
INFORMATION COLLECTION REQUEST

U.S. ENVIRONMENTAL PROTECTION AGENCY

**INDUSTRY SCREENER QUESTIONNAIRE: PHASE I
COOLING WATER INTAKE STRUCTURES**

OCTOBER 1998

TABLE OF CONTENTS

PART A OF THE SUPPORTING STATEMENT	1
1. Identification of the Information Collection	2
1(a) Title of the Information Collection	2
1(b) Short Characterization (Abstract)	2
2. Need For and Use of the Collection	7
2(a) Need/Authority for the Collection	7
2(b) Practical Utility/Users of the Data	23
3. Nonduplication, Consultations, and Other Collection Criteria	24
3(a) Nonduplication	24
3(b) Public Notice Required Prior to ICR Submission to OMB	33
3(c) Consultations	35
3(d) Effects of Less Frequent Collection	38
3(e) General Guidelines	39
3(f) Confidentiality	39
3(g) Sensitive Questions	40
4. The Respondents and the Information Requested	40
4(a) Respondents/SIC	40
4(b) Information Requested	42
(I) Data items, including record keeping requirements	42
(II) Respondent activities	46
5. The Information Collected - Agency Activities, Collection, Methodology and Information Management	47
5(a) Agency Activities	47
5(b) Collection Methodology and Information Management	49
5(c) Small Entity Flexibility	53
5(d) Collection Schedule	55
6. Estimating Respondent Burden and Cost of Collection	57
6(a) Estimating Respondent Burden and Costs	57
6(b) Estimating Agency Burden and Costs	61
6(c) Bottom Line Burden Hours and Costs	63
6(d) Reasons For Change In Burden	64
6(e) Burden Statement	64
PART B OF THE SUPPORTING STATEMENT	66

1.	Survey Objectives, Key Variables, and Other Preliminaries	67
1(a)	Survey Objectives	67
1(b)	Key Variables	67
1(c)	Statistical Approach	67
1(d)	Feasibility	69
2.	Survey Design	70
2(a)	Target Population and Coverage	70
2(b)	Sampling Design	75
	(I) Sampling Frames	77
	(II) Sample Sizes	80
	(III) Stratification Variables	83
	(IV) Sampling Method	84
	(V) Multi-Stage Sampling	85
2(c)	Precision Requirements	85
	(I) Precision Targets	85
	(II) Nonsampling Errors	88
2(d)	Questionnaire Design	90
3.	Pretests and Pilot Tests	93
4.	Collection Methods and Follow-up	93
4(a)	Collection Methods	93
4(b)	Survey Response and Follow-Up	93
5.	Analyzing and Reporting Survey Results	93
5(a)	Data Preparation	94
5(b)	Analysis	94
5(c)	Reporting Results	94
ATTACHMENT 1	Disapproval Statement (September 21, 1998) of EPA ICR No. 1828.01	
ATTACHMENT 2	Consent Decree	
ATTACHMENT 3	Public Notice	
ATTACHMENT 4	Screeener Questionnaire (Draft, August 1, 1997), Crosswalk New to Old, and Crosswalk Old to New	
ATTACHMENT 5	Draft Comment/Response Document	
ATTACHMENT 6	SIC Codes for Steam Electric Nonindustrial Nonutility Power Producers	
ATTACHMENT 7	Screeener Questionnaire (Draft Final, February 1998)	
ATTACHMENT 8	Flow Diagram of Selected Questions from Screeener Questionnaire (Draft Final, February 1998)	

ATTACHMENT 9	Draft Justifications of Questions from Screener Questionnaire (Draft Final, February 1998)
ATTACHMENT 10	Screener Questionnaire (Draft Final, October, 1998)
ATTACHMENT 11	Flow Diagram of Selected Questions from October Screener Questionnaire (Draft Final: October 1998)
ATTACHMENT 12	Draft Justifications of Questions from October Screener Questionnaire (Draft Final: October 1998)

