	8	3	83	3,647
Design and Construction Technology Plan (Entrainment)	31	1,368	0	0	8	3	83	3,647
Design and Construction Technology Plan (All)	30	922	0	380	8	3	80	3,472
Freshwater Baseline Monitoring for Impingement Mortality and/or Entrainment Study	—	0	0	1,538	—	0	0	0
Freshwater Monitoring for Impingement Mortality Study	—	0	0	773	—	0	0	0
Freshwater Monitoring for Entrainment Study	—	0	0	039,596	—	0	0	0
Marine Baseline Monitoring for Impingement Mortality and/or Entrainment Study	2,841	131,350	0	1,970	11	10	28,415	1,333,206
Marine Monitoring for Impingement Mortality Study	1,414	65,430	0	981	10	9	13,1976	19,840
Marine Monitoring for Entrainment Study	1,076	50,083	0	051,451	11	10	10,763	1,015,345
Impingement Mortality & Entrainment Characterization Study Initial Analysis	373	22,042	0	0	11	4	1,368	80,820
Impingement Mortality & Entrainment Characterization Study Final Report	399	18,875	0	614	8	3	1,064	51,971
Pilot Study Impingement Monitoring (Freshwater) for Pilot Study	—	0	0	0	—	0	0	0
Pilot Study Entrainment Monitoring (Freshwater) for Pilot Study	—	0	0	6,000	—	0	0	0
Pilot Study Impingement Monitoring (Marine) for Pilot Study	831	41,572	221,548	0	6	2	1,661	526,240
Pilot Study Entrainment Monitoring (Marine) for Pilot Study	675	34,482	0	7,800	6	2	1,349	84,564
Pilot Study Entrainment Monitoring (All) for Pilot Study	354	17,487	0	1,020	6	2	708	37,014
Technology Installation and Operation Plan	52	2,372	0	80	8	3	139	6,540

EXHIBIT XI–3.—AVERAGE ANNUAL REPORTING BURDEN AND COSTS PER FACILITY FOR NPDES PERMIT APPLICATION AND MONITORING AND REPORTING ACTIVITIES—Continued

[100 MGD certain waterbodies option]

Activity	Annual hours per facility	Annual labor cost per facility	Annual capital cost per facility	Annual O&M cost per facility [a]	Three year respondent total	Average annual frequency of responses	Aveage annual hours	Average annual cost
Verification Monitoring Plan	128	5,918	0	410	8	3	341	16,875
Total for NPDES Permit Application Activities					11	66	61,310	3,877,583
Average Burden and Costs per Facility for Annual Monitoring and Reporting Activities								
Annual Monitoring for Impingement (Freshwater)	—	0	0	510	—	0	0	0
Annual Monitoring for Impingement (Marine)	482	23,564	0	660	7	3	1,284	64,596
Annual Monitoring for Entrainment (Freshwater)	—	0	0	8,310	—	0	0	0
Annual Monitoring for Entrainment (Marine)	776	38,069	0	10,800	7	3	2,069	130,316
Biannual Status Report Activities	324	16,618	0	770	7	2	756	40,572
Verification Study	118	6,772	0	510	7	2	275	16,992
Total for Annual Activities					7	10	4,385	252,476

[a] Cost of supplies, filing cabinets, photocopying, boat renting, etc.

EXHIBIT XI–4.—AVERAGE ANNUAL REPORTING BURDEN AND COSTS PER FACILITY FOR NPDES PERMIT APPLICATION AND MONITORING AND REPORTING ACTIVITIES

[New offshore oil and gas extraction facilities [a]]

Activity	Annual hours per facility	Annual labor cost per facility	Annuallized capital cost per facility	Annual O&M cost per facility [a b]	Three year respondent total	Average annual frequency of responses	Average annual hours	Average annual cost
Start-up Activities	43	$2,121	$0	$50	31	10	444	$22,435
Permit Application Activities	25	795	0	130	19	6	158	5,857
Source Water Body Flow Information	38	1,341	0	75	19	6	241	8,968
CWIS Velocity Information	—	0	0	0	—	0	0	0
Design and Construction Technology Plan (Impingement Only)	35	1,021	0	120	15	5	175	5,706
Design and Construction Technology Plan (Entrainment Only)	35	1,021	0	120	1	0	12	380
Design and Construction Technology Plan (Impingement & Entrainment)	38	1,162	0	120	3	1	38	1,282
Develop Regional Study Design and Submit to Director	78	5,007	0	0	2	1	52	3,338
Deep Water Baseline Monitoring for Source Water Baseline Biological Characterization Study	309	17,260	0	43,200	9	9	2,778	544,137
Deep Water Impingement Monitoring for Source Water Baseline Biological Characterization Study	144	7,987	7,621	667	9	9	1,296	146,473

EXHIBIT XI–4.—AVERAGE ANNUAL REPORTING BURDEN AND COSTS PER FACILITY FOR NPDES PERMIT APPLICATION AND MONITORING AND REPORTING ACTIVITIES—Continued

[New offshore oil and gas extraction facilities [a]]

Activity	Annual hours per facility	Annual labor cost per facility	Annuallized capital cost per facility	Annual O&M cost per facility [a b]	Three year respondent total	Average annual frequency of responses	Average annual hours	Average annual cost
Deep Water Entrainment Monitoring for Source Water Baseline Biological Characterization Study	144	7,987	0	3,120	3	3	432	33,321
Alaska Basline Monitoring for Source Water Baseline Biological Characterization Study	384	20,337	0	49,200	1	1	384	69,537
Alaska Entrainment Monitoring for Source Water Baseline Biological Characterization Study	192	10,169	0	3,120	1	1	192	13,289
Initial Sourcewater Baseline Biological Characterization Data	366	20,584	0	0	10	3	1,220	68,613
Sourcewater Baseline Biological Characterization Data Study Final Regional Report	288	18,389	0	0	2	1	192	12,259
Use Regional Study Results for Individual Facility Studies	166	7,591	0	0	19	6	1,051	48,079
Source Water Baseline Biological Characterization Study Other Direct Costs for Deep Water	—	0	0	13,270	9	3	0	39,810
Source Water Baseline Biological Characterization Study Other Direct Costs for Alaska	—	0	0	19,910	1	0	0	6,637
Total for NPDES Permit Application Activities	.....	.....	.....	.....	31	67	8,665	1,030,123
Average Burden and Costs per Facility for Annual Monitoring and Reporting Activities								
Biological Monitoring for Impingement	530	25,823	0	1,660	—	0	0	0
Biological Monitoring for Entrainment	370	17,647	0	15,780	—	0	0	0
Biological Monitoring for Entrainment (Alaska)	516	24,298	0	21,780	—	0	0	0
Velocity Monitoring	163	5,692	0	500	13	7	1,087	41,283
Yearly Status Report Activities	223	11,304	0	770	13	7	1,487	80,495
Total for Annual Activities	.....	.....	.....	.....	13	14	2,573	121,778

[a] Track I requirements only estimated.
[b] Cost of supplies, filing cabinets, photocopying, boat renting, etc.

EPA believes that all 45 States and one Territory with NPDES permitting authority would undergo start-up activities in preparation for administering the provisions of the proposed rule. As part of these start-up activities, States and Territories would be expected to train junior technical staff to review materials submitted by facilities, and then use these materials to evaluate compliance with the specific conditions of each facility's NPDES permit.

Each State's/Territory's actual burden associated with reviewing submitted materials, writing permits, and tracking compliance would depend on the number of in-scope facilities that would come up for permit renewal in the State/Territory during the ICR approval period and which flow threshold-based option EPA selects for Phase III existing facilities. EPA expects that State and Territory technical and clerical staff will spend time gathering, preparing, and submitting the various documents. EPA's burden estimates reflect the general staffing and level of expertise that is typical in States/Territories that administer the NPDES permitting program. EPA considered the time and qualifications necessary to complete various tasks such as reviewing

submitted documents and supporting materials, verifying data sources, planning responses, determining specific permit requirements, writing the actual permit, and conferring with facilities and the interested public. Exhibits XI–5 through 7 provide a summary of the average burden estimates for States/Territories performing various activities for existing manufacturing facilities required by the proposed rule. States/Territories are not involved in administering the permits for new offshore oil and gas extraction facilities since the offshore oil and gas industry is currently permitted under general permits at the regional EPA level. This practice is likely to continue in the forseeable future.

EXHIBIT XI–5.—ESTIMATING STATE/TERRITORY AVERAGE BURDEN AND COSTS FOR ACTIVITIES

[50 MGD all waterbodies option]

Activity	Average annual hours per facility	Annual labor cost per facility	Annual capital cost per facility	Annual O&M cost per facility [a]	Three year respondent total	Average annual frequency of responses	Average annual hours	Average annual cost
Director Start-up Activities	100	$3,894	$0	$50	46	15	1,533	$60,475
Director Permit Issuance Activities	803	35,979	0	310	56	19	14,989	677,398
Verification Study Review	—	0	0	10	—	0	0	0
Annual Director Activities	50	1,851	0	30	27	9	450	16,932
Total for Director Activities					46	43	16,972	754,804

[a] Cost of supplies, filing cabinets, photocopying, boat renting, etc.

EXHIBIT XI–6.—ESTIMATING STATE/TERRITORY AVERAGE BURDEN AND COSTS FOR ACTIVITIES

[200 MGD all waterbodies option]

Activity	Average annual hours per facility	Annual labor cost per facility	Annual capital cost per facility	Annual O&M cost per facility [a]	Three year respondent total	Average annual frequency of responses	Average annual hours	Average annual cost
Director Start-up Activities	100	$3,894	$0	$50	46	15	1,533	$60,475
Director Permit Issuance Activities	706	31,417	0	310	13		43,060	137,482
Verification Study Review	—	0	0	10	—	0	0	0
Annual Director Activities	50	1,851	0	30	5	2	83	3,136
Total for Director Activities					46	21	4,677	201,092

[a] Cost of supplies, filing cabinets, photocopying, boat renting, etc.

EXHIBIT XI–7.—ESTIMATING STATE/TERRITORY AVERAGE BURDEN AND COSTS FOR ACTIVITIES

[100 MGD All Waterbodies Option]

Activity	Average annual hours per facility	Annual labor cost per facility	Annual capital cost per facility	Annual O&M cost per facility [a]	Three year respondent total	Average annual frequency of responses	Average annual hours	Average annual cost
Director Start-up Activities	100	$3,894	$0	$50	46	15	1,533	$60,475
Director Permit Issuance Activities	1330	60,163	0	310	11	4	4,878	221,733
Verification Study Review	—	0	0	10	—	0	0	0
Annual Director Activities	50	1,851	0	30	7	2	117	4,390
Total for Director Activities					46	21	6,528	286,598

[a] Cost of supplies, filing cabinets, photocopying, boat renting, etc.

An Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR Part 9.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, EPA has established a public docket for this rule, which includes this ICR, under Docket ID number OW–2003–0005. Submit any comments related to the ICR for this proposed rule to EPA and OMB. See ''Addresses'' section at the beginning of this notice for where to submit comments to EPA. Send comments to OMB at the Office of Information and Regulatory Affairs,

Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Office for EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after November 24, 2004, a comment to OMB is best assured of having its full effect if OMB receives it by December 27, 2004. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Flexibility Act generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. This section summarizes EPA's analyses in compliance with the RFA.

1. Definition of Small Entity

Small entities include small businesses, small organizations, and small governmental jurisdictions. For assessing the impacts of today's proposal on small entities, a small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

The SBA small business size standards changed from a SIC code-based system to a NAICS code-based system on October 1, 2000. Since EPA conducted its data collection effort for existing facilities before this change, EPA performed the small entity analysis for existing facilities based on SIC codes. EPA then conducted a subsequent analysis to determine if the size standards based on NAICS codes would have any effect on the results of the small entity analysis. This analysis showed that for the three co-proposed options, there would be no changes to the small entity determination, and therefore to small entity impacts, as a result of switching from SIC-based size standards to NAICS-based size standards.

2. Certification Statement

After considering the economic impacts of today's proposal on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This proposal applies to existing facilities that employ a cooling water intake structure and are designed to withdraw either (1) 50 MGD or more from all waterbodies, (2) 100 MGD or more from certain waterbodies, or (3) 200 MGD or more from all waterbodies that are waters of the United States. It also applies to new offshore oil and gas extraction facilities that withdraw greater than 2 MGD from waters of the United States.

3. Statement of Basis

EPA estimates that this proposal will not apply national categorical standards to any small entities in the Manufacturers or Electric Generators industry segments (entities that operate facilities subject to permitting based on best professional judgement are excluded from this analysis). In the new offshore oil and gas extraction industry segment, EPA estimates that the proposed option will apply national standards to only one small entity, a new offshore oil and gas platform. EPA estimates that this entity would incur annualized, after-tax compliance costs of less than 0.1 percent of annual revenue. EPA does not know precisely which firms would be undertaking construction of new offshore oil and gas extraction facilities. However, based on the firms that are currently active in building the types of facilities representative of those covered by the rulemaking, EPA believes that the small firm analyzed represents the smallest firm that would be involved in such activities over the period of the analysis.

4. Summary of Small Business Advocacy Review Panel

Although the RFA does not require a Small Business Advocacy Review (SBAR) Panel for this rule (because EPA has determined that this proposal would not have a significant economic impact on a substantial number of small entities), EPA convened a panel to obtain advice and recommendations from small entity representatives (SERs) potentially subject to this proposed rule's requirements because at the time EPA had not yet determined the scope of the proposed rule and thus the potential for small entity impacts. This section summarizes EPA's small entity outreach and information on the composition, process, and findings of the SBAR panel.

a. Summary of Small Entity Outreach

EPA actively involved stakeholders, including small entities, in the development of the proposed rule in order to ensure the quality of information, identify and understand potential implementation and compliance issues, and explore regulatory alternatives. EPA conducted numerous meetings with the electric power industry over the past six years and met twice with manufacturing industry representatives in the past two years; during these meetings, EPA received direct input about the impacts of the proposed rule on the industry.

In the past three years, EPA held two conference calls with small entity representatives from the manufacturing and electric power industries to improve the Agency's understanding of cooling water intakes in these industries, and of the potential impacts of new requirements from an economic and business perspective. Before convening the Panel, EPA held a conference call/meeting on October 1, 2002, and another on January 22, 2004, to receive information from prospective SERs about plans for convening the Panel and their early concerns about the planned proposed regulation.

b. Panel Members

The Panel consisted of EPA's Small Business Advocacy Chairperson, the Director of the Engineering and Analysis Division of the Office of Science and Technology (EPA/OW), the Administrator of the Office of Information and Regulatory Affairs within the Office of Management and Budget (OMB), and the Chief Counsel for Advocacy of the Small Business Administration (SBA).

c. SERs

After consultation with the Small Business Administration Office of Advocacy, EPA invited six municipal power plant representatives and six representatives from manufacturing industries to serve as potential SERs during the pre-panel outreach process. Ultimately, three municipal power plant representatives and four representatives from manufacturing industries provided comments to the Panel.

d. Summary of Panel Process

The Panel convened on February 27, 2004. The Panel held an outreach meeting and telephone conference for SERs on March 16, 2004. Materials were provided to SERs in advance of the meeting and additional materials on specific topics of interest to SERs were provided during the Panel process. SERs provided comments to the Panel on (1)

the number and types of small entities affected; (2) potential reporting, record keeping, and compliance requirements; (3) related Federal rules; (4) regulatory flexibility alternatives; and (5) methodological issues.

The Panel evaluated the assembled materials and small entity comments on issues related to the elements of the initial regulatory flexibility analysis (IRFA). A copy of the Panel report, ''Final Report of the Small Business Advocacy Review Panel on EPA's Planned Proposed Rule for Cooling Water Intake Structures at Section 316(b) Phase III Facilities,'' is included in the docket for this proposed rule (DCN 7–0006).

e. Panel Recommendations

The Panel provided several recommendations pertaining to reporting, record keeping, and compliance requirements; regulatory flexibility alternatives; and methodological issues relevant to the assessment of the impacts of a Phase III rule on small entities. The following is a summary of the Panel's recommendations and EPA's responses:

- *Recommendation:* The Panel noted that significant implementation flexibility was included in the Phase II rule. For example, facilities were allowed up to three and one half years following rule promulgation to submit their initial demonstration study and related application materials. The Panel recommended that this level of flexibility be provided for Phase III requirements. The Panel also recommended that EPA consider the availability of contractor resources as it develops the implementation schedule for Phase III.

Response: EPA has provided in the proposed rule the same implementation flexibility contained in the Phase II rule. EPA will consider the availability of contractor resources and would like to receive comments on this issue.

- *Recommendation:* The Panel recommended that EPA analyze a range of potential applicability thresholds, particularly those between 20 MGD and 50 MGD. The Panel believed that an effective way to substantially reduce potential economic impacts on small entities would be to set an applicability threshold of 20 MGD. Facilities below 20 MGD represent a small proportion of the total flow associated with the Phase III rulemaking.

Response: In response to the Panel's recommendations, EPA analyzed several policy options with different regulatory requirements and applicability thresholds based on flow range categories. As a result of these analyses, EPA is co-proposing three options with minimum applicability thresholds of 50 MGD, 100 MGD, and 200 MGD, respectively. Under these thresholds, no Phase III existing facilities owned by small entities would be subject to national categorical requirements.

- *Recommendation:* The Panel recognized the implementation challenges associated with using actual flows instead of design flows to structure regulatory requirements. However, the Panel believed that this approach merits further consideration.

Response: EPA notes that since the proposed thresholds exclude existing small entities, no implementation challenges to small entities would result. With regard to facilities within the scope of the proposed rule, EPA believes that it would be most appropriate to be consistent with the regulatory approach taken in Phase II.

- *Recommendation:* The American Public Power Association (APPA) raised several methodological issues regarding EPA's analysis of the impacts of a Phase III rule on small entities, including alternate estimates of the number of regulated small electric utilities and issues concerning the downtime required for retrofitting. The Panel recommended that EPA seek further information from APPA to identify any necessary modifications to the assumptions used for its cost and economic impact analyses. The Panel also recommended that EPA review its assumptions used to develop costs and economic impacts to ensure that these assumptions are appropriate for facilities with smaller budgets and staffs.

Response: Because of the choice EPA made to propose larger design intake flow thresholds (*i.e.*, 50 MGD, 100 MGD, and 200 MGD), all electric power producers not covered by Phase II will be exempt from the national categorical requirements of this proposed rule, but will continue to be subject to site-specific 316(b) requirements based on the best professional judgment of the permit writer.

5. Small Entity Flexibility Analysis

Despite the determination that this rule would not have a significant economic impact on a substantial number of small entities, EPA prepared a Small Entity Flexibility Analysis that has all the components of an Initial Regulatory Flexibility Analysis (IRFA). An IRFA examines the impact of a proposed rule on small entities along with regulatory alternatives that could reduce that impact. The Small Entity Flexibility Analysis (which is described in detail in the Economic Analysis document) is available for review in the docket.

Under the three co-proposed options, EPA estimates that only one small entity (a new offshore oil and gas extraction facility) would be subject to the national categorical requirements. Under these thresholds, no Phase III existing facilities owned by small entities would be subject to national categorical requirements. This facility is estimated to have a cost-to-revenue ratio of less than 0.1 percent.

EPA continues to be interested in the potential impacts of this proposal on small entities and welcomes comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Pub. L. 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and Tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of the UMRA, a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant intergovernmental mandates, and informing, educating, and advising small governments on compliance with regulatory requirements.

The following subsections present a brief summary of UMRA considerations for the proposed rule. Each subsection includes the results of the proposed option for new offshore oil and gas extraction facilities together with one of the three co-proposed options for existing facilities.[57]

- *2 MGD Option for new facilities and 50 MGD All Waterbodies Option for existing facilities:* EPA estimates the total annualized after-tax costs of compliance to be $44.8 million (2003$). All of these direct facility costs are incurred by the private sector (including 136 manufacturing facilities and 124 offshore oil and gas extraction facilities). No facility owned by State or local governments is subject to the national requirements under this proposed option. Additionally, State and local permitting authorities are estimated to incur $0.5 million annually to administer this option, including labor costs to write permits and to conduct compliance monitoring and enforcement activities. As required per section 202 of the UMRA, EPA estimates that the highest undiscounted after-tax cost incurred by the private sector in any one year is approximately $280 million in 2011.
- *2 MGD Option for new facilities and 200 MGD All Waterbodies Option for existing facilities:* EPA estimates the total annualized after-tax costs of compliance to be $21.4 million (2003$). All of these direct facility costs are incurred by the private sector (including 25 manufacturing facilities and 124 offshore oil and gas extraction facilities). No facility owned by State or local governments is subject to the national requirements under this proposed option. Additionally, State and local permitting authorities are estimated to incur $0.1 million annually to administer this option, including labor costs to write permits and to conduct compliance monitoring and enforcement activities. As required per section 202 of the UMRA, EPA estimates that the highest undiscounted after-tax cost incurred by the private sector in any one year is approximately $91 million in 2010.
- *2 MGD Option for new facilities and 100 MGD for Certain Waterbodies Option for existing facilities:* EPA estimates the total annualized after-tax costs of compliance to be $17.4 million (2003$). All of these direct facility costs are incurred by the private sector (including 19 manufacturing facilities and 124 offshore oil and gas extraction facilities). No facility owned by State or local governments is subject to the national requirements under this proposed option. Additionally, State and local permitting authorities are estimated to incur $0.1 million annually to administer this option, including labor costs to write permits and to conduct compliance monitoring and enforcement activities. As required per section 202 of the UMRA, EPA estimates that the highest undiscounted after-tax cost incurred by the private sector in any one year is approximately $236 million in 2011.

Thus, EPA has determined that this proposal contains a Federal mandate that may result in expenditures of $100 million or more for State, local, and Tribal governments, in the aggregate, or the private sector in any one year. Accordingly, EPA prepared a written statement under section 202 of the UMRA, which is summarized below. (*See* Economic Analysis, Chapter D2: UMRA Analysis, for more detailed information.)

1. Summary of Written Statement

a. Authorizing Legislation

This proposal is issued under the authority of sections 101, 301, 304, 306, 308, 316, 401, 402, 501, and 510 of the Clean Water Act (CWA), 33 U.S.C. 1251, 1311, 1314, 1316, 1318, 1326, 1341, 1342, 1361, and 1370. This proposal fulfills an obligation of the U.S. Environmental Protection Agency (EPA) under a consent decree in *Riverkeeper, Inc. et al.* v. *Leavitt*, United States District Court, Southern District of New York, No. 93 Civ. 0314 (AGS). See section II of this preamble for detailed information on the legal authority of this regulation.

b. Cost-Benefit Analysis

For the analysis of costs and benefits to society of this proposal, the Agency calculated a total present value of estimated costs and benefits and then calculated the constant annual equivalent value (annualized value) of these present values. The Agency calculated these present values and annualized values using two social discount rate values: 3 percent and 7 percent. Since benefits for new offshore oil and gas extraction facilities could not be estimated, EPA's comparison of costs and benefits includes only costs associated with Phase III existing facilities (*i.e.*, the Manufacturers industry segments—no Electric Generators are subject to the national requirements under any of the co-proposed options).[58] Benefit-cost relationships for Phase III existing facilities under the three co-proposed options are as follows:[59]

- *50 MGD All Waterbodies Option:* Total annualized social costs are estimated at $47.3 (3 percent discount rate) and $50.1 million (7 percent discount rate). Total mean value of annualized use benefits are estimated at $1.9 million (3 percent discount rate) and $1.5 million (7 percent discount rate). Thus, social costs exceed total use benefits by $45.4 million (3 percent discount rate) and $48.6 million (7 percent discount rate).
- *200 MGD All Waterbodies Option:* Total annualized social costs are estimated at $22.8 (3 percent discount rate) and $24.1 million (7 percent discount rate). Total mean value of annualized use benefits are estimated at $1.3 million (3 percent discount rate) and $1.0 million (7 percent discount rate). Thus, social costs exceed total use benefits by $21.5 million (3 percent discount rate) and $23.1 million (7 percent discount rate)
- *100 MGD for Certain Waterbodies Option:* Total annualized social costs are estimated at $17.6 (3 percent discount rate) and $18.3 million (7 percent discount rate). Total mean value of annualized use benefits are estimated at $1.4 million (3 percent discount rate) and $1.1 million (7 percent discount rate). Thus, social costs exceed total use benefits by $16.2 million (3 percent discount rate) and $17.2 million (7 percent discount rate).

It should be noted that this cost-benefit analysis compares a relatively complete measure of social costs with an incomplete measure of benefits, and should be interpreted with caution. For a more detailed comparison of the costs and benefits of the proposed rule, including a qualitative discussion and ''break-even'' analysis of non-use benefits, refer to section X of this preamble.

EPA notes that States may be able to use existing sources of financial assistance to revise permits and implement the proposed options, when promulgated. Section 106 of the Clean Water Act authorizes EPA to award grants to States, Tribes, intertribal consortia, and interstate agencies for administering programs for the prevention, reduction, and elimination of water pollution. These grants may be used for various activities to develop

[57] These sections exclude facilities estimated to be baseline closures and their costs (see discussion in section VIII.B.2) and administrative costs for Federal agencies.

[58] Total social costs of this proposal, including existing and new facilities, are presented in section VIII.C of this preamble.

[59] Benefits include only use benefits from commercial and recreational fishing. EPA was unable to monetize non-use benefits.

and carry out a water pollution control program, including permitting, monitoring, and enforcement. Thus, State and Tribal NPDES permit programs represent one type of State program that can be funded by section 106 grants.

c. Macro-Economic Effects

EPA estimates that this proposal would not measurably affect the national economy, including productivity, economic growth, employment and job creation, and international competitiveness of U.S. goods and services. Macroeconomic effects on the economy are generally not considered to be measurable unless the total economic impact of a rule reaches at least 0.25 percent to 0.5 percent of Gross Domestic Product (GDP). In 2003, the Bureau of Economic Analysis reported the nominal U.S. GDP at $11.0 trillion. Thus, in order to be considered measurable, this proposal would have to generate annualized costs of at least $27 billion to $55 billion. Since EPA estimates that total social costs (including existing and new facilities) under the most costly of the three proposed options for existing facilities, the 50 MGD All Waterbodies option, would be $51 million at a 3 percent discount rate and $53 million at a 7 percent discount rate, the Agency believes that this proposal would not perceptibly affect the national economy.

d. Summary of State, Local, and Tribal Government Input

EPA consulted with State governments and representatives of local governments in developing the regulation. The outreach activities are discussed in section III of this preamble.

e. Least Burdensome Option

EPA considered and analyzed several alternative regulatory options for existing facilities to determine the best technology available for minimizing adverse environmental impact. These regulatory options are discussed in section VI of this preamble. EPA is co-proposing these three options because they would meet the requirement of section 316(b) of the CWA—that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact—and because they are economically achievable, address a large percentage of flow (in combination with the Phase II rule), are highly flexible, and impact a minimal number of small businesses. EPA believes the three co-proposed options would reflect the most cost-effective and flexible approaches among the options considered. They regulate 74 percent (50 MGD All Waterbodies Option), 45 percent (200 MGD All Waterbodies Option), and 16 percent (100 MGD for Certain Waterbodies Option), respectively, of total design intake flow potentially covered under Phase III, result in no closures, and affect only one small entity (a new offshore oil and gas facility). By providing five compliance alternatives, this proposal would offer Phase III existing facilities a high degree of flexibility in selecting the most cost-effective approach to meeting section 316(b) requirements. Under the proposal, these facilities would be able to demonstrate that existing flow or cooling water intake structure technologies fulfill section 316(b), by identifying impingement and entrainment design and control technologies, and/or use operational measures or restoration measures to fulfill the proposal's requirements. The proposal would also ensure that any applicable requirements are economically practicable through the inclusion of the site-specific compliance alternative at § 125.103(a)(5). EPA further notes that the compliance alternative specified in § 125.103(a)(4) and 125.108(a) and (b) would be included in part to provide additional flexibility to Phase III existing facilities, as well as to reduce the burden of determining, implementing, and administering section 316(b) requirements among all relevant parties. Finally, the Agency believes that the three co-proposed options would extend additional flexibility to States by providing that where a State has adopted alternative regulatory requirements that achieve environmental performance comparable to that required under the rule, the Administrator would approve such alternative requirements.

2. Impact on Small Governments

EPA has determined that this proposal would contain no regulatory requirements that might significantly or uniquely affect small governments. No government-owned facility would be subject to the national categorical requirements of the three co-proposed options.

E. Executive Order 13132: Federalism

Executive Order 13132 (64 FR 43255, August 10, 1999) requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' are defined in the Executive Order to include regulations that have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.''

Under section 6 of Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments or EPA consults with State and local officials early in the process of developing the proposed regulation. EPA also may not issue a regulation that has federalism implications and that preempts State law, unless the Agency consults with State and local officials early in the process of developing the proposed regulation.

This proposed rule would not have federalism implications. It would not have substantial direct effects on the States, on the relationship between the Federal government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. Rather, this proposed rule would result in minimal administrative costs to States that have an authorized NPDES program. Under the co-proposed 50 MGD All Waterbodies Option, EPA expects an annual burden of 16,972 hours with an annual cost of $6,823 (non-labor costs) for States to collectively administer this proposed rule. Under the co-proposed 200 MGD All Waterbodies Option, EPA expects an annual burden of 4,677 hours with an annual cost of $2,160 (non-labor costs) for States to collectively administer this proposed rule. Under the co-proposed 100 MGD Certain Waterbodies Option, EPA expects an annual burden of 6,528 hours with an annual cost of $1,973 (non-labor costs) for States to collectively administer this proposed rule. It is noted that States do not incur any burden hours and non-labor costs to administer the proposed rule for new offshore oil and gas extraction facilities since these facilities are outside of the jurisdiction of the States. EPA has identified zero Phase III existing facilities that are owned by federal, state or local government entities; therefore, the annual impacts on these facilities is zero.

The proposed national cooling water intake structure requirements would be implemented through permits issued under the NPDES program. Forty-five

States and the Virgin Islands are currently authorized pursuant to section 402(b) of the Clean Water Act to implement the NPDES program. In States not authorized to implement the NPDES program, EPA issues NPDES permits. Under the Clean Water Act, States are not required to become authorized to administer the NPDES program. Rather, such authorization is available to States if they operate their programs in a manner consistent with section 402(b) and applicable regulations. Generally, these provisions require that State NPDES programs include requirements that are as stringent as Federal program requirements. States retain the ability to implement requirements that are broader in scope or more stringent than Federal requirements. (See section 510 of the Clean Water Act.)

Today's proposed rule would not have substantial direct effects on either authorized or nonauthorized States or on local governments because it would not change how EPA and the States and local governments interact or their respective authority or responsibilities for implementing the NPDES program. Today's proposed rule would establish national requirements for Phase III facilities with cooling water intake structures. NPDES-authorized States that currently do not comply with the regulations based on today's proposal might need to amend their regulations or statutes to ensure that their NPDES programs are consistent with Federal section 316(b) requirements. See 40 CFR 123.62(e). For purposes of this proposed rule, the relationship and distribution of power and responsibilities between the Federal government and the States and local governments are established under the Clean Water Act (*e.g.*, sections 402(b) and 510); nothing in this proposed rule would alter that. Thus, the requirements of section 6 of the Executive Order do not apply to this rule.

Although section 6 of Executive Order 13132 does not apply to this rule, EPA did consult with State governments and representatives of local governments in developing the proposed rule. During the development of the proposed and final Phase I and Phase II section 316(b) rules, EPA conducted several outreach activities through which State and local officials were informed about this proposal and they provided information and comments to the Agency. The outreach activities were intended to provide EPA with feedback on issues such as adverse environmental impact, best technology available, and the potential cost associated with various regulatory alternatives. These outreach activities are discussed in section I.C of the preamble to today's proposed rule.

In the spirit of this Executive Order and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

F. E.O. 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175, entitled ''Consultation and Coordination with Indian Tribal Governments'' (65 FR 67249, November 6, 2000), requires EPA to develop an accountable process to ensure ''meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.'' ''Policies that have tribal implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects on one or more Indian Tribes, on the relationship between the Federal government and the Indian Tribes, or on the distribution of power and responsibilities between the Federal government and Indian Tribes.''

This proposed rule would not have tribal implications. It would not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian Tribes, or on the distribution of power and responsibilities between the Federal government and Indian Tribes, as specified in Executive Order 13175. EPA's analyses show that no facility subject to this proposed rule is owned by tribal governments. This proposed rule would not affect Tribes in any way in the foreseeable future. Accordingly, the requirements of Executive Order 13175 do not apply to this rule.

G. E.O. 13045: Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule that (1) is determined to be ''economically significant'' as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe might have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health and safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency. This proposed rule is not an economically significant rule as defined under Executive Order 12866 ($100 million threshold). Further, it does not concern an environmental health or safety risk that would have a disproportionate effect on children. Therefore, it is not subject to Executive Order 13045.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

This proposal is not a ''significant energy action'' as defined in Executive Order 13211, (''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355, May 22, 2001)) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Based on our analysis (see section VIII), EPA has determined that the proposal contains no compliance requirements that would:

- Reduce crude oil supply in excess of 10,000 barrels per day;
- Reduce fuel production in excess of 4,000 barrels per day;
- Reduce coal production in excess of 5 million tons per day;
- Reduce electricity production in excess of 1 billion kilowatt hours per day or in excess of 500 megawatts of installed capacity;
- Increase energy prices in excess of 10 percent;
- Increase the cost of energy distribution in excess of 10 percent;
- Significantly increase dependence on foreign supplies of energy; or
- Have other similar adverse outcomes, particularly unintended ones.

EPA analyzed the potential for impacts of the three co-proposed options and the proposed rule for new offshore oil and gas extraction facilities and found that none of them would lead to adverse outcomes. From these analyses, EPA concludes that this proposal would have minimal energy effects at a national and regional level. As a result, EPA did not prepare a Statement of Energy Effects. For more detail on the potential energy effects of this proposal, see the ''Economic Analysis for the Proposed Section 316(b) Rule for Phase III Facilities'' (DCN 7–0002). EPA requests comments on these determinations.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) of 1995, Public Law 104–113, Sec. 12(d) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical

standards (*e.g.*, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standard bodies. The NTTAA directs EPA to provide Congress, through the Office of Management and Budget (OMB), explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This proposed rule does not involve such technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards. EPA welcomes comments on this aspect of the proposed rule and, specifically, invites the public to identify potentially applicable voluntary consensus standards and to explain why such standards should be used in this proposed rule.

J. E.O. 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 requires that, to the greatest extent practicable and permitted by law, each Federal agency must make achieving environmental justice part of its mission. E.O. 12898 provides that each Federal agency must conduct its programs, policies, and activities that substantially affect human health or the environment in a manner that ensures such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under such programs, policies, and activities because of their race, color, or national origin.

Today's proposed rule would require that the location, design, construction, and capacity of cooling water intake structures at Phase III existing facilities reflect the best technology available for minimizing adverse environmental impact. For several reasons, EPA does not expect that this proposed rule would have an exclusionary effect, deny persons the benefits of the participating in a program, or subject persons to discrimination because of their race, color, or national origin.

To assess the impact of the rule on low-income and minority populations, EPA calculated the poverty rate and the percentage of the population classified as non-white for populations living within a 50-mile radius of each of the 348 (unweighted) facilities in the Phase III universe. The results of the analysis, presented in the Economic Analysis, show that the populations affected by the in-scope facilities have poverty levels and racial compositions that are quite similar to the U.S. population as a whole. Based on these results, EPA does not believe that this rule would have an exclusionary effect, deny persons the benefits of the NPDES program, or subject persons to discrimination because of their race, color, or national origin.

In fact, because EPA expects that this proposed rule would help to preserve the health of aquatic ecosystems located in reasonable proximity to Phase III existing facilities, it believes that all populations, including minority and low-income populations, would benefit from improved environmental conditions as a result of this rule.

K. E.O. 13158: Marine Protected Areas

Executive Order 13158 (65 FR 34909, May 31, 2000) requires EPA to ''expeditiously propose new science-based regulations, as necessary, to ensure appropriate levels of protection for the marine environment.'' EPA may take action to enhance or expand protection of existing marine protected areas and to establish or recommend, as appropriate, new marine protected areas. The purpose of the Executive Order is to protect the significant natural and cultural resources within the marine environment, which means ''those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands thereunder, over which the United States exercises jurisdiction, consistent with international law.''

This proposed rule recognizes the biological sensitivity of tidal rivers, estuaries, oceans, and the Great Lakes and their susceptibility to adverse environmental impact from cooling water intake structures. This proposal provides requirements for reducing both impingement and entrainment using technologies to minimize adverse environmental impact for cooling water intake structures located on these types of waterbodies.

EPA expects that this proposed rule would reduce impingement and entrainment at Phase III existing facilities. The rule would afford protection of aquatic organisms at individual, population, community, or ecosystem levels of ecological structures. Therefore, EPA expects today's proposed rule would advance the objective of the Executive Order to protect marine areas.