LIST OF TABLES

Table A1. NPDES State Statutory/Regulatory Provisions That May be Used to Address Impacts from Cooling Water Intake Structures	21
Table A2. Industry Organization Representatives	36
Table A3. Environmental Organization Representatives	36
Table A4. Industry Categories and SIC Codes	41
Table A5. Screener Questionnaire Action Duration and Starting Time Frame	56
Table A6. Estimating Respondent Costs to Complete Screener Survey	61
Table A7. Estimated Federal Employee Costs	62
Table A8. Estimated Agency Burden (Including Both EPA and Contractor Staff Hours)	62
Table A9. Breakdown of Costs to Government in Administering Survey	63
Table A10. Total Estimated Bottom Line Burden and Cost Summary	64
Table B1. Estimated Number of Steam Electric Generators and Facilities in Other Industrial Categories Ranked by Cooling Water Intake Flow Rate	72
Table B2. Targeted Industrial Categories and Intended Allocation of Questionnaires	73
Table B3. Estimated Number of Facilities in SIC Major Groups 26, 28, 29, and 33	74
Table B4. Sample Sizes Required to Achieve Precision	87

LIST OF FIGURES

Figure A1. Schedule of Screener Questionnaire Actions	56
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PART A OF THE SUPPORTING STATEMENT

EPA is resubmitting this Information Collection Request (ICR) to the Office of Management and Budget (OMB) for review and approval of the Industry Screener Questionnaire: Phase I Cooling Water Intake Structures (EPA ICR number 1828.02). This resubmission responds to OMB's disapproval of September 21, 1998 (see Attachment 1) of EPA ICR No. 1828.01, a prior version of this Information Collection Request. In its statement disapproving ICR number 1828.01, OMB directed EPA, among other things, to document that the information to be collected is necessary for the proper performance of the functions of the Agency, including the practical utility of the information being collected. The Disapproval Statement also raised issues concerning the burden of the screener questionnaire itself. In the enclosed ICR package, EPA has addressed the issues raised by OMB, especially in Sections 2 and 6. Moreover, EPA has revised the screener questionnaire to exclude a number of questions, resulting in a 40-hour burden reduction for respondents (from 50 to 10 hours).

1. Identification of the Information Collection

1(a) Title of the Information Collection

Industry Screener Questionnaire: Phase I Cooling Water Intake Structures

1(b) Short Characterization (Abstract)

The purpose of this Information Collection Request is to supplement research being conducted by the U.S. Environmental Protection Agency's (EPA's) Office of Wastewater Management (OWM) and Office of Science and Technology (OST) to support the development of proposed regulations to implement Section 316(b) of the Clean Water Act (33 U.S.C.

1326(b)). EPA (or the “Agency”) has been directed by a Consent Decree to take final action to implement Section 316(b) by the year 2001.¹ (A copy of the Consent Decree is provided at *Attachment 2* of this ICR.) EPA requests approval from the Office of Management and Budget (OMB) to implement a written screener questionnaire of industrial facilities potentially subject to Section 316(b).

Section 316(b) 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 (BTA) for minimizing adverse environmental impact. In 1977, EPA published *Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment* which stated that “adverse aquatic environmental impacts occur whenever there will be entrainment and impingement as a result of the operation of a specific cooling water intake structure.” Entrainment occurs when aquatic organisms, eggs, and larvae are taken into a facility’s cooling system, passed through its heat exchanger, and then pumped back out with the discharge from the facility. Impingement occurs when fish and other aquatic life are trapped on screens or other technologies at the entrance to a facility’s cooling water intake structures.

To date, National Permit Discharge Elimination System (NPDES) authorities have directed their Section 316(b) implementation efforts toward steam electric utilities. They have made determinations of adverse environmental impact, in part, on the basis of EPA’s above noted guidance. They, however, have generally not used this guidance nor directed their Section 316(b) efforts toward facilities using cooling water under the 19 other industrial point source categories under the Clean Water Act (CWA). Finally, from a national perspective, Section

¹Cronin, et al. v. Reilly, 93 Civ. 0314 (AGS); Consent Decree entered October 10, 1995 by the United States District Court, Southern District of New York.