L. Plain Language Directive

Executive Order 12866 and the President's memorandum of June 1, 1998, require each agency to write all rules in plain language. We invite your comments on how to make this proposed rule easier to understand. For example: Have we organized the material to suit your needs? Are the requirements in the rule clearly stated? Does the rule contain technical language or jargon that is not clear? Would a different format (grouping and order of sections, use of headings, paragraphing) make the rule easier to understand? Would more (but shorter) sections be better? Could we improve clarity by adding tables, lists, or diagrams? What else could we do to make the rule easier to understand?

List of Subjects

40 CFR Part 9

Environmental protection, Reporting and recordkeeping requirements.

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 123

Environmental protection, Administrative practice and procedure, Confidential business information, Hazardous substances, Indians-lands, Intergovernmental relations, Penalties, Reporting and recordkeeping requirements, Water pollution control.

40 CFR Part 124

Environmental protection, Administrative practice and procedure, Air pollution control, Hazardous waste, Indians-lands, Reporting and recordkeeping requirements, Water pollution control, Water supply.

40 CFR Part 125

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

Dated: November 1, 2004.

Michael O. Leavitt,

Administrator.

For the reasons set forth in the preamble, chapter I of title 40 of the Code of Federal Regulations is proposed to be amended as follows:

PART 9—OMB APPROVALS UNDER THE PAPERWORK REDUCTION ACT

1. The authority citation for part 9 continues to read as follows:

Authority: 7 U.S.C. 135 *et seq.*, 136–136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601–2671,

21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 *et seq.*, 1311, 1313d, 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345 (d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g–1, 300g–2, 300g–3, 300g–4, 300g–5, 300g–6, 300j–1, 300j–2, 300j–3, 300j–4, 300j–9, 1857 *et seq.*, 6901–6992k, 7401–7671q, 7542, 9601–9657, 11023, 11048.

2. In § 9.1 the table is amended by revising the entry for ''122.21(r)'' and by adding entries in numerical order under the indicated heading to read as follows:

§ 9.1 OMB approvals under the Paperwork Reduction Act.

* * * * *

40 CFR citation	OMB Control No.
* * * * * * *	
EPA Administered Permit Programs: The National Pollutant Discharge Elimination System	
* * * * * * *	
122.21(r)	2040–0241, 2040–0257, xxxx–xxxx
* * * * * * *	
Criteria and Standards for the National Pollutant Discharge Elimination System	
* * * * * * *	
125.103	xxxx–xxxx
125.104	xxxx–xxxx
125.106	xxxx–xxxx
125.107	xxxx–xxxx
125.108	xxxx–xxxx
* * * * * * *	

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. Section 122.21 is amended as follows:

a. Revising paragraph (r)(1).

b. Adding a new paragraph (r)(2)(iv).

c. Revising paragraph (r)(4) introductory text.

d. Revising paragraph (r)(5) introductory text.

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

* * * * *

(r) *Application requirements for facilities with cooling water intake structures*—(1)(i) *New facilities with new or modified cooling water intake structures.* New facilities (other than offshore oil and gas extraction facilities) with cooling water intake structures as defined in part 125, subpart I, of this chapter must submit to the Director for review the information required under paragraphs (r)(2) (except (r)(2)(iv)), (3), and (4) of this section and § 125.86 of this chapter as part of their application. New offshore oil and gas extraction facilities with cooling water intake structures as defined in part 125, subpart N, of this chapter that are fixed facilities must submit to the Director for review the information required under paragraphs (r)(2) (except (r)(2)(iv)), (3), and (4) of this section and § 125.136 of this chapter as part of their application. New offshore oil and gas extraction facilities that are *not* fixed facilities must submit to the Director for review only the information required under paragraphs (r)(2)(iv), (r)(3) (except (r)(3)(ii)), and § 125.136 of this chapter as part of their application. Requests for alternative requirements under § 125.85 or § 125.135 of this chapter must be submitted with your permit application.

(ii) *Phase II existing facilities.* Phase II existing facilities as defined in part 125, subpart J, of this chapter must submit to the Director for review the information required under paragraphs (r)(2) (except (r)(2)(iv)), (3), and (5) of this section and all applicable provisions of § 125.95 of this chapter as part of their application except for the Proposal for Information Collection which must be provided in accordance with § 125.95(b)(1).

(iii) *Phase III existing facilities.* Phase III existing facilities as defined in part 125, subpart K, of this chapter must submit to the Director for review the information required under paragraphs (r)(2) (except (r)(2)(iv)), (3), and (5) of this section and all applicable provisions of § 125.104 of this chapter as part of their application except for the Proposal for Information Collection which must be provided in accordance with § 125.104(b)(1) of this chapter.

(2) * * *

(iv) For new offshore oil and gas facilities that are *not* fixed facilities, a narrative description and/or locational maps providing information on predicted locations within the waterbody during the permit term in sufficient detail for the Director to determine the appropriateness of additional impingement requirements under § 125.134(b)(4) of this chapter.

* * * * *

(4) Source water baseline biological characterization data. This information is required 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. 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) or § 125.136(b)(3) of this chapter should be revised. This supporting information must include existing data (if they are available). However, you may supplement the data using newly conducted field studies if you choose to do so. The information you submit must include:

* * * * *

(5) *Cooling water system data.* Phase II and III existing facilities as defined in part 125, subparts J and K, respectively, of this chapter must provide the

following information for each cooling water intake structure they use:

* * * * *

3. Section 122.44 is amended by revising paragraph (b)(3) to read as follows:

§ 122.44 Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs, see § 123.25).

* * * * *

(b) * * *

(3) Requirements applicable to cooling water intake structures under section 316(b) of the CWA, in accordance with part 125, subparts I, J, K, and N of this chapter.

* * * * *

PART 123—STATE PROGRAM REQUIREMENTS

1. The authority citation for part 123 continues to read as follows:

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

2. Section 123.25 is amended by revising paragraph (a)(36) to read as follows:

§ 123.25 Requirements for permitting.

(a) * * *

(36) Subparts A, B, D, H, I, J, K, and N of part 125 of this chapter;

* * * * *

PART 124—PROCEDURES FOR DECISIONMAKING

1. The authority citation for part 124 continues to read as follows:

Authority: Resource Conservation and Recovery Act, 42 U.S.C. 6901 *et seq.*; Safe Drinking Water Act, 42 U.S.C. 300f *et seq.*; Clean Water Act, 33 U.S.C. 1251 *et seq.*; Clean Air Act, 42 U.S.C. 7401 *et seq.*

2. Section 124.10 is amended by revising paragraph (d)(1)(ix) to read as follows:

§ 124.10 Public notice of permit actions and public comment period.

* * * * *

(d) * * *

(1) * * *

(ix) Requirements applicable to cooling water intake structures under section 316(b) of the CWA, in accordance with part 125, subparts I , J, K, and N of this chapter.

* * * * *

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

1. 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.

2. Add subpart K to part 125 to read as follows:

Subpart K—Requirements Applicable to Cooling Water Intake Structures for Phase III Existing Facilities Under Section 316(b) of the Act

Sec.

Subpart K—Requirements Applicable to Cooling Water Intake Structures for Phase III Existing Facilities Under Section 316(b) of the Act

§ 125.100 What are the purpose and scope of this subpart?

(a) This subpart establishes requirements that apply to the location, design, construction, and capacity of cooling water intake structures at existing facilities that are subject to this subpart (*i.e.*, Phase III existing facilities). The purpose of these requirements is to establish the best technology available for minimizing adverse environmental impact associated with the use of cooling water intake structures. These requirements are implemented through National Pollutant Discharge Elimination System (NPDES) permits issued under section 402 of the Clean Water Act (CWA).

(b) Existing facilities that are not subject to requirements under this or another subpart of this Part must meet requirements under section 316(b) of the CWA determined by the Director on a case-by-case, best professional judgment (BPJ) basis.

(c) *Alternative regulatory requirements.* Notwithstanding any other provision of this subpart, if a State demonstrates to the Administrator that it has adopted alternative regulatory requirements in its NPDES program that will result in environmental performance within a watershed that is comparable to the reductions of impingement mortality and entrainment that would otherwise be achieved under § 125.103, the Administrator must approve such alternative regulatory requirements.

(d) 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 not less stringent than those required by Federal law.

§ 125.101 What is a ''Phase III existing facility''?

OPTION A FOR PARAGRAPH (a)—

[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 50 MGD or more, located on any waterbody type]:

(a) An existing facility, as defined in § 125.102, is a Phase III existing facility 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 of 50 million gallons per day (MGD) or more to withdraw cooling water from waters of the United States;

(3) It is an existing facility other than a Phase II existing facility as defined in § 125.91 and § 125.93; and

(4) It uses at least 25 percent of water withdrawn exclusively for cooling purposes, measured on an average annual basis.

OPTION B FOR PARAGRAPH (a)—

[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 200 MGD or more, located on any waterbody type]:

(a) An existing facility, as defined in § 125.102, is a Phase III existing facility 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 of 200 million gallons per day (MGD) or more to withdraw cooling water from waters of the United States;

(3) It is an existing facility other than a Phase II existing facility as defined in § 125.91 and § 125.93; and

(4) It uses at least 25 percent of water withdrawn exclusively for cooling

purposes, measured on an average annual basis.

OPTION C FOR PARAGRAPH (a)—

[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 100 MGD or more, located on oceans, estuaries, tidal rivers, or one of the Great Lakes]:

(a) An existing facility, as defined in § 125.102, is a Phase III existing facility 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 of 100 million gallons per day (MGD) or more to withdraw cooling water from waters of the United States;

(3) It withdraws cooling water from an ocean, estuary, tidal river, or one of the Great Lakes;

(4) It is an existing facility other than a Phase II existing facility as defined in § 125.91 and § 125.93; and

(5) It uses at least 25 percent of water withdrawn exclusively for cooling purposes, measured on an average annual basis.

(b) If an existing manufacturing facility is co-located with one or more existing facilities (that are not Phase II existing facilities as defined in § 125.91 and § 125.93), each of the co-located facilities would be considered a Phase III existing facility if the combined total design intake flow of the co-located facilities is greater than the flow threshold established in paragraph (a)(2) of this section and each of the facilities meets the remaining applicability criteria in paragraph (a) of this section.

(c) 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 supplier withdraws water from waters of the United States but is not itself a Phase II existing facility (as defined in § 125.91 and § 125.93) or Phase III existing facility, except as provided in paragraph (d) of this section. This provision is intended to prevent circumvention of these requirements by creating arrangements to receive cooling water from an entity that is not itself a Phase II or Phase III existing facility.

(d) Notwithstanding paragraph (c) of this section, obtaining cooling water from a public water system or using treated effluent as cooling water at a Phase III existing facility does not constitute use of a cooling water intake structure for purposes of this subpart.

§ 125.102 What special definitions apply to this subpart?

In addition to the definitions provided in § 122.3 of this chapter, the following special definitions apply to this subpart:

Adaptive management method is a type of project management method where a facility chooses an approach to meeting the project goal, monitors the effectiveness of that approach, and then based on monitoring and any other relevant information, makes any adjustments necessary to ensure continued progress toward the project's goal. This cycle of activity is repeated as necessary to reach the project's goal.

All life stages means eggs, larvae, juveniles, and adults.

Annual mean flow means the average of daily flows over a calendar year.

Calculation baseline means an estimate of impingement mortality and entrainment that would occur at your site assuming that: the cooling water system has been designed as a once-through system; the opening of the cooling water intake structure is located at, and the face of the standard 3/8-inch mesh traveling screen is oriented parallel to, the shoreline near the surface of the source waterbody; and the baseline practices, procedures, and structural configuration are those that your facility would maintain in the absence of any structural or operational controls, including flow or velocity reductions, implemented in whole or in part for the purposes of reducing impingement mortality and entrainment. You may also choose to use the current level of impingement mortality and entrainment as the calculation baseline. The calculation baseline may be estimated using: historical impingement mortality and entrainment data from your facility or from another facility with comparable design, operational, and environmental conditions; current biological data collected in the waterbody in the vicinity of your cooling water intake structure; or current impingement mortality and entrainment data collected at your facility. You may request that the calculation baseline be modified to be based on a location of the opening of the cooling water intake structure at a depth other than at or near the surface if you can demonstrate to the Director that the other depth would correspond to a higher baseline level of impingement mortality and/or entrainment.

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 and/or noncontact cooling uses within a facility. The water is usually sent to a cooling canal or channel, lake, pond, or tower to allow waste heat to be dissipated to the atmosphere and then is returned to the system. (Some facilities divert the waste heat to other process operations.) New source water (make-up water) is added to the system to replenish losses that have occurred 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 that is used in a manufacturing process either before or after it is used for cooling is considered process water for the purposes of calculating the percentage of a facility's intake flow that is used for cooling purposes in § 125.101(a)(4).

Cooling water intake structure means the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the U.S. The cooling water intake structure extends from the point at which water is withdrawn from the surface water source up to, and including, the intake pumps.

Design and construction technology means any physical configuration of the cooling water intake structure, or a technology that is placed in the water body in front of the cooling water intake structure, to reduce impingement mortality and/or entrainment. Design and construction technologies include, but are not limited to, location of the intake structure, intake screen systems, passive intake systems, fish diversion and/or avoidance systems, and fish handling and return systems. Restoration measures are not design and construction technologies for purposes of this definition.

Design intake flow means the value assigned (during the cooling water intake structure design) to the total volume of water withdrawn from a source waterbody over a specific time period.

Design intake velocity means the value assigned (during the design of a cooling water intake structure) to the average speed at which intake water passes through the open area of the intake screen (or other device) against which organisms might be impinged or through which they might be entrained.

Diel means daily and refers to variation in organism abundance and density over a 24-hour period due to the

influence of water movement, physical or chemical changes, and changes in light intensity.

Entrainment means the incorporation of any life stages of fish and shellfish with intake water flow entering and passing through a cooling water intake structure and into a cooling water system.

Estuary means a semi-enclosed body of water that has a free connection with open seas and within which the seawater is measurably diluted with fresh water derived from land drainage. The salinity of an estuary exceeds 0.5 parts per thousand (by mass) but is typically less than 30 parts per thousand (by mass).

Existing facility means any facility that commenced construction as described in 40 CFR 122.29(b)(4) on or before January 17, 2002 (or [60 days from publication of the final rule] for an offshore oil and gas extraction facility); and any modification of, or any addition of a unit at such a facility that does not meet the definition of a new facility at § 125.83.

Freshwater river or stream means a lotic (free-flowing) system that does not receive significant inflows of water from oceans or bays due to tidal action. For the purposes of this rule, a flow-through reservoir with a retention time of 7 days or less will be considered a freshwater river or stream.

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.

Lake or reservoir means any inland body of open water with some minimum surface area free of rooted vegetation and with an average hydraulic retention time of more than 7 days. Lakes or reservoirs might be natural water bodies or impounded streams, usually fresh, surrounded by land or by land and a man-made retainer (*e.g.*, a dam). Lakes or reservoirs might be fed by rivers, streams, springs, and/or local precipitation.

Moribund means dying; close to death.

Natural thermal stratification means the naturally occurring and/or existing division of a waterbody into horizontal layers of differing densities as a result of variations in temperature at different depths.

Ocean means marine open coastal waters with a salinity greater than or equal to 30 parts per thousand (by mass).

Once-through cooling water system means a system designed to withdraw water from a natural or other water source, use it at the facility to support contact and/or noncontact cooling uses, and then discharge it to a waterbody without recirculation. Once-through cooling systems sometimes employ canals/channels, ponds, or non-recirculating cooling towers to dissipate waste heat from the water before it is discharged.

Operational measure means a modification to any operation at a facility that serves to minimize impact to fish and shellfish from the cooling water intake structure. Examples of operational measures include, but are not limited to: reductions in cooling water intake flow through the use of variable speed pumps and seasonal flow reductions or shutdowns; and more frequent rotation of traveling screens.

Source water means the waters of the U.S. from which the cooling water is withdrawn.

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 sells 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.

Thermocline means the middle layer of a thermally stratified lake or a reservoir. In this layer, there is a rapid change in temperatures between the top and bottom of the layer.

Tidal river means the most seaward reach of a river or stream where the salinity is typically less than or equal to 0.5 parts per thousand (by mass) at a time of annual low flow and whose surface elevation responds to the effects of coastal lunar tides.

§ 125.103 How will requirements reflecting best technology available for minimizing adverse environmental impact be established for my Phase III existing facility?

(a) *Compliance Alternatives.* You must select and implement one of the following five alternatives for establishing best technology available for minimizing adverse environmental impact at your facility:

(1)(i) You may demonstrate to the Director that you have reduced, or will reduce, your flow commensurate with a closed-cycle recirculating system. In this case, you are deemed to have met the applicable performance standards and will *not* be required to demonstrate further that your facility meets the impingement mortality and entrainment performance standards specified in paragraph (b) of this section. In addition, you are not subject to the requirements in §§ 125.104, 125.105, 125.106, or 125.107. However, you may still be subject to any more stringent requirements established under paragraph (e) of this section; or

(ii) You may demonstrate to the Director that you have reduced, or will reduce, your maximum through-screen design intake velocity to 0.5 ft/s or less. In this case, you are deemed to have met the impingement mortality performance standards and will *not* be required to demonstrate further that your facility meets the performance standards for impingement mortality specified in paragraph (b) of this section and you are not subject to the requirements in §§ 125.104, 125.105, 125.106, or 125.107 as they apply to impingement mortality. However, you are still subject to any applicable requirements for entrainment reduction and may still be subject to any more stringent requirements established under paragraph (e) of this section.

(2) You may demonstrate to the Director that your existing design and construction technologies, operational measures, and/or restoration measures meet the performance standards specified in paragraph (b) of this section and/or the restoration requirements in paragraph (c) of this section;

(3) You may demonstrate to the Director that you have selected, and will install and properly operate and maintain, design and construction technologies, operational measures, and/or restoration measures that will, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet the performance standards specified in paragraph (b) of this section and/or the restoration requirements in paragraph (c) of this section;

(4) You may demonstrate to the Director that you have installed, or will install, and properly operate and maintain an approved design and construction technology in accordance with § 125.108(a) or (b); or

(5) You may demonstrate to the Director that you have selected, installed, and are properly operating and maintaining, or will install and properly operate and maintain design and construction technologies, operational measures, and/or restoration measures that the Director has determined to be the best technology available to minimize adverse environmental impact for your facility in accordance with paragraphs (a)(5)(i) or (a)(5)(ii) of this section.

(i) If the Director determines that data specific to your facility demonstrate that the costs of compliance under

alternatives in paragraphs (a)(2) through (4) of this section would be significantly greater than the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards in paragraph (b) of this section, the Director must make a site-specific determination of the best technology available for minimizing adverse environmental impact. This determination must be based on reliable, scientifically valid cost and performance data submitted by you and any other information that the Director deems appropriate. The Director must establish site-specific alternative requirements based on new and/or existing design and construction technologies, operational measures, and/or restoration measures that achieve an efficacy that is, in the judgment of the Director, as close as practicable to the applicable performance standards in paragraph (b) of this section, without resulting in costs that are significantly greater than the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards. The Director's site-specific determination may conclude that design and construction technologies, operational measures, and/or restoration measures in addition to those already in place are not justified because of the significantly greater costs. To calculate the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards you must:

(A) Determine which technology the Administrator modeled as the most appropriate compliance technology for your facility;

(B) Using the Administrator's costing equations, calculate the annualized capital and net operation and maintenance (O&M) costs for a facility with your design intake flow using this technology;

(C) Determine the annualized net revenue loss associated with net construction downtime that the Administrator modeled for your facility to install this technology;

(D) Determine the annualized pilot study costs that the Administrator modeled for your facility to test and optimize this technology;

(E) Sum the cost items in paragraphs (a)(5)(i)(B), (a)(5)(i)(C), and (a)(5)(i)(D) of this section; and

(F) Determine if the performance standards that form the basis of these estimates (*i.e.*, impingement mortality reduction only or impingement mortality and entrainment reduction) are applicable to your facility, and if necessary, adjust the estimates to correspond to the applicable performance standards.

(ii) If the Director determines that data specific to your facility demonstrate that the costs of compliance under alternatives in paragraphs (a)(2) through (4) of this section would be significantly greater than the benefits of complying with the applicable performance standards at your facility, the Director must make a site-specific determination of best technology available for minimizing adverse environmental impact. This determination must be based on reliable, scientifically valid cost and performance data submitted by you and any other information the Director deems appropriate. The Director must establish site-specific alternative requirements based on new and/or existing design and construction technologies, operational measures, and/or restoration measures that achieve an efficacy that, in the judgment of the Director, is as close as practicable to the applicable performance standards in paragraph (b) of this section without resulting in costs that are significantly greater than the benefits at your facility. The Director's site-specific determination may conclude that design and construction technologies, operational measures, and/or restoration measures in addition to those already in place are not justified because the costs would be significantly greater than the benefits at your facility.

OPTION A FOR PARAGRAPH (b)—

[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 50 MGD or more, located on any waterbody type or the regulatory option that defines a Phase III existing facility as one with design intake flows 200 MGD or more, located on any waterbody type]:

(b) *National Performance Standards*—(1) *Impingement Mortality Performance Standards.* If you choose compliance alternatives in paragraphs (a)(2), (a)(3), or (a)(4) of this section, you must reduce impingement mortality for all life stages of fish and shellfish by 80 to 95 percent from the calculation baseline.

(2) *Entrainment Performance Standards.* If you choose compliance alternatives in paragraphs (a)(1)(ii), (a)(2), (a)(3), or (a)(4) of this section, you must also reduce entrainment of all life stages of fish and shellfish by 60 to 90 percent from the calculation baseline if:

(i) Your facility is a Phase III existing facility; and

(ii)(A) Your facility uses cooling water withdrawn from a tidal river, estuary, ocean, or one of the Great Lakes; or

(B) Your facility uses cooling water withdrawn from a freshwater river or stream and the design intake flow of your cooling water intake structures is greater than five percent of the mean annual flow.

(3) *Additional Performance Standards for Facilities Withdrawing from a Lake (Other Than One of the Great Lakes) or a Reservoir.* If your facility withdraws cooling water from a lake (other than one of the Great Lakes) or a reservoir and you propose to increase the design intake flow of cooling water intake structures it uses, your increased design intake flow must not disrupt the natural thermal stratification or turnover pattern (where present) of the source water, except in cases where the disruption does not adversely affect the management of fisheries. In determining whether any such disruption does not adversely affect the management of fisheries, you must consult with Federal, State, or Tribal fish and wildlife management agencies.

(4) *Use of Performance Standards for Site-Specific Determinations of Best Technology Available.* The performance standards in paragraphs (b)(1) and (2) of this section must also be used for determining eligibility for site-specific determinations of best technology available for minimizing adverse environmental impact and establishing site-specific requirements that achieve an efficacy as close as practicable to the applicable performance standards without resulting in costs that are significantly greater than those considered by the Administrator for a facility like yours in establishing the performance standards or costs that are significantly greater than the benefits at your facility, pursuant to paragraph (a)(5) of this section.

OPTION B FOR PARAGRAPH (b)—

[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 100 MGD or more, located on oceans, estuaries, tidal rivers, or one of the Great Lakes]:

(b) *National Performance Standards*—(1) *Impingement Mortality Performance Standards.* If you choose compliance alternatives in paragraphs (a)(2), (a)(3), or (a)(4) of this section, you must reduce impingement mortality for all life stages of fish and shellfish by 80 to 95 percent from the calculation baseline.

(2) *Entrainment Performance Standards.* If you choose compliance alternatives in paragraphs (a)(1)(ii), (a)(2), (a)(3), or (a)(4) of this section, you must also reduce entrainment of all life stages of fish and shellfish by 60 to 90 percent from the calculation baseline.

(3) *Use of Performance Standards for Site-Specific Determinations of Best Technology Available.* The performance standards in paragraphs (b)(1) and (2) of this section must also be used for determining eligibility for site-specific determinations of best technology available for minimizing adverse environmental impact and establishing site specific requirements that achieve an efficacy as close as practicable to the applicable performance standards without resulting in costs that are significantly greater than those considered by the Administrator for a facility like yours in establishing the performance standards or costs that are significantly greater than the benefits at your facility, pursuant to paragraph (a)(5) of this section.

(c) *Requirements for Restoration Measures.* With the approval of the Director, you may implement and adaptively manage restoration measures that produce and result in increases of fish and shellfish in your facility's watershed in place of or as a supplement to installing design and control technologies and/or adopting operational measures that reduce impingement mortality and entrainment. You must demonstrate to the Director that:

(1) You have evaluated the use of design and construction technologies and operational measures for your facility and determined that the use of restoration measures is appropriate because meeting the applicable performance standards or site-specific requirements through the use of design and construction technologies and/or operational measures alone is less feasible, less cost-effective, or less environmentally desirable than meeting the standards or requirements in whole or in part through the use of restoration measures; and

(2) The restoration measures you will implement, alone or in combination with design and construction technologies and/or operational measures, will produce ecological benefits (fish and shellfish), including maintenance or protection of community structure and function in your facility's waterbody or watershed, at a level that is substantially similar to the level you would achieve by meeting the applicable performance standards under paragraph (b) of this section, or that satisfies alternative site-specific requirements established pursuant to paragraph (a)(5) of this section.

(d)(1) *Compliance Using a Technology Installation and Operation Plan or Restoration Plan.* If you choose one of the compliance alternatives in paragraphs (a)(2), (3), (4), or (5) of this section, you may request that compliance with the requirements of paragraphs (a)(5) and (b) of this section during the first permit containing requirements consistent with this subpart be determined based on whether you have complied with the construction, operational, maintenance, monitoring, and adaptive management requirements of a Technology Installation and Operation Plan developed in accordance with § 125.104(b)(4)(ii) (for any design and construction technologies and/or operational measures) and/or a Restoration Plan developed in accordance with § 125.104(b)(5) (for any restoration measures). The Technology Installation and Operation Plan must be designed to meet applicable performance standards in paragraph (b) of this section or alternative site-specific requirements developed pursuant to paragraph (a)(5) of this section. The Restoration Plan must be designed to achieve compliance with the applicable requirements in paragraph (c) of this section.

(2) During subsequent permit terms, if you selected and installed design and construction technologies and/or operational measures and have been in compliance with the construction, operational, maintenance, monitoring, and adaptive management requirements of your Technology Installation and Operation Plan during the preceding permit term, you may request that compliance with the requirements of this section during the following permit term be determined based on whether you remain in compliance with your Technology Installation and Operation Plan, revised in accordance with your adaptive management plan in § 125.104(b)(4)(ii)(C) if applicable performance standards are not being met. Each request and approval of a Technology Installation and Operation Plan shall be limited to one permit term.

(3) During subsequent permit terms, if you selected and installed restoration measures and have been in compliance with the construction, operational, maintenance, monitoring, and adaptive management requirements in your Restoration Plan during the preceding permit term, you may request that compliance with the requirements of this section during the following permit term be determined based on whether you remain in compliance with your Restoration Plan, revised in accordance with your adaptive management plan in § 125.104(b)(5)(v) if applicable performance standards are not being met. Each request and approval of a Restoration Plan shall be limited to one permit term.

(e) *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.

§ 125.104 As an owner or operator of a Phase III existing facility, what must I collect and submit when I apply for my reissued NPDES permit?

(a)(1) You must submit to the Director the Proposal for Information Collection required in paragraph (b)(1) of this section prior to the start of information collection activities;

(2) You must submit to the Director the information required in 40 CFR 122.21(r)(2) (except (r)(2)(iv)), (r)(3) and (r)(5) and any applicable portions of the Comprehensive Demonstration Study (Study), except for the Proposal for Information Collection required by paragraph (b)(1) of this section; and

(i) You must submit your NPDES permit application in accordance with the time frames specified in 40 CFR 122.21(d)(2).

(ii) If you are a Phase III existing facility and your existing permit expires before [4 years from publication of the final rule], you may request that the Director establish a schedule for you to submit the information required by this section as expeditiously as practicable, but not later than [3 years and 180 days from publication of the final rule]. Between the time your existing permit expires and the time an NPDES permit containing requirements consistent with this subpart is issued to your facility, the best technology available to minimize adverse environmental impact will continue to be determined based on the Director's best professional judgment.

(3) In subsequent permit terms, the Director may approve a request to reduce the information required to be submitted in your permit application on the cooling water intake structure(s) and the source waterbody, if conditions at your facility and in the waterbody remain substantially unchanged since your previous application. You must submit your request for reduced cooling water intake structure and waterbody application information to the Director at least one year prior to the expiration of the permit. Your request must identify each required information item in 40 CFR 122.21(r) and this section that you determine has not substantially changed since the previous permit

application and the basis for your determination.

OPTION A FOR PARAGRAPH (b)—

[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 50 MGD or more, located on any waterbody type or the regulatory option that defines a Phase III existing facility as one with design intake flows 200 MGD or more, located on any waterbody type]:

(b) *Comprehensive Demonstration Study* The purpose of the Comprehensive Demonstration Study (Study) is to characterize impingement mortality and entrainment, to describe the operation of your cooling water intake structures, and to confirm that the technologies, operational measures, and/or restoration measures you have selected and installed, or will install, at your facility meet the applicable requirements of § 125.103. All facilities except those that have met the applicable requirements in accordance with §§ 125.103(a)(1)(i), 125.103(a)(1)(ii), and 125.103(a)(4) must submit all applicable portions of the Comprehensive Demonstration Study to the Director in accordance with paragraph (a) of this section. Facilities that meet the requirements in § 125.103(a)(1)(i) by reducing their flow commensurate with a closed-cycle, recirculating system are not required to submit a Comprehensive Demonstration Study. Facilities that meet the requirements in § 125.103(a)(1)(ii) by reducing their design intake velocity to 0.5 ft/sec or less are required to submit a Study only for the entrainment requirements, if applicable. Facilities that meet the requirements in § 125.103(a)(4) and have installed and properly operate and maintain an approved design and construction technology (in accordance with § 125.108) are required to submit only the Technology Installation and Operation Plan in paragraph (b)(4) of this section and the Verification Monitoring Plan in paragraph (b)(7) of this section. Facilities that are required to meet only impingement mortality performance standards in § 125.103(b)(1) are required to submit only a Study for the impingement mortality reduction requirements. The Comprehensive Demonstration Study must include:

(1) *Proposal For Information Collection.* You must submit to the Director for review and comment a description of the information you will use to support your Study. The Proposal for Information Collection must be submitted prior to the start of information collection activities, but you may initiate such activities prior to receiving comment from the Director. The proposal must include:

(i) A description of the proposed and/or implemented technologies, operational measures, and/or restoration measures to be evaluated in the Study;

(ii) A list and description of any historical studies characterizing impingement mortality and entrainment and/or the physical and biological conditions in the vicinity of the cooling water intake structures and their relevance to this proposed Study. If you propose to use existing data, you must demonstrate the extent to which the data are representative of current conditions and that the data were collected using appropriate quality assurance/quality control procedures;

(iii) A summary of any past or ongoing consultations with appropriate Federal, State, and Tribal fish and wildlife agencies that are relevant to this Study and a copy of written comments received as a result of such consultations; and

(iv) A sampling plan for any new field studies you propose to conduct in order to ensure that you have sufficient data to develop a scientifically valid estimate of impingement mortality and entrainment at your site. The sampling plan must document all methods and quality assurance/quality control procedures for sampling and data analysis. The sampling and data analysis methods you propose must be appropriate for a quantitative survey and include consideration of the methods used in other studies performed in the source waterbody. The sampling plan must include a description of the study area (including the area of influence of the cooling water intake structure(s)), and provide a taxonomic identification of the sampled or evaluated biological assemblages (including all life stages of fish and shellfish).

(2) *Source Waterbody Flow Information.* You must submit to the Director the following source waterbody flow information:

(i) If your cooling water intake structure is located in a freshwater river or stream, you must provide the annual mean flow of the waterbody and any supporting documentation and engineering calculations to support your analysis of whether your design intake flow is greater than five percent of the mean annual flow of the river or stream for purposes of determining applicable performance standards under § 125.103(b). Representative historical data (from a period of time up to 10 years, if available) must be used; and

(ii) If your cooling water intake structure is located in a lake (other than one of the Great Lakes) or a reservoir and you propose to increase its design intake flow, you must provide a description of the thermal stratification in the waterbody, and any supporting documentation and engineering calculations to show that the total design intake flow after the increase will not disrupt the natural thermal stratification and turnover pattern in a way that adversely impacts fisheries, including the results of any consultations with Federal, State, or Tribal fish and wildlife management agencies.

(3) *Impingement Mortality and/or Entrainment Characterization Study.* You must submit to the Director an Impingement Mortality and/or Entrainment Characterization Study whose purpose is to provide information to support the development of a calculation baseline for evaluating impingement mortality and entrainment and to characterize current impingement mortality and entrainment. The Impingement Mortality and/or Entrainment Characterization Study must include the following, in sufficient detail to support development of the other elements of the Comprehensive Demonstration Study:

(i) 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 impingement and entrainment;

(ii) A characterization of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species) identified pursuant to paragraph (b)(3)(i) of this section, 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 impingement mortality and entrainment (*e.g.*, 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;

(iii) Documentation of the current impingement mortality and entrainment of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species)

identified pursuant to paragraph (b)(3)(i) of this section and an estimate of impingement mortality and entrainment to be used as the calculation baseline. The documentation may include historical data that are representative of the current operation of your facility and of biological conditions at the site. Impingement mortality and entrainment samples to support the calculations required in paragraphs (b)(4)(i)(C) and (b)(5)(iii) of this section 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;

(4) *Technology and Compliance Assessment Information*—(i) *Design and Construction Technology Plan.* If you choose to use design and construction technologies and/or operational measures, in whole or in part to meet the requirements of § 125.103(a)(2) or (3), you must submit a Design and Construction Technology Plan to the Director for review and approval. The plan must explain the technologies and/or operational measures you have in place and/or have selected to meet the requirements in § 125.103. (Examples of potentially appropriate technologies may include, but are not limited to, wedgewire screens, fine mesh screens, fish handling and return systems, barrier nets, aquatic filter barrier systems, vertical and/or lateral relocation of the cooling water intake structure, and enlargement of the cooling water intake structure opening to reduce velocity. Examples of potentially appropriate operational measures may include, but are not limited to, seasonal shutdowns, reductions in flow, and continuous or more frequent rotation of traveling screens.) The plan must contain the following information:

(A) A narrative description of the design and operation of all design and construction technologies and/or operational measures (existing and proposed), including fish handling and return systems, that you have in place or will use to meet the requirements to reduce impingement mortality of those species expected to be most susceptible to impingement, and information that demonstrates the efficacy of the technologies and/or operational measures for those species;

(B) A narrative description of the design and operation of all design and construction technologies and/or operational measures (existing and proposed) that you have in place or will use to meet the requirements to reduce entrainment of those species expected to be the most susceptible to entrainment, if applicable, and information that demonstrates the efficacy of the technologies and/or operational measures for those species;

(C) Calculations of the reduction in impingement mortality and entrainment of all life stages of fish and shellfish that would be achieved by the technologies and/or operational measures you have selected based on the Impingement Mortality and/or Entrainment Characterization Study in paragraph (b)(3) of this section. In determining compliance with any requirements to reduce impingement mortality or entrainment, you must assess the total reduction in impingement mortality and entrainment against the calculation baseline determined in accordance with paragraph (b)(3) of this section. Reductions in impingement mortality and entrainment from this calculation baseline as a result of any design and construction technologies and/or operational measures already implemented at your facility should be added to the reductions expected to be achieved by any additional design and/or construction technologies and operational measures that will be implemented, and any increases in fish and shellfish within the waterbody attributable to your restoration measures. Facilities that recirculate a portion of their flow, but do not reduce flow sufficiently to satisfy the compliance option in § 125.103(a)(1)(i) may take into account the reduction in impingement mortality and entrainment associated with the reduction in flow when determining the net reduction associated with existing design and construction technologies and/or operational measures. This estimate must include a site-specific evaluation of the suitability of the technologies and/or operational measures based on the species that are found at the site, and may be determined based on representative studies (*i.e.*, studies that have been conducted at a similar facility's cooling water intake structures located in the same waterbody type with similar biological characteristics) and/or site-specific technology prototype or pilot studies; and

(D) Design and engineering calculations, drawings, and estimates prepared by a qualified professional to support the descriptions required by paragraphs (b)(4)(i)(A) and (B) of this section.

(ii) *Technology Installation and Operation Plan.* If you choose the compliance alternative in § 125.103(a)(2), (3), (4), or (5) and use design and construction technologies and/or operational measures in whole or in part to comply with the applicable requirements of § 125.103, you must submit the following information with your application for review and approval by the Director:

(A) A schedule for the installation and maintenance of any new design and construction technologies. Any downtime of generating units to accommodate installation and/or maintenance of these technologies should be scheduled to coincide with otherwise necessary downtime (*e.g.*, for repair, overhaul, or routine maintenance of the generating units) to the extent practicable. Where additional downtime is required, you may coordinate scheduling of this downtime with the North American Electric Reliability Council and/or other generators in your area to ensure that impacts to reliability and supply are minimized;

(B) List of operational and other parameters to be monitored, and the location and frequency that you will monitor them;

(C) List of activities you will undertake to ensure to the degree practicable the efficacy of installed design and construction technologies and operational measures, and your schedule for implementing them;

(D) A schedule and methodology for assessing the efficacy of any installed design and construction technologies and operational measures in meeting applicable performance standards or site-specific requirements, including an adaptive management plan for revising design and construction technologies, operational measures, operation and maintenance requirements, and/or monitoring requirements if your assessment indicates that applicable performance standards or site-specific requirements are not being met; and

(E) If you choose the compliance alternative in § 125.103(a)(4), documentation that the appropriate site conditions in § 125.108(a) or (b) exist at your facility.

(5) *Restoration Plan.* If you propose to use restoration measures, in whole or in part, to meet the applicable requirements in § 125.103, you must submit the following information with your application for review and approval by the Director. You must address species of concern identified in consultation with Federal, State, and Tribal fish and wildlife management agencies with responsibility for fisheries and wildlife potentially affected by your cooling water intake structure(s).

(i) A demonstration to the Director that you have evaluated the use of design and construction technologies and/or operational measures for your facility and an explanation of how you determined that restoration would be

more feasible, cost-effective, or environmentally desirable;

(ii) A narrative description of the design and operation of all restoration measures (existing and proposed) that you have in place or will use to produce fish and shellfish;

(iii) Quantification of the ecological benefits of the proposed restoration measures. You must use information from the Impingement Mortality and/or Entrainment Characterization Study required in paragraph (b)(3) of this section, and any other available and appropriate information, to estimate the reduction in fish and shellfish impingement mortality and/or entrainment that would be necessary for your facility to comply with § 125.103(c)(2). You must then calculate the production of fish and shellfish that you will achieve with the restoration measures you will or have already installed. You must include a discussion of the nature and magnitude of uncertainty associated with the performance of these restoration measures. You must also include a discussion of the time frame within which these ecological benefits are expected to accrue;

(iv) Design calculations, drawings, and estimates to document that your proposed restoration measures in combination with design and construction technologies and/or operational measures, or alone, will meet the requirements of § 125.103(c)(2). If the restoration measures address the same fish and shellfish species identified in the Impingement Mortality and/or Entrainment Characterization Study (in-kind restoration), you must demonstrate that the restoration measures will produce a level of these fish and shellfish substantially similar to that which would result from meeting applicable performance standards in § 125.103(b), or that they will satisfy site-specific requirements established pursuant to § 125.103(a)(5). If the restoration measures address fish and shellfish species different from those identified in the Impingement Mortality and/or Entrainment Characterization Study (out-of-kind restoration), you must demonstrate that the restoration measures produce ecological benefits substantially similar to or greater than those that would be realized through in-kind restoration. Such a demonstration should be based on a watershed approach to restoration planning and consider applicable multi-agency watershed restoration plans, site-specific peer-reviewed ecological studies, and/or consultation with appropriate Federal, State, and Tribal fish and wildlife management agencies.

(v) A plan utilizing an adaptive management method for implementing, maintaining, and demonstrating the efficacy of the restoration measures you have selected and for determining the extent to which the restoration measures, or the restoration measures in combination with design and construction technologies and operational measures, have met the applicable requirements of § 125.103(c)(2). The plan must include:

(A) A monitoring plan that includes a list of the restoration parameters that will be monitored, the frequency at which you will monitor them, and success criteria for each parameter;

(B) A list of activities you will undertake to ensure the efficacy of the restoration measures, a description of the linkages between these activities and the items in paragraph (b)(5)(v)(A) of this section, and an implementation schedule; and

(C) A process for revising the Restoration Plan as new information, including monitoring data, becomes available, if the applicable requirements under § 125.103(c)(2) are not being met.

(vi) A summary of any past or ongoing consultation with appropriate Federal, State, and Tribal fish and wildlife management agencies on your use of restoration measures including a copy of any written comments received as a result of such consultations;

(vii) If requested by the Director, a peer review of the items you submit for the Restoration Plan. You must choose the peer reviewers in consultation with the Director who may consult with EPA and Federal, State, and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by your cooling water intake structure(s). Peer reviewers must have appropriate qualifications (*e.g.*, in the fields of geology, engineering, and/or biology, *etc.*) depending upon the materials to be reviewed; and

(viii) A description of the information to be included in a biennial status report to the Director.

(6) *Information to Support Site-specific Determination of Best Technology Available for Minimizing Adverse Environmental Impact.* If you have requested a site-specific determination of best technology available for minimizing adverse environmental impact pursuant to § 125.103(a)(5)(i) because of costs significantly greater than those considered by the Administrator for a facility like yours in establishing the applicable performance standards of § 125.103(b), you are required to provide to the Director the information specified in paragraphs (b)(6)(i) and (b)(6)(iii) of this section. If you have requested a site-specific determination of best technology available for minimizing adverse environmental impact pursuant to § 125.103(a)(5)(ii) because of costs significantly greater than the benefits of meeting the applicable performance standards of § 125.103(b) at your facility, you must provide the information specified in paragraphs (b)(6)(i), (b)(6)(ii), and (b)(6)(iii) of this section:

(i) *Comprehensive Cost Evaluation Study.* You must perform and submit the results of a Comprehensive Cost Evaluation Study, that includes:

(A) Engineering cost estimates in sufficient detail to document the costs of implementing design and construction technologies, operational measures, and/or restoration measures at your facility that would be needed to meet the applicable performance standards of § 125.103(b);

(B) A demonstration that the costs documented in paragraph (b)(6)(i)(A) of this section significantly exceed either those considered by the Administrator for a facility like yours in establishing the applicable performance standards or the benefits of meeting the applicable performance standards at your facility; and

(C) Engineering cost estimates in sufficient detail to document the costs of implementing the design and construction technologies, operational measures, and/or restoration measures in your Site-Specific Technology Plan developed in accordance with paragraph (b)(6)(iii) of this section.

(ii) *Benefits Valuation Study.* If you are seeking a site-specific determination of best technology available for minimizing adverse environmental impact because of costs significantly greater than the benefits of meeting the applicable performance standards of § 125.103(b) at your facility, you must use a comprehensive methodology to fully value the impacts of impingement mortality and entrainment at your site and the benefits achievable by meeting the applicable performance standards. In addition to the valuation estimates, the benefit study must include the following:

(A) A description of the methodology(ies) used to value commercial, recreational, and ecological benefits (including any non-use benefits, if applicable);

(B) Documentation of the basis for any assumptions and quantitative estimates. If you plan to use an entrainment survival rate other than zero, you must

submit a determination of entrainment survival at your facility based on a study approved by the Director;

(C) An analysis of the effects of significant sources of uncertainty on the results of the study; and

(D) If requested by the Director, a peer review of the items you submit in the Benefits Valuation Study. You must choose the peer reviewers in consultation with the Director who may consult with EPA and Federal, State, and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by your cooling water intake structure. Peer reviewers must have appropriate qualifications depending upon the materials to be reviewed.

(E) A narrative description of any non-monetized benefits that would be realized at your site if you were to meet the applicable performance standards and a qualitative assessment of their magnitude and significance.

(iii) *Site-Specific Technology Plan.* Based on the results of the Comprehensive Cost Evaluation Study required by paragraph (b)(6)(i) of this section, and the Benefits Valuation Study required by paragraph (b)(6)(ii) of this section, if applicable, you must submit a Site-Specific Technology Plan to the Director for review and approval. The plan must contain the following information:

(A) A narrative description of the design and operation of all existing and proposed design and construction technologies, operational measures, and/or restoration measures that you have selected in accordance with § 125.103(a)(5);

(B) An engineering estimate of the efficacy of the proposed and/or implemented design and construction technologies or operational measures, and/or restoration measures. This estimate must include a site-specific evaluation of the suitability of the technologies or operational measures for reducing impingement mortality and/or entrainment (as applicable) of all life stages of fish and shellfish based on representative studies (*e.g.*, studies that have been conducted at cooling water intake structures located in the same waterbody type with similar biological characteristics) and, if applicable, site-specific technology prototype or pilot studies. If restoration measures will be used, you must provide a Restoration Plan that includes the elements described in paragraph (b)(5) of this section.

(C) A demonstration that the proposed and/or implemented design and construction technologies, operational measures, and/or restoration measures achieve an efficacy that is as close as practicable to the applicable performance standards of § 125.103(b) without resulting in costs significantly greater than either the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards, or as appropriate, the benefits of complying with the applicable performance standards at your facility;

(D) Design and engineering calculations, drawings, and estimates prepared by a qualified professional to support the elements of the Plan.

(7) *Verification Monitoring Plan.* If you comply using compliance alternatives in § 125.103(a)(2), (3), (4), or (5) using design and construction technologies and/or operational measures, you must submit a plan to conduct, at a minimum, two years of monitoring to verify the full-scale performance of the proposed or already implemented technologies and/or operational measures. The verification study must begin once the design and construction technologies and/or operational measures are installed and continue for a period of time that is sufficient to demonstrate to the Director whether the facility is meeting the applicable performance standards in § 125.103(b) or site-specific requirements developed pursuant to § 125.103(a)(5). The plan must provide the following:

(i) Description of the frequency and duration of monitoring, the parameters to be monitored, and the basis for determining the parameters and the frequency and duration for monitoring. The parameters selected and duration and frequency of monitoring must be consistent with any methodology for assessing success in meeting applicable performance standards in your Technology Installation and Operation Plan as required by paragraph (b)(4)(ii) of this section.

(ii) A proposal on how naturally moribund fish and shellfish that enter the cooling water intake structure would be identified and taken into account in assessing success in meeting the performance standards in § 125.103(b) or site-specific requirements developed pursuant to § 125.103(a)(5).

(iii) A description of the information to be included in a biennial status report to the Director.

OPTION B FOR PARAGRAPH (b)—

[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 100 MGD or more, located on oceans, estuaries, tidal rivers, or one of the Great Lakes]:

(b) *Comprehensive Demonstration Study.* The purpose of the Comprehensive Demonstration Study (Study) is to characterize impingement mortality and entrainment, to describe the operation of your cooling water intake structures, and to confirm that the technologies, operational measures, and/or restoration measures you have selected and installed, or will install, at your facility meet the applicable requirements of § 125.103. All facilities except those that have met the applicable requirements in accordance with §§ 125.103(a)(1)(i), 125.103(a)(1)(ii), and 125.103(a)(4) must submit all applicable portions of the Comprehensive Demonstration Study to the Director in accordance with paragraph (a) of this section. Facilities that meet the requirements in § 125.103(a)(1)(i) by reducing their flow commensurate with a closed-cycle, recirculating system are not required to submit a Comprehensive Demonstration Study. Facilities that meet the requirements in § 125.103(a)(1)(ii) by reducing their design intake velocity to 0.5 ft/sec or less are required to submit a Study only for the entrainment requirements. Facilities that meet the requirements in § 125.103(a)(4) and have installed and properly operate and maintain an approved design and construction technology (in accordance with § 125.108) are required to submit only the Technology Installation and Operation Plan in paragraph (b)(4) of this section and the Verification Monitoring Plan in paragraph (b)(7) of this section. The Comprehensive Demonstration Study must include:

(1) *Proposal for Information Collection.* You must submit to the Director for review and comment a description of the information you will use to support your Study. The Proposal for Information Collection must be submitted prior to the start of information collection activities, but you may initiate such activities prior to receiving comment from the Director. The proposal must include:

(i) A description of the proposed and/or implemented technologies, operational measures, and/or restoration measures to be evaluated in the Study;

(ii) A list and description of any historical studies characterizing impingement mortality and entrainment and/or the physical and biological conditions in the vicinity of the cooling water intake structures and their relevance to this proposed Study. If you propose to use existing data, you must demonstrate the extent to which the data are representative of current conditions and that the data were

collected using appropriate quality assurance/quality control procedures;

(iii) A summary of any past or ongoing consultations with appropriate Federal, State, and Tribal fish and wildlife agencies that are relevant to this Study and a copy of written comments received as a result of such consultations; and

(iv) A sampling plan for any new field studies you propose to conduct in order to ensure that you have sufficient data to develop a scientifically valid estimate of impingement mortality and entrainment at your site. The sampling plan must document all methods and quality assurance/quality control procedures for sampling and data analysis. The sampling and data analysis methods you propose must be appropriate for a quantitative survey and include consideration of the methods used in other studies performed in the source waterbody. The sampling plan must include a description of the study area (including the area of influence of the cooling water intake structure(s)), and provide a taxonomic identification of the sampled or evaluated biological assemblages (including all life stages of fish and shellfish).

(2) *Impingement Mortality and Entrainment Characterization Study.* You must submit to the Director an Impingement Mortality and Entrainment Characterization Study whose purpose is to provide information to support the development of a calculation baseline for evaluating impingement mortality and entrainment and to characterize current impingement mortality and entrainment. The Impingement Mortality and Entrainment Characterization Study must include the following, in sufficient detail to support development of the other elements of the Comprehensive Demonstration Study:

(i) 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 impingement and entrainment;

(ii) A characterization of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species) identified pursuant to paragraph (b)(2)(i) of this section, 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 impingement mortality and entrainment (*e.g.*, 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;

(iii) Documentation of the current impingement mortality and entrainment of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species) identified pursuant to paragraph (b)(2)(i) of this section and an estimate of impingement mortality and entrainment to be used as the calculation baseline. The documentation may include historical data that are representative of the current operation of your facility and of biological conditions at the site. Impingement mortality and entrainment samples to support the calculations required in paragraphs (b)(3)(i)(C) and (b)(4)(iii) of this section 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;

(3) *Technology and Compliance Assessment Information*—(i) *Design and Construction Technology Plan.* If you choose to use design and construction technologies and/or operational measures, in whole or in part to meet the requirements of § 125.103(a)(2) or (3), you must submit a Design and Construction Technology Plan to the Director for review and approval. The plan must explain the technologies and/or operational measures you have in place and/or have selected to meet the requirements in § 125.103. (Examples of potentially appropriate technologies may include, but are not limited to, wedgewire screens, fine mesh screens, fish handling and return systems, barrier nets, aquatic filter barrier systems, vertical and/or lateral relocation of the cooling water intake structure, and enlargement of the cooling water intake structure opening to reduce velocity. Examples of potentially appropriate operational measures may include, but are not limited to, seasonal shutdowns, reductions in flow, and continuous or more frequent rotation of traveling screens.) The plan must contain the following information:

(A) A narrative description of the design and operation of all design and construction technologies and/or operational measures (existing and proposed), including fish handling and return systems, that you have in place or will use to meet the requirements to reduce impingement mortality of those species expected to be most susceptible to impingement, and information that demonstrates the efficacy of the technologies and/or operational measures for those species;

(B) A narrative description of the design and operation of all design and construction technologies and/or operational measures (existing and proposed) that you have in place or will use to meet the requirements to reduce entrainment of those species expected to be the most susceptible to entrainment and information that demonstrates the efficacy of the technologies and/or operational measures for those species;

(C) Calculations of the reduction in impingement mortality and entrainment of all life stages of fish and shellfish that would be achieved by the technologies and/or operational measures you have selected based on the Impingement Mortality and Entrainment Characterization Study in paragraph (b)(2) of this section. In determining compliance with any requirements to reduce impingement mortality and entrainment, you must assess the total reduction in impingement mortality and entrainment against the calculation baseline determined in accordance with paragraph (b)(2) of this section. Reductions in impingement mortality and entrainment from this calculation baseline as a result of any design and construction technologies and/or operational measures already implemented at your facility should be added to the reductions expected to be achieved by any additional design and/or construction technologies and operational measures that will be implemented, and any increases in fish and shellfish within the waterbody attributable to your restoration measures. Facilities that recirculate a portion of their flow, but do not reduce flow sufficiently to satisfy the compliance option in § 125.103(a)(1)(i) may take into account the reduction in impingement mortality and entrainment associated with the reduction in flow when determining the net reduction associated with existing design and construction technologies and/or operational measures. This estimate must include a site-specific evaluation of the suitability of the technologies and/or operational measures based on the species that are found at the site, and may be determined based on representative studies (*i.e.*, studies that have been conducted at a similar facility's cooling water intake structures located in the same waterbody type with similar biological characteristics) and/or site-specific technology prototype or pilot studies; and

(D) Design and engineering calculations, drawings, and estimates prepared by a qualified professional to support the descriptions required by paragraphs (b)(3)(i)(A) and (B) of this section.

(ii) *Technology Installation and Operation Plan.* If you choose the compliance alternative in § 125.103(a)(2), (3), (4), or (5) and use design and construction technologies and/or operational measures in whole or in part to comply with the applicable requirements of § 125.103, you must submit the following information with your application for review and approval by the Director:

(A) A schedule for the installation and maintenance of any new design and construction technologies. Any downtime of generating units to accommodate installation and/or maintenance of these technologies should be scheduled to coincide with otherwise necessary downtime (*e.g.*, for repair, overhaul, or routine maintenance of the generating units) to the extent practicable. Where additional downtime is required, you may coordinate scheduling of this downtime with the North American Electric Reliability Council and/or other generators in your area to ensure that impacts to reliability and supply are minimized;

(B) List of operational and other parameters to be monitored, and the location and frequency that you will monitor them;

(C) List of activities you will undertake to ensure to the degree practicable the efficacy of installed design and construction technologies and operational measures, and your schedule for implementing them;

(D) A schedule and methodology for assessing the efficacy of any installed design and construction technologies and operational measures in meeting applicable performance standards or site-specific requirements, including an adaptive management plan for revising design and construction technologies, operational measures, operation and maintenance requirements, and/or monitoring requirements if your assessment indicates that applicable performance standards or site-specific requirements are not being met; and

(E) If you choose the compliance alternative in § 125.103(a)(4), documentation that the appropriate site conditions in § 125.108(b) exist at your facility.

(4) *Restoration Plan.* If you propose to use restoration measures, in whole or in part, to meet the applicable requirements in § 125.103, you must submit the following information with your application for review and approval by the Director. You must address species of concern identified in consultation with Federal, State, and Tribal fish and wildlife management agencies with responsibility for fisheries and wildlife potentially affected by your cooling water intake structure(s).

(i) A demonstration to the Director that you have evaluated the use of design and construction technologies and/or operational measures for your facility and an explanation of how you determined that restoration would be more feasible, cost-effective, or environmentally desirable;

(ii) A narrative description of the design and operation of all restoration measures (existing and proposed) that you have in place or will use to produce fish and shellfish;

(iii) Quantification of the ecological benefits of the proposed restoration measures. You must use information from the Impingement Mortality and Entrainment Characterization Study required in paragraph (b)(2) of this section, and any other available and appropriate information, to estimate the reduction in fish and shellfish impingement mortality and entrainment that would be necessary for your facility to comply with § 125.103(c)(2). You must then calculate the production of fish and shellfish that you will achieve with the restoration measures you will or have already installed. You must include a discussion of the nature and magnitude of uncertainty associated with the performance of these restoration measures. You must also include a discussion of the time frame within which these ecological benefits are expected to accrue;

(iv) Design calculations, drawings, and estimates to document that your proposed restoration measures in combination with design and construction technologies and/or operational measures, or alone, will meet the requirements of § 125.103(c)(2). If the restoration measures address the same fish and shellfish species identified in the Impingement Mortality and Entrainment Characterization Study (in-kind restoration), you must demonstrate that the restoration measures will produce a level of these fish and shellfish substantially similar to that which would result from meeting applicable performance standards in § 125.103(b), or that they will satisfy site-specific requirements established pursuant to § 125.103(a)(5). If the restoration measures address fish and shellfish species different from those identified in the Impingement Mortality and Entrainment Characterization Study (out-of-kind restoration), you must demonstrate that the restoration measures produce ecological benefits substantially similar to or greater than those that would be realized through in-kind restoration. Such a demonstration should be based on a watershed approach to restoration planning and consider applicable multi-agency watershed restoration plans, site-specific peer-reviewed ecological studies, and/or consultation with appropriate Federal, State, and Tribal fish and wildlife management agencies.

(v) A plan utilizing an adaptive management method for implementing, maintaining, and demonstrating the efficacy of the restoration measures you have selected and for determining the extent to which the restoration measures, or the restoration measures in combination with design and construction technologies and operational measures, have met the applicable requirements of § 125.103(c)(2). The plan must include:

(A) A monitoring plan that includes a list of the restoration parameters that will be monitored, the frequency at which you will monitor them, and success criteria for each parameter;

(B) A list of activities you will undertake to ensure the efficacy of the restoration measures, a description of the linkages between these activities and the items in paragraph (b)(4)(v)(A) of this section, and an implementation schedule; and

(C) A process for revising the Restoration Plan as new information, including monitoring data, becomes available, if the applicable requirements under § 125.103(c)(2) are not being met.

(vi) A summary of any past or ongoing consultation with appropriate Federal, State, and Tribal fish and wildlife management agencies on your use of restoration measures including a copy of any written comments received as a result of such consultations;

(vii) If requested by the Director, a peer review of the items you submit for the Restoration Plan. You must choose the peer reviewers in consultation with the Director who may consult with EPA and Federal, State, and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by your cooling water intake structure(s). Peer reviewers must have appropriate qualifications (*e.g.*, in the fields of geology, engineering, and/or biology, *etc.*) depending upon the materials to be reviewed; and

(viii) A description of the information to be included in a biennial status report to the Director.

(5) *Information to Support Site-specific Determination of Best*

Technology Available for Minimizing Adverse Environmental Impact. If you have requested a site-specific determination of best technology available for minimizing adverse environmental impact pursuant to § 125.103(a)(5)(i) because of costs significantly greater than those considered by the Administrator for a facility like yours in establishing the applicable performance standards of § 125.103(b), you are required to provide to the Director the information specified in paragraphs (b)(5)(i) and (b)(5)(iii) of this section. If you have requested a site-specific determination of best technology available for minimizing adverse environmental impact pursuant to § 125.103(a)(5)(ii) because of costs significantly greater than the benefits of meeting the applicable performance standards of § 125.103(b) at your facility, you must provide the information specified in paragraphs (b)(5)(i), (b)(5)(ii), and (b)(5)(iii) of this section:

(i) *Comprehensive Cost Evaluation Study.* You must perform and submit the results of a Comprehensive Cost Evaluation Study, that includes:

(A) Engineering cost estimates in sufficient detail to document the costs of implementing design and construction technologies, operational measures, and/or restoration measures at your facility that would be needed to meet the applicable performance standards of § 125.103(b);

(B) A demonstration that the costs documented in paragraph (b)(5)(i)(A) of this section significantly exceed either those considered by the Administrator for a facility like yours in establishing the applicable performance standards or the benefits of meeting the applicable performance standards at your facility; and

(C) Engineering cost estimates in sufficient detail to document the costs of implementing the design and construction technologies, operational measures, and/or restoration measures in your Site-Specific Technology Plan developed in accordance with paragraph (b)(5)(iii) of this section.

(ii) *Benefits Valuation Study.* If you are seeking a site-specific determination of best technology available for minimizing adverse environmental impact because of costs significantly greater than the benefits of meeting the applicable performance standards of § 125.103(b) at your facility, you must use a comprehensive methodology to fully value the impacts of impingement mortality and entrainment at your site and the benefits achievable by meeting the applicable performance standards. In addition to the valuation estimates, the benefit study must include the following:

(A) A description of the methodology(ies) used to value commercial, recreational, and ecological benefits (including any non-use benefits, if applicable);

(B) Documentation of the basis for any assumptions and quantitative estimates. If you plan to use an entrainment survival rate other than zero, you must submit a determination of entrainment survival at your facility based on a study approved by the Director;

(C) An analysis of the effects of significant sources of uncertainty on the results of the study; and

(D) If requested by the Director, a peer review of the items you submit in the Benefits Valuation Study. You must choose the peer reviewers in consultation with the Director who may consult with EPA and Federal, State, and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by your cooling water intake structure. Peer reviewers must have appropriate qualifications depending upon the materials to be reviewed.

(E) A narrative description of any non-monetized benefits that would be realized at your site if you were to meet the applicable performance standards and a qualitative assessment of their magnitude and significance.

(iii) *Site-Specific Technology Plan.* Based on the results of the Comprehensive Cost Evaluation Study required by paragraph (b)(5)(i) of this section, and the Benefits Valuation Study required by paragraph (b)(5)(ii) of this section, if applicable, you must submit a Site-Specific Technology Plan to the Director for review and approval. The plan must contain the following information:

(A) A narrative description of the design and operation of all existing and proposed design and construction technologies, operational measures, and/or restoration measures that you have selected in accordance with § 125.103(a)(5);

(B) An engineering estimate of the efficacy of the proposed and/or implemented design and construction technologies or operational measures, and/or restoration measures. This estimate must include a site-specific evaluation of the suitability of the technologies or operational measures for reducing impingement mortality and entrainment of all life stages of fish and shellfish based on representative studies (*e.g.*, studies that have been conducted at cooling water intake structures located in the same waterbody type with similar biological characteristics) and, if applicable, site-specific technology prototype or pilot studies. If restoration measures will be used, you must provide a Restoration Plan that includes the elements described in paragraph (b)(4) of this section.

(C) A demonstration that the proposed and/or implemented design and construction technologies, operational measures, and/or restoration measures achieve an efficacy that is as close as practicable to the applicable performance standards of § 125.103(b) without resulting in costs significantly greater than either the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards, or as appropriate, the benefits of complying with the applicable performance standards at your facility;

(D) Design and engineering calculations, drawings, and estimates prepared by a qualified professional to support the elements of the Plan.

(6) *Verification Monitoring Plan.* If you comply using compliance alternatives in § 125.103(a)(2), (3), (4), or (5) using design and construction technologies and/or operational measures, you must submit a plan to conduct, at a minimum, two years of monitoring to verify the full-scale performance of the proposed or already implemented technologies and/or operational measures. The verification study must begin once the design and construction technologies and/or operational measures are installed and continue for a period of time that is sufficient to demonstrate to the Director whether the facility is meeting the applicable performance standards in § 125.103(b) or site-specific requirements developed pursuant to § 125.103(a)(5). The plan must provide the following:

(i) Description of the frequency and duration of monitoring, the parameters to be monitored, and the basis for determining the parameters and the frequency and duration for monitoring. The parameters selected and duration and frequency of monitoring must be consistent with any methodology for assessing success in meeting applicable performance standards in your Technology Installation and Operation Plan as required by paragraph (b)(3)(ii) of this section.

(ii) A proposal on how naturally moribund fish and shellfish that enter the cooling water intake structure would be identified and taken into account in assessing success in meeting the performance standards in § 125.103(b).

(iii) A description of the information to be included in a biennial status report to the Director.

§ 125.105 As an owner or operator of a Phase III existing facility, what monitoring must I perform?

OPTION A FOR § 125.105—[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 50 MGD or more, located on any waterbody type or the regulatory option that defines a Phase III existing facility as one with design intake flows 200 MGD or more, located on any waterbody type]:

As an owner or operator of a Phase III existing facility, you must perform monitoring, as applicable, in accordance with the Technology Installation and Operation Plan required by § 125.104(b)(4)(ii), the Restoration Plan required by § 125.104(b)(5), the Verification Monitoring Plan required by § 125.104(b)(7), and any additional monitoring specified by the Director to demonstrate compliance with the applicable requirements of § 125.103.

OPTION B FOR § 125.105—[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 100 MGD or more, located on oceans, estuaries, tidal rivers, or one of the Great Lakes]:

As an owner or operator of a Phase III existing facility, you must perform monitoring, as applicable, in accordance with the Technology Installation and Operation Plan required by § 125.104(b)(3)(ii), the Restoration Plan required by § 125.104(b)(4), the Verification Monitoring Plan required by § 125.104(b)(6), and any additional monitoring specified by the Director to demonstrate compliance with the applicable requirements of § 125.103.

§ 125.106 As an owner or operator of a Phase III existing facility, what records must I keep and what information must I report?

As an owner or operator of a Phase III existing facility you are required to keep records and report information and data to the Director as follows:

(a) You must keep records of all the data used to complete the permit application and show compliance with the requirements of § 125.103, any supplemental information developed under § 125.104, and any compliance monitoring data submitted under § 125.105, for a period of at least three (3) years from date of permit issuance. The Director may require that these records be kept for a longer period.

(b) You must submit a status report to the Director for review every two years that includes appropriate monitoring data and other information as specified by the Director in accordance with § 125.107(b)(5).

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

(a) *Permit Application.* As the Director, you must review materials submitted by the applicant under 40 CFR 122.21(r) and § 125.104 before each permit renewal or reissuance.

(1) You must review and comment on the Proposal for Information Collection submitted by the facility in accordance with § 125.104(a)(1). You are encouraged to provide comments expeditiously so that the permit applicant can make responsive modifications to its information gathering activities. If a facility submits a request in accordance with § 125.104(a)(2)(ii) for an alternate schedule for submitting the information required in § 125.104, you must approve a schedule that is as expeditious as practicable, but does not extend beyond [3 years and 180 days from publication of the final rule] for Phase III existing facilities. If a facility submits a request in accordance with § 125.104(a)(3) to reduce the information about their cooling water intake structures and the source waterbody required to be submitted in their permit application (other than with the first permit application [60 days from publication of the final rule] for Phase III existing facilities), you must approve the request within 60 days if conditions at the facility and in the waterbody remain substantially unchanged since the previous application.

(2) After receiving the permit application from the owner or operator of a Phase III existing facility, you must determine which of the requirements specified in § 125.103 apply to the facility. In addition, you must review materials to determine compliance with the applicable requirements.

(3) At each permit renewal, you must review the application materials and monitoring data to determine whether new or revised requirements for design and construction technologies, operational measures, or restoration measures should be included in the permit to meet the applicable performance standards in § 125.103(b) or alternative site-specific requirements established pursuant to § 125.103(a)(5).

OPTION A FOR PARAGRAPH (b)—[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 50 MGD or more, located on any waterbody type or the regulatory option that defines a Phase III existing facility as one with design intake flows 200 MGD or more, located on any waterbody type]:

(b) *Permitting Requirements.* Section 316(b) requirements are implemented for a facility through an NPDES permit. As the Director, you must consider the information submitted by the Phase III existing facility in its permit application, and determine the appropriate requirements and conditions to include in the permit based on the compliance alternatives in § 125.103(a). The following requirements must be included in each permit:

(1) *Cooling Water Intake Structure Requirements.* The permit conditions must include the requirements that implement the applicable provisions of § 125.103. You must evaluate the performance of the design and construction technologies, operational measures, and/or restoration measures proposed and implemented by the facility and require additional or different design and construction technologies, operational measure, and/or restoration measures, and/or improved operation and maintenance of existing technologies and measures, if needed to meet the applicable performance standards, restoration requirements, or alternative site-specific requirements. In determining compliance with the performance standards for facilities proposing to increase withdrawals of cooling water from a lake (other than a Great Lake) or a reservoir in § 125.103(b)(3), you must consider anthropogenic factors (those not considered ''natural'') unrelated to the Phase III existing facility's cooling water intake structures that can influence the occurrence and location of a thermocline. These include source water inflows, other water withdrawals, managed water uses, wastewater discharges, and flow/level management practices (*e.g.*, some reservoirs release water from deeper bottom layers). As the Director, you must coordinate with appropriate Federal, State, or Tribal fish and wildlife management agencies to determine if any disruption of the natural thermal stratification resulting from the proposed increased withdrawal of cooling water does not adversely affect the management of fisheries. Specifically:

(i) You must review and approve the Design and Construction Technology Plan required in § 125.104(b)(4) to evaluate the suitability and feasibility of the design and construction technology and/or operational measures proposed to meet the performance standards in

§ 125.103(b) or site-specific requirements developed pursuant to § 125.103(a)(5).

(ii) If the facility proposes restoration measures in accordance with § 125.103(c), you must review and approve the Restoration Plan required under § 125.104(b)(5) to determine whether the proposed measures, alone or in combination with design and construction technologies and/or operational measures, will meet the requirements under § 125.103(c).

(iii) In each reissued permit, you must include a condition in the permit requiring the facility to reduce impingement mortality and entrainment (or to increase fish production, if applicable) commensurate with the efficacy at the facility of the installed design and construction technologies, operational measures, and/or restoration measures.

(iv) If the facility implements design and construction technologies and/or operational measures and requests that compliance with the requirements in § 125.103 be measured for the first permit term (or subsequent permit terms, if applicable) employing the Technology Installation and Operation Plan in accordance with § 125.104(b)(4)(ii), you must review the Technology Installation and Operation Plan to ensure it meets the requirements of § 125.104(b)(4)(ii). If the Technology Installation and Operation Plan meets the requirements of § 125.104(b)(4)(ii), you must approve the Technology Installation and Operation Plan and require the facility to meet the terms of the plan including any revision to the plan that may be necessary if applicable performance standards or alternative site-specific requirements are not being met. If the facility implements restoration measures and requests that compliance with the requirements in § 125.103 be measured for the first permit term (or subsequent permit terms, if applicable) employing a Restoration Plan in accordance with § 125.104(b)(5), you must review the Restoration Plan to ensure it meets the requirements of § 125.104(b)(5). If the Restoration Plan meets the requirements of § 125.104(b)(5), you must approve the plan and require the facility to meet the terms of the plan including any revision to the plan that may be necessary if applicable performance standards or site-specific requirements are not being met. In determining whether to approve a Technology Installation and Operation Plan or Restoration Plan, you must evaluate whether the design and construction technologies, operational measures, and/or restoration measures the facility has installed, or proposes to install, can reasonably be expected to meet the applicable performance standards in § 125.103(b), restoration requirements in § 125.103(c)(2), and/or alternative site-specific requirements established pursuant to § 125.103(a)(5), and whether the Technology Installation and Operation Plan and/or Restoration Plan complies with the applicable requirements of § 125.104(b). In reviewing the Technology Installation and Operation Plan, you must approve any reasonable scheduling provisions that are designed to ensure that impacts to energy reliability and supply are minimized, in accordance with § 125.104(b)(4)(ii)(A). If the facility does not request that compliance with the requirements in § 125.103 be measured employing a Technology Installation and Operation Plan and/or Restoration Plan, or the facility has not been in compliance with the terms of its current Technology Installation and Operation Plan and/or Restoration Plan during the preceding permit term, you must require the facility to comply with the applicable performance standards in § 125.103(b), restoration requirement in § 125.103(c)(2), and/or alternative site-specific requirements developed pursuant to § 125.103(a)(5). In considering a permit application, you must review the performance of the design and construction technologies, operational measures, and/or restoration measures implemented and require additional or different design and construction technologies, operational measures, and/or restoration measures, and/or improved operation and maintenance of existing technologies and measures, if needed to meet the applicable performance standards, restoration requirements, and/or alternative site-specific requirements.

(v) You must review and approve the proposed Verification Monitoring Plan submitted under § 125.104(b)(7) (for design and construction technologies) and/or monitoring provisions of the Restoration Plan submitted under § 125.104(b)(5)(v) and require that the monitoring continue for a sufficient period of time to demonstrate whether the design and construction technology, operational measures, and/or restoration measures meet the applicable performance standards in § 125.103(b), restoration requirements in § 125.103(c)(2) and/or site-specific requirements established pursuant to § 125.103(a)(5).

(vi) If a facility requests requirements based on a site-specific determination of best technology available for minimizing adverse environmental impact, you must review the application materials submitted under § 125.104(b)(6) and any other information you may have, including quantitative and qualitative benefits, that would be relevant to a determination of whether alternative requirements are appropriate for the facility. If a facility submits a study to support entrainment survival at the facility, you must review and approve the results of that study. If you determine that alternative requirements are appropriate, you must make a site-specific determination of best technology available for minimizing adverse environmental impact in accordance with § 125.103(a)(5). You, as the Director, may request revisions to the information submitted by the facility in accordance with § 125.104(b)(6) if it does not provide an adequate basis for you to make this determination. Any alternative site-specific requirements established based on new and/or existing design and construction technologies, operational measures, and/or restoration measures, must achieve an efficacy that is, in your judgment, as close as practicable to the applicable performance standards of § 125.103(b) without resulting in costs that are significantly greater than the costs considered by the Administrator for a like facility in establishing the applicable performance standards in § 125.103(b), determined in accordance with § 125.103(a)(5)(i)(A) through (F), or the benefits of complying with the applicable performance standards at the facility. A ''like facility'' is one that is subject to the same requirements as those that would otherwise be applicable to the facility seeking a site-specific determination. In other words, ''like facilities'' for Phase III existing facilities include only other Phase III existing facilities; and

(vii) You must review the proposed methods for assessing success in meeting applicable performance standards and/or restoration requirements submitted by the facility under § 125.104(b)(4)(ii)(D) and/or (b)(5)(v)(A), evaluate those and other available methods, and specify how assessment of success in meeting the performance standards and/or restoration requirements must be determined including the averaging period for determining the percent reduction in impingement mortality and entrainment and/or the production of fish and shellfish. Compliance for facilities who request that compliance be measured employing a Technology Installation and Operation Plan and/or Restoration Plan must be determined in accordance with § 125.107(b)(1)(iv).

(2) *Monitoring Conditions.* You must require the facility to perform

monitoring in accordance with the Technology Installation and Operation Plan in § 125.104(b)(4)(ii), the Restoration Plan required by § 125.104(b)(5), if applicable, and the Verification Monitoring Plan required by § 125.104(b)(7). In determining any additional applicable monitoring requirements in accordance with § 125.105, you must consider the facility's Verification Monitoring, Technology Installation and Operation, and/or Restoration Plans, as appropriate. You may modify the monitoring program based on changes in physical or biological conditions in the vicinity of the cooling water intake structure.

(3) *Record Keeping and Reporting.* At a minimum, the permit must require the facility to report and keep records specified in § 125.106.

(4) *Design and Construction Technology Approval.* (i) For a facility that chooses to demonstrate that it has installed and properly operate and maintain a design and construction technology approved in accordance with § 125.108, the Director must review and approve the information submitted in the Technology Installation and Operation Plan in § 125.104(b)(4)(ii) and determine if it meets the criteria in § 125.108.

(ii) If a person requests approval of a technology under § 125.108(b), the Director must review and approve the information submitted and determine its suitability for widespread use at facilities with similar site conditions in its jurisdiction with minimal study. As the Director, you must evaluate the adequacy of the technology when installed in accordance with the required design criteria and site conditions to consistently meet the performance standards in § 125.103. You, as the Director, may only approve a technology following public notice and consideration of comment regarding such approval.

(5) *Biennial Status Report.* You must specify monitoring data and other information to be included in a status report every two years. The other information may include operation and maintenance records, summaries of adaptive management activities, or any other information that is relevant to determining compliance with the terms of the facility's Technology Operation and Installation Plan and/or Restoration Plan.

OPTION B FOR PARAGRAPH (b)—

[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 100 MGD or more, located on oceans, estuaries, tidal rivers, or one of the Great Lakes]:

(b) *Permitting Requirements.* Section 316(b) requirements are implemented for a facility through an NPDES permit. As the Director, you must consider the information submitted by the Phase III existing facility in its permit application, and determine the appropriate requirements and conditions to include in the permit based on the compliance alternatives in § 125.103(a). The following requirements must be included in each permit:

(1) *Cooling Water Intake Structure Requirements.* The permit conditions must include the requirements that implement the applicable provisions of § 125.103. You must evaluate the performance of the design and construction technologies, operational measures, and/or restoration measures proposed and implemented by the facility and require additional or different design and construction technologies, operational measure, and/or restoration measures, and/or improved operation and maintenance of existing technologies and measures, if needed to meet the applicable performance standards, restoration requirements, or alternative site-specific requirements. Specifically:

(i) You must review and approve the Design and Construction Technology Plan required in § 125.104(b)(3) to evaluate the suitability and feasibility of the design and construction technology and/or operational measures proposed to meet the performance standards in § 125.103(b) or site-specific requirements developed pursuant to § 125.103(a)(5).

(ii) If the facility proposes restoration measures in accordance with § 125.103(c), you must review and approve the Restoration Plan required under § 125.104(b)(4) to determine whether the proposed measures, alone or in combination with design and construction technologies and/or operational measures, will meet the requirements under § 125.103(c).

(iii) In each reissued permit, you must include a condition in the permit requiring the facility to reduce impingement mortality and entrainment (or to increase fish production, if applicable) commensurate with the efficacy at the facility of the installed design and construction technologies, operational measures, and/or restoration measures.

(iv) If the facility implements design and construction technologies and/or operational measures and requests that compliance with the requirements in § 125.103 be measured for the first permit term (or subsequent permit terms, if applicable) employing the Technology Installation and Operation Plan in accordance with § 125.104(b)(3)(ii), you must review the Technology Installation and Operation Plan to ensure it meets the requirements of § 125.104(b)(3)(ii). If the Technology Installation and Operation Plan meets the requirements of § 125.104(b)(3)(ii), you must approve the Technology Installation and Operation Plan and require the facility to meet the terms of the plan including any revision to the plan that may be necessary if applicable performance standards or alternative site-specific requirements are not being met. If the facility implements restoration measures and requests that compliance with the requirements in § 125.103 be measured for the first permit term (or subsequent permit terms, if applicable) employing a Restoration Plan in accordance with § 125.104(b)(4), you must review the Restoration Plan to ensure it meets the requirements of § 125.104(b)(4). If the Restoration Plan meets the requirements of § 125.104(b)(4), you must approve the plan and require the facility to meet the terms of the plan including any revision to the plan that may be necessary if applicable performance standards or site-specific requirements are not being met. In determining whether to approve a Technology Installation and Operation Plan or Restoration Plan, you must evaluate whether the design and construction technologies, operational measures, and/or restoration measures the facility has installed, or proposes to install, can reasonably be expected to meet the applicable performance standards in § 125.103(b), restoration requirements in § 125.103(c)(2), and/or alternative site-specific requirements established pursuant to § 125.103(a)(5), and whether the Technology Installation and Operation Plan and/or Restoration Plan complies with the applicable requirements of § 125.104(b). In reviewing the Technology Installation and Operation Plan, you must approve any reasonable scheduling provisions that are designed to ensure that impacts to energy reliability and supply are minimized, in accordance with § 125.104(b)(3)(ii)(A). If the facility does not request that compliance with the requirements in § 125.103 be measured employing a Technology Installation and Operation Plan and/or Restoration Plan, or the facility has not been in compliance with the terms of its current Technology Installation and Operation Plan and/or Restoration Plan during the preceding permit term, you must require

the facility to comply with the applicable performance standards in § 125.103(b), restoration requirement in § 125.103(c)(2), and/or alternative site-specific requirements developed pursuant to § 125.103(a)(5). In considering a permit application, you must review the performance of the design and construction technologies, operational measures, and/or restoration measures implemented and require additional or different design and construction technologies, operational measures, and/or restoration measures, and/or improved operation and maintenance of existing technologies and measures, if needed to meet the applicable performance standards, restoration requirements, and/or alternative site-specific requirements.

(v) You must review and approve the proposed Verification Monitoring Plan submitted under § 125.104(b)(6) (for design and construction technologies) and/or monitoring provisions of the Restoration Plan submitted under § 125.104(b)(4)(v) and require that the monitoring continue for a sufficient period of time to demonstrate whether the design and construction technology, operational measures, and/or restoration measures meet the applicable performance standards in § 125.103(b), restoration requirements in § 125.103(c)(2) and/or site-specific requirements established pursuant to § 125.103(a)(5).

(vi) If a facility requests requirements based on a site-specific determination of best technology available for minimizing adverse environmental impact, you must review the application materials submitted under § 125.104(b)(5) and any other information you may have, including quantitative and qualitative benefits, that would be relevant to a determination of whether alternative requirements are appropriate for the facility. If a facility submits a study to support entrainment survival at the facility, you must review and approve the results of that study. If you determine that alternative requirements are appropriate, you must make a site-specific determination of best technology available for minimizing adverse environmental impact in accordance with § 125.103(a)(5). You, as the Director, may request revisions to the information submitted by the facility in accordance with § 125.104(b)(5) if it does not provide an adequate basis for you to make this determination. Any alternative site-specific requirements established based on new and/or existing design and construction technologies, operational measures, and/or restoration measures, must achieve an efficacy that is, in your judgment, as close as practicable to the applicable performance standards of § 125.103(b) without resulting in costs that are significantly greater than the costs considered by the Administrator for a like facility in establishing the applicable performance standards in § 125.103(b), determined in accordance with § 125.103(a)(5)(i)(A) through (F), or the benefits of complying with the applicable performance standards at the facility. A ''like facility'' is one that is subject to the same requirements as those that would otherwise be applicable to the facility seeking a site-specific determination. In other words, ''like facilities'' for Phase III existing facilities include only other Phase III existing facilities; and

(vii) You must review the proposed methods for assessing success in meeting applicable performance standards and/or restoration requirements submitted by the facility under § 125.104(b)(3)(ii)(D) and/or (b)(4)(v)(A), evaluate those and other available methods, and specify how assessment of success in meeting the performance standards and/or restoration requirements must be determined including the averaging period for determining the percent reduction in impingement mortality and entrainment and/or the production of fish and shellfish. Compliance for facilities who request that compliance be measured employing a Technology Installation and Operation Plan and/or Restoration Plan must be determined in accordance with § 125.107(b)(1)(iv).

(2) *Monitoring Conditions.* You must require the facility to perform monitoring in accordance with the Technology Installation and Operation Plan in § 125.104(b)(3)(ii), the Restoration Plan required by § 125.104(b)(4), if applicable, and the Verification Monitoring Plan required by § 125.104(b)(6). In determining any additional applicable monitoring requirements in accordance with § 125.105, you must consider the monitoring facility's Verification Monitoring, Technology Installation and Operation, and/or Restoration Plans, as appropriate. You may modify the monitoring program based on changes in physical or biological conditions in the vicinity of the cooling water intake structure.

(3) *Record Keeping and Reporting.* At a minimum, the permit must require the facility to report and keep records specified in § 125.106.

(4) *Design and Construction Technology Approval.* (i) For a facility that chooses to demonstrate that it has installed and properly operate and maintain a design and construction technology approved in accordance with § 125.108, the Director must review and approve the information submitted in the Technology Installation and Operation Plan in § 125.104(b)(3)(ii) and determine if it meets the criteria in § 125.108.

(ii) If a person requests approval of a technology under § 125.108(b), the Director must review and approve the information submitted and determine its suitability for widespread use at facilities with similar site conditions in its jurisdiction with minimal study. As the Director, you must evaluate the adequacy of the technology when installed in accordance with the required design criteria and site conditions to consistently meet the performance standards in § 125.103. You, as the Director, may only approve a technology following public notice and consideration of comment regarding such approval.

(5) *Biennial Status Report.* You must specify monitoring data and other information to be included in a status report every two years. The other information may include operation and maintenance records, summaries of adaptive management activities, or any other information that is relevant to determining compliance with the terms of the facility's Technology Operation and Installation Plan and/or Restoration Plan.

§ 125.108 What are Approved Design and Construction Technologies?

OPTION A FOR PARAGRAPH (a)—

[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 50 MGD or more, located on any waterbody type or the regulatory option that defines a Phase III existing facility as one with design intake flows 200 MGD or more, located on any waterbody type]:

(a) The following technologies constitute approved design and construction technologies for purposes of § 125.103(a)(4):

(1) Submerged cylindrical wedgewire screen technology, if you meet the following conditions:

(i) Your cooling water intake structure is located in a freshwater river or stream;

(ii) Your cooling water intake structure is situated such that sufficient ambient counter currents exist to promote cleaning of the screen face;

(iii) Your maximum through-screen design intake velocity is 0.5 ft/s or less;

(iv) The slot size is appropriate for the size of eggs, larvae, and juveniles of all

fish and shellfish to be protected at the site; and

(v) Your entire main cooling water intake flow is directed through the technology. Small flows totaling less than 2 MGD for auxiliary cooling uses are excluded from this provision.

(2) A technology that has been approved in accordance with the process described in paragraph (b) of this section.

OPTION B FOR PARAGRAPH (a)—

[This language reflects the regulatory option that defines a Phase III existing facility as one with design intake flows of 100 MGD or more, located on oceans, estuaries, tidal rivers, or one of the Great Lakes]:

(a) A design and construction technology may be approved for use in accordance with the compliance alternative in § 125.103(a)(4). The technology must be approved in accordance with the process described in paragraph (b) of this section.

(b) You or any other interested person may submit a request to the Director that a technology be approved in accordance with the compliance alternative in § 125.103(a)(4) after providing the public with notice and an opportunity to comment on the request for approval of the technology. If the Director approves the technology, it may be used by all facilities with similar site conditions under the Director's jurisdiction. Requests for approval of a technology must be submitted to the Director and include the following information:

(1) A detailed description of the technology;

(2) A list of design criteria for the technology and site characteristics and conditions that each facility must have in order to ensure that the technology can consistently meet the appropriate impingement mortality and entrainment performance standards in § 125.103(b); and

(3) Information and data sufficient to demonstrate that facilities under the jurisdiction of the Director can meet the applicable impingement mortality and entrainment performance standards in § 125.103(b) if the applicable design criteria and site characteristics and conditions are present at the facility.

3. Add subpart N to part 125 to read as follows:

Subpart N—Requirements Applicable to Cooling Water Intake Structures for New Offshore Oil and Gas Extraction Facilities Under Section 316(b) of the Act

Sec.

Subpart N—Requirements Applicable to Cooling Water Intake Structures for New Offshore Oil and Gas Extraction Facilities Under Section 316(b) of the Act

§ 125.130 What are the purpose and scope of this subpart?

(a) This subpart establishes requirements that apply to the location, design, construction, and capacity of cooling water intake structures at new offshore oil and gas extraction facilities. The purpose of these requirements is to establish the best technology available for minimizing adverse environmental impact associated with the use of cooling water intake structures at these facilities. These requirements are implemented through National Pollutant Discharge Elimination System (NPDES) permits issued under section 402 of the Clean Water Act (CWA).

(b) This subpart implements section 316(b) of the CWA for new offshore oil and gas extraction facilities. Section 316(b) of the CWA provides that any standard established pursuant to sections 301 or 306 of the CWA and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

(c) New offshore oil and gas extraction facilities that do not meet the threshold requirements regarding amount of water withdrawn or percentage of water withdrawn for cooling water purposes in § 125.131(a) must meet requirements determined by the Director on a case-by-case, best professional judgement (BPJ) basis.

(d) 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.

§ 125.131 Who is subject to this subpart?

(a) This subpart applies to a new offshore oil and gas extraction facility if it meets all of the following criteria:

(1) It is a point source that uses or proposes to use a cooling water intake structure;

(2) It has at least one cooling water intake structure that uses at least 25 percent of the water it withdraws for cooling purposes as specified in paragraph (c) of this section; and

(3) It has a design intake flow greater than two (2) million gallons per day (MGD).

(b) Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from waters of the United States. Use of cooling water does not include obtaining cooling water from a public water system or the use of treated effluent that otherwise would be discharged to a water of the U.S. This provision is intended to prevent circumvention of these requirements by creating arrangements to receive cooling water from an entity that is not itself a point source.

(c) The threshold requirement that at least 25 percent of water withdrawn be used for cooling purposes must be measured on an average monthly basis. A new offshore oil and gas extraction facility meets the 25 percent cooling water threshold if, based on the new facility's design, any monthly average over a year for the percentage of cooling water withdrawn is expected to equal or exceed 25 percent of the total water withdrawn.

(d) Neither this subpart nor Subpart I applies to seafood processing vessels and offshore liquefied natural gas import terminals that are new facilities as defined in 40 CFR 125.83. Seafood processing vessels and offshore liquefied natural gas import terminals must meet requirements established by the Director on a case-by-case, best professional judgment (BPJ) basis.

§ 125.132 When must I comply with this subpart?

You must comply with this subpart when an NPDES permit containing requirements consistent with this subpart is issued to you.

§ 125.133 What special definitions apply to this subpart?

The following special definitions apply to this subpart:

Annual mean flow means the average of daily flows over a calendar year. Historical data (up to 10 years) must be used where available.

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 that is used in another industrial process either before or after it is used for cooling is considered process water for the purposes of calculating the percentage of a new offshore oil and gas extraction facility's intake flow that is used for cooling purposes in § 125.131(c).

Cooling water intake structure means the total physical structure and any associated constructed waterways used to withdraw cooling water from waters of the U.S. The cooling water intake structure extends from the point at which water is withdrawn from the surface water source up to, and including, the intake pumps.

Design intake flow means the value assigned (during the facility's design) to the total volume of water withdrawn from a source water body over a specific time period.

Design intake velocity means the value assigned (during the design of a cooling water intake structure) to the average speed at which intake water passes through the open area of the intake screen (or other device) against which organisms might be impinged or through which they might be entrained.

Entrainment means the incorporation of all life stages of fish and shellfish with intake water flow entering and passing through a cooling water intake structure and into a cooling water system.

Estuary means a semi-enclosed body of water that has a free connection with open seas and within which the seawater is measurably diluted with fresh water derived from land drainage. The salinity of an estuary exceeds 0.5 parts per thousand (by mass) but is typically less than 30 parts per thousand (by mass).

Fixed facility means a bottom founded offshore oil and gas extraction facility permanently attached to the seabed or subsoil of the outer continental shelf (*e.g.*, platforms, guyed towers, articulated gravity platforms) or a buoyant facility securely and substantially moored so that it cannot be moved without a special effort (*e.g.*, tension leg platforms, permanently moored semi-submersibles) and which is not intended to be moved during the production life of the well. This definition does not include mobile offshore drilling units (MODUs) (*e.g.*, drill ships, temporarily moored semi-submersibles, jack-ups, submersibles, tender-assisted rigs, and drill barges).

Hydraulic zone of influence means that portion of the source waterbody hydraulically affected by the cooling water intake structure withdrawal of water.

Impingement means the entrapment of all 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.

Maximize means to increase to the greatest amount, extent, or degree reasonably possible.

Minimize means to reduce to the smallest amount, extent, or degree reasonably possible.

Minimum ambient source water surface elevation means the mean low tidal water level for estuaries or oceans. The mean low tidal water level is the average height of the low water over at least 19 years.

New offshore oil and gas extraction facility means any building, structure, facility, or installation that:

(1) Meets the definition of a ''new source'' or ''new discharger'' in 40 CFR 122.2 and 122.29(b)(1) and (4);

(2) Is regulated by the Offshore and Coastal Subcategories of the Oil and Gas Extraction Point Source Category Effluent Guidelines in 40 CFR 435.10 or 40 CFR 435.40; and

(3) Commenced construction after [60 days from publication of the final rule].

Ocean means marine open coastal waters with a salinity greater than or equal to 30 parts per thousand (by mass).

Offshore liquefied natural gas (LNG) import terminal means any facility located in waters defined in 40 CFR 435.10 or 40 CFR 435.40 that liquefies, re-gasifies, transfers, or stores liquefied natural gas.

Sea chest means the underwater compartment or cavity within the facility or vessel hull or pontoon through which sea water is drawn in (for cooling and other purposes) or discharged.

Seafood processing vessel means any offshore or nearshore, floating, mobile, facility engaged in the processing of fresh, frozen, canned, smoked, salted or pickled seafood, seafood paste, mince, or meal.

Source water means the water body (waters of the U.S.) from which the cooling water is withdrawn.

Tidal excursion means the horizontal distance along the estuary or tidal river that a particle moves during one tidal cycle of ebb and flow.

Tidal river means the most seaward reach of a river or stream where the salinity is typically less than or equal to 0.5 parts per thousand (by mass) at a time of annual low flow and whose surface elevation responds to the effects of coastal lunar tides.

§ 125.134 As an owner or operator of a new offshore oil and gas extraction facility, what must I do to comply with this subpart?

(a)(1) The owner or operator of a new offshore oil and gas extraction facility must comply with:

(i) Track I in paragraph (b) or Track II in paragraph (c) of this section, if it is a fixed facility; or

(ii) Track I in paragraph (b) of this section, if it is *not* a fixed facility.

(2) In addition to meeting the requirements in paragraph (b) or (c) of this section, the owner or operator of a new offshore oil and gas extraction facility may be required to comply with paragraph (d) of this section.

(b) *Track I requirements for new offshore oil and gas extraction facilities.* (1)(i) New offshore oil and gas extraction facilities that withdraw greater than 2 MGD, *do not* employ sea chests as cooling water intake structures, and are fixed facilities must comply with all of the requirements in paragraphs (b)(2) through (8) of this section.

(ii) New offshore oil and gas extraction facilities that withdraw greater than 2 MGD, employ sea chests as cooling water intake structures, and are fixed facilities must comply with the requirements in paragraphs (b)(2), (3), (4), (6), (7), and (8) of this section.

(iii) New offshore oil and gas extraction facilities that withdraw greater than 2 MGD and are *not* fixed facilities must comply with the requirements in paragraphs (b)(2), (4), (6), (7), and (8) of this section.

(2) You must design and construct each cooling water intake structure at your facility to a maximum through-screen design intake velocity of 0.5 ft/s;

(3) For cooling water intake structures located in an estuary or tidal river, the total design intake flow over one tidal cycle of ebb and flow must be no greater than one (1) percent of the volume of the water column within the area centered about the opening of the intake with a diameter defined by the distance of one tidal excursion at the mean low water level;

(4) You must select and implement design and construction technologies or operational measures for minimizing impingement mortality of fish and shellfish if the Director determines that:

(i) There are threatened or endangered or otherwise protected federal, state, or tribal species, or critical habitat for these species, within the hydraulic zone of influence of the cooling water intake structure; or

(ii) Based on information submitted by any fishery management agency(ies) or other relevant information, there are migratory and/or sport or commercial species of impingement concern to the Director that pass through the hydraulic zone of influence of the cooling water intake structure; or

(iii) Based on information submitted by any fishery management agency(ies) or other relevant information, that the proposed facility, after meeting the technology-based performance requirements in paragraphs (b)(2) and (5) of this section, would still contribute unacceptable stress to the protected species, critical habitat of those species, or species of concern;

(5) You must select and implement design and construction technologies or operational measures for minimizing entrainment of entrainable life stages of fish and shellfish;

(6) You must submit the applicable application information required in 40 CFR 122.21(r) and § 125.136(b). If you are a fixed facility you must submit the information required in 40 CFR 122.21(r)(2) (except (r)(2)(iv)), (3), and (4) and § 125.136(b) of this subpart as part of your application. If you are a not a fixed facility, you must only submit the information required in 40 CFR 122.21(r)(2)(iv), (r)(3) (except r(3)(ii)) and § 125.136(b) as part of your application.

(7) You must implement the monitoring requirements specified in § 125.137;

(8) You must implement the recordkeeping requirements specified in § 125.138.

(c) *Track II requirements for new offshore oil and gas extraction facilities.* The owner or operator of a new offshore oil and gas extraction facility that is a fixed facility and chooses to comply under Track II must comply with the following requirements:

(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 applicable requirements of paragraph (b)(2) and for fixed facilities without sea chests, paragraph (b)(5) of this section. This demonstration must include a showing that the impacts to fish and shellfish, including important forage and predator species will be comparable to those which would result if you were to implement the requirements of paragraph (b)(2) and for fixed facilities without sea chests, paragraph (b)(5) of this section. In identifying such species, the Director may consider information provided by any fishery management agency(ies) along with data and information from other sources.

(2) For cooling water intake structures located in an estuary or tidal river, the total design intake flow over one tidal cycle of ebb and flow must be no greater than one (1) percent of the volume of the water column within the area centered about the opening of the intake with a diameter defined by the distance of one tidal excursion at the mean low water level.

(3) You must submit the application information required in 40 CFR 122.21(r) and § 125.136(c).

(4) You must implement the monitoring requirements specified in § 125.137.

(5) You must implement the record-keeping requirements specified in § 125.138.

(d) You must comply with any more stringent requirements relating to the location, design, construction, and capacity of a cooling water intake structure or monitoring requirements at a new offshore oil and gas extraction facility that the Director deems are reasonably necessary to comply with any provision of Federal or State law, including compliance with applicable state water quality standards (including designated uses, criteria, and antidegradation requirements).

§ 125.135 May alternative requirements be authorized?

(a) Any interested person may request that alternative requirements less stringent than those specified in § 125.134(a) through (d) be imposed in the permit. The Director may establish alternative requirements less stringent than the requirements of § 125.134(a) through (d) only if:

(1) There is an applicable requirement under § 125.134(a) through (d);

(2) The Director determines that data specific to the facility indicate that compliance with the requirement at issue would result in compliance costs wholly out of proportion to the costs EPA considered in establishing the requirement at issue or would result in significant adverse impacts on local water resources other than impingement or entrainment, or significant adverse impacts on energy markets;

(3) The alternative requirement requested is no less stringent than justified by the wholly out of proportion cost or the significant adverse impacts on local water resources other than impingement or entrainment, or significant adverse impacts on energy markets; and

(4) The alternative requirement will ensure compliance with other applicable provisions of the Clean Water Act and any applicable requirement of Federal or State law.

(b) The burden is on the person requesting the alternative requirement to demonstrate that alternative requirements should be authorized.

§ 125.136 As an owner or operator of a new offshore oil and gas extraction facility, what must I collect and submit when I apply for my new or reissued NPDES permit?

(a)(1) As an owner or operator of a new offshore oil and gas extraction facility, you must submit to the Director a statement that you intend to comply with either:

(i) The Track I requirements for new offshore oil and gas extraction facilities in § 125.134(b); or

(ii) If you are a fixed facility, the Track II requirements in § 125.134(c).

(2) You must also submit the application information required by 40 CFR 122.21(r) and the information required in either paragraph (b) of this section for Track I or, if you are a fixed facility that chooses to comply under Track II, paragraph (c) of this section for Track II when you apply for a new or reissued NPDES permit in accordance with 40 CFR 122.21.

(b) *Track I application requirements.* To demonstrate compliance with Track I requirements in § 125.134(b), you must collect and submit to the Director the information in paragraphs (b)(1) through (3) of this section.

(1) *Velocity information.* You must submit the following information to the Director to demonstrate that you are complying with the requirement to meet a maximum through-screen design intake velocity of no more than 0.5 ft/s at each cooling water intake structure as required in § 125.134(b)(2):

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

(ii) 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.

(2) *Source waterbody flow information.* If you are a fixed facility and your cooling water intake structure is located in an estuary or tidal river, you must provide the mean low water tidal excursion distance and any supporting documentation and engineering calculations to show that your cooling water intake structure facility meets the flow requirements in § 125.134(b)(3).

(3) *Design and Construction Technology Plan.* To comply with § 125.134(b)(4) and/or (5), if applicable, you must submit to the Director the following information in a Design and Construction Technology Plan:

(i) If the Director determines that additional impingement requirements should be included in your permit:

(A) Information to demonstrate whether or not you meet the criteria in § 125.134(b)(4);

(B) Delineation of the hydraulic zone of influence for your cooling water intake structure;

(ii) New offshore oil and gas extraction facilities required to install design and construction technologies and/or operational measures must develop a plan explaining the technologies and measures you have selected. (Examples of appropriate technologies include, but are not limited to, increased opening to cooling water intake structure to decrease design intake velocity, wedgewire screens, fixed screens, velocity caps, location of cooling water intake opening in waterbody, *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, if applicable:

(A) A narrative description of the design and operation of the design and construction technologies, including fish-handling and return systems, that you will use to maximize the survival of those species expected to be most susceptible to impingement. Provide species-specific information that demonstrates the efficacy of the technology;

(B) To demonstrate compliance with 125.134(b)(5), if applicable, a narrative description of the design and operation of the design and construction technologies that you will use to minimize entrainment of those species expected to be the most susceptible to entrainment. Provide species-specific information that demonstrates the efficacy of the technology; and

(C) Design calculations, drawings, and estimates to support the descriptions provided in paragraphs (b)(3)(iii)(A) and (B) of this section.

(c) *Application requirements for Track II.* If you are a fixed facility and have chosen to comply with the requirements of Track II in § 125.134(c) you must collect and submit the following information:

(1) *Source waterbody flow information.* If your cooling water intake structure is located in an estuary or tidal river, you must provide the mean low water tidal excursion distance and any supporting documentation and engineering calculations to show that your cooling water intake structure facility meets the flow requirements in § 125.134(c)(2);

(2) *Track II Comprehensive Demonstration Study.* 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 applicable requirements in § 125.134(b)

(i) To meet the ''comparable level'' requirement, you must demonstrate that:

(A) You have reduced impingement mortality of all life stages of fish and shellfish to 90 percent or greater of the reduction that would be achieved through the applicable requirements in § 125.134(b)(2); and

(B) If you are a facility without sea chests, you have minimized entrainment of entrainable life stages of fish and shellfish in accordance with § 125.134(b)(5);

(ii) 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:

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

(B) 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 impingement mortality and (if applicable) entrainment impacts, and provide documentation showing that the data were collected using appropriate quality assurance/quality control procedures;

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

(D) 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; and

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

(A) *Source Water Biological Study.* The Source Water Biological Study must include:

(*1*) 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;

(*2*) An identification of all threatened or endangered species that might be susceptible to impingement and entrainment by the proposed cooling water intake structure(s); and

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

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

(*1*) Calculations of the reduction in impingement mortality and, if applicable, entrainment 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 Track II. To do this, you must determine the reduction in impingement mortality and entrainment that would be achieved by implementing the requirements of § 125.134(b)(2) and, for facilities without sea chests, § 125.134(b)(5) of Track I at your site.

(*2*) An engineering estimate of efficacy for the proposed and/or implemented technologies used to minimize impingement mortality and (if applicable) entrainment of all life stages of fish and shellfish and maximize survival of impinged life stages of fish and shellfish. You must demonstrate that the technologies reduce impingement mortality and (if applicable) entrainment 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 § 125.134(b)(2) and, for facilities without sea chests, § 125.134(b)(5) of Track I. The efficacy projection must include a site-specific evaluation of technology(ies) suitability for reducing impingement mortality and (if applicable) entrainment based on the results of the Source Water Biological Study in paragraph (c)(2)(iv)(A) 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.

(C) *Verification monitoring plan.* You must include in the Study 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 impingement mortality and (if applicable) entrainment to the level documented in paragraph (c)(2)(iii)(B) 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 impingement mortality and entrainment reduction required in § 125.134(c), and that the operation of the technology has been optimized.

§ 125.137 As an owner or operator of a new offshore oil and gas extraction facility, must I perform monitoring?

As an owner or operator of a new offshore oil and gas extraction facility, you will be required to perform monitoring to demonstrate your compliance with the requirements specified in § 125.134 or alternative requirements under § 125.135.

(a) *Biological monitoring.* (1)(i) Fixed facilities without sea chests that choose to comply with the Track I requirements in § 125.134(b)(1)(i) must monitor for entrainment. These facilities are not required to monitor for impingement, unless the Director determines that the information would be necessary to evaluate the need for or compliance with additional requirements in accordance with § 125.134(b)(4) or more stringent requirements in accordance with § 125.134(d).

(ii) Fixed facilities with sea chests that choose to comply with Track I requirements are not required to perform biological monitoring unless the Director determines that the information would be necessary to evaluate the need for or compliance with additional requirements in accordance with § 125.134(b)(4) or more stringent requirements in accordance with § 125.134(d).

(iii) Facilities that are not fixed facilities are not required to perform biological monitoring unless the Director determines that the information would be necessary to evaluate the need for or compliance with additional requirements in accordance with § 125.134(b)(4) or more stringent requirements in accordance with § 125.134(d).

(iv) Fixed facilities with sea chests that choose to comply with Track II requirements in accordance with § 125.134(c), must monitor for impingement only. Fixed facilities without sea chests, must monitor for both impingement and entrainment.

(2) Monitoring must characterize the impingement rates and (if applicable) entrainment rates of commercial, recreational, and forage base fish and shellfish species identified in the Source Water Baseline Biological Characterization data required by 40 CFR 122.21(r)(4), identified in the Comprehensive Demonstration Study required by § 125.136(c)(2), or as specified by the Director.

(3) 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), those used by the Comprehensive Demonstration Study required by § 125.136(c)(2), or as specified by the Director. 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 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.

(4) *Impingement sampling.* 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.

(5) *Entrainment sampling.* If your facility is subject to the requirements of § 125.134(b)(1)(i) or (c), you must collect samples to monitor entrainment rates (simple enumeration) for each species over a 24-hour period and no less than biweekly 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 § 125.136(c)(2). You must collect samples only when the cooling water intake structure is in operation.

(b) *Velocity monitoring.* If your facility uses a surface intake screen systems, you must monitor head loss across the screens and correlate the measured value with the design intake velocity. The head loss across the intake screen must be measured at the minimum ambient source water surface elevation (best professional judgment based on available hydrological data). The maximum head loss across the screen for each cooling water intake structure must be used to determine compliance with the velocity requirement in § 125.134(b)(2). If your facility uses devices other than surface intake screens, you must monitor velocity at the point of entry through the device. You must monitor head loss or velocity during initial facility startup, and thereafter, at the frequency specified in your NPDES permit, but no less than once per quarter.

(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 visual inspections at least weekly to ensure that any design and construction technologies required in § 125.134(b)(4), (b)(5), (c), and/or (d) are

maintained and operated to ensure that they will continue to function as designed. Alternatively, you must inspect via remote monitoring devices to ensure that the impingement and entrainment technologies are functioning as designed.

§ 125.138 As an owner or operator of a new offshore oil and gas extraction facility, must I keep records and report?

As an owner or operator of a new offshore oil and gas extraction facility you are required to keep records and report information and data to the Director as follows:

(a) You must keep records of all the data used to complete the permit application and show compliance with the requirements, any supplemental information developed under § 125.136, and any compliance monitoring data submitted under § 125.137, for a period of at least three (3) years from the date of permit issuance. The Director may require that these records be kept for a longer period.

(b) You must provide the following to the Director in a yearly status report:

(1) For fixed facilities, biological monitoring records for each cooling water intake structure as required by § 125.137(a);

(2) Velocity and head loss monitoring records for each cooling water intake structure as required by § 125.137(b); and

(3) Records of visual or remote inspections as required in § 125.137(c).

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

(a) *Permit application.* As the Director, you must review materials submitted by the applicant under 40 CFR 122.21(r), § 125.135, and § 125.136 at the time of the initial permit application and before each permit renewal or reissuance.

(1) After receiving the initial permit application from the owner or operator of a new offshore oil and gas extraction facility, the Director must determine applicable standards in § 125.134 or § 125.135 to apply to the new offshore oil and gas extraction facility. In addition, the Director must review materials to determine compliance with the applicable standards.

(2) For each subsequent permit renewal, the Director must review the application materials and monitoring data to determine whether requirements, or additional requirements, for design and construction technologies or operational measures should be included in the permit.

(3) For Track II facilities, the Director may review the information collection proposal plan required by § 125.136(c)(2)(ii). The facility may initiate sampling and data collection activities prior to receiving comment from the Director.

(b) *Permitting requirements.* Section 316(b) requirements are implemented for a facility through an NPDES permit. As the Director, you must determine, based on the information submitted by the new offshore oil and gas extraction facility in its permit application, the appropriate requirements and conditions to include in the permit based on the track (Track I or Track II), or alternative requirements in accordance with § 125.135, the new offshore oil and gas extraction facility has chosen to comply with. The following requirements must be included in each permit:

(1) *Cooling water intake structure requirements.* At a minimum, the permit conditions must include the performance standards that implement the applicable requirements of § 125.134(b)(2), (3), (4) and (5); § 125.134(c)(1) and (2); or § 125.135.

(i) For a facility that chooses Track I, you must review the Design and Construction Technology Plan required in § 125.136(b)(3) to evaluate the suitability and feasibility of the technology proposed to minimize impingement mortality and (if applicable) entrainment of all life stages of fish and shellfish. In the first permit issued, you must include a condition requiring the facility to reduce impingement mortality and/or entrainment commensurate with the implementation of the technologies in the permit. Under subsequent permits, the Director must review the performance of the technologies implemented and require additional or different design and construction technologies, if needed to minimize impingement mortality and/or entrainment of all life stages of fish and shellfish. In addition, you must consider whether more stringent conditions are reasonably necessary in accordance with § 125.134(d).

(ii) For a fixed facility that chooses Track II, you must review the information submitted with the Comprehensive Demonstration Study information required in § 125.136(c)(2), evaluate the suitability of the proposed design and construction technology and/or operational measures to determine whether they will reduce both impingement mortality and/or 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 § 125.136(c)(2)(iii)(C) 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 § 125.134(c)(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 § 125.134(b)(2) and, if applicable, § 125.134(b)(5).

(iii) If a facility requests alternative requirements in accordance with § 125.135, you must determine if data specific to the facility meet the requirements in § 125.135(a) and include in the permit requirements that are no less stringent than justified by the wholly out of proportion cost or the significant adverse impacts on local water resources other than impingement or entrainment, or significant adverse impacts on energy markets.

(2) *Monitoring conditions.* At a minimum, the permit must require the permittee to perform the monitoring required in § 125.137. You may modify the monitoring program when the permit is reissued and during the term of the permit based on changes in physical or biological conditions in the vicinity of the cooling water intake structure. The Director may require continued monitoring based on the results of the Verification Monitoring Plan in § 125.136(c)(2)(iii)(C).

(3) *Record keeping and reporting.* At a minimum, the permit must require the permittee to report and keep records as required by § 125.138.

[FR Doc. 04–24913 Filed 11–23–04; 8:45 am]
BILLING CODE 6560–50–P