316(b) has not been implemented in a uniform fashion raising issues of disparity in environmental protection as well as economic burden.

The screener questionnaire, which is the subject of this ICR, is the first step of a two-step survey process. The second step of the survey process consists of a detailed questionnaire to be distributed to a sample of facilities determined to be subject to Section 316(b).² The screener questionnaire is intended to identify facilities that are subject to standards under Sections 301 or 306 and are point source dischargers under a number of industrial categories in order to identify the subset that do, in fact, operate cooling water intake structures in surface waters and are therefore subject to Section 316(b).³ Through implementation of the screener questionnaire, EPA's OWM and OST will obtain data to refine the sample frame for the detailed questionnaire. Moreover, the screener questionnaire will provide data to enable EPA to stratify the sample of facilities that will receive the detailed questionnaire. The detailed questionnaire, to be submitted under a separate ICR package to OMB later this year, will seek more detailed and baseline data on the design, location, construction, and capacity of cooling water intake structures of facilities determined to be subject to Section 316(b). The detailed questionnaire, however, will not answer the questions of whether adverse environmental impacts have occurred or are occurring at facilities and whether the facility is employing BTA. Facilities, however, will be queried whether

²On September 18, 1997, EPA published a notice in the *Federal Register* announcing that the draft cooling water intake structure screener questionnaire under ICR No. 1828.01 was available for public comment (62 *Fed. Reg.* 49007). At the same time, EPA administered a "pretest" of the screener questionnaire. On January 26, 1998, EPA published a notice in the *Federal Register* announcing that the draft *Detailed Industry Questionnaire: Phase II Cooling Water Intake Structures* was available for public comment. (63 *Fed. Reg.* 3738).

³For reasons discussed elsewhere in this ICR, EPA is limiting the target audience to receive the screener and detailed questionnaires to six select industry groups identified as using the majority of cooling water from surface water sources in the United States. However, this action should *not* be presumed to mean that Section 316(b) (33 U.S.C., Section 1326(b)) does not apply to facilities in other industry groups if these facilities are point sources under the Clean Water Act (33 U.S.C., 1362(14)) and directly withdraw cooling water from surface water sources.

they have previously performed a Section 316(b) demonstration and whether a Section 316(b) determination had been made. EPA is conducting other research efforts aimed at these issues.

There are two categories of questions in the screener questionnaire: scoping and stratifying. The scoping questions request information on whether the facility is a point source discharger and directly withdraws cooling water from surface water sources. The stratification questions include inquiries about the water body types upon which cooling water is being withdrawn, design intake flow for a typical operational year, ownership type, number of full-time equivalent employees, and annual sales revenue. Additional stratification questions (for systematic sampling purposes) include questions regarding activities for which cooling water is used, type of cooling water systems in use, configuration of cooling water intake structures, technology types being used at cooling water intake structures, gross annual electricity generated, and annual sales of electricity.

Besides the two-phase sampling effort (i.e., implementation of a screener and a detailed industry questionnaire to a sample of affected parties), EPA is performing additional data collection activities to support its Section 316(b) rulemaking activities. These other efforts are needed to answer other fundamental questions related to the rulemaking activity (e.g., what is an adverse environmental impact and to what degree must these impacts be minimized and through what technological means) and to minimize burden on the potentially regulated community. These other data collection activities include literature reviews and case studies of affected facilities. EPA has also analyzed existing data on potentially affected facilities available through the Energy Information Agency, Bureau of the Census, EPA, and industry associations.

EPA has organized the industries potentially affected by Section 316(b) into three major groups, which include the following: (1) traditional steam electric utilities (SIC Major Group 49), (2) steam electric nonutility power producers (SIC Major Group 49 and other industrial group categories), and (3) other industries. The group referred to as “other industries” includes the

following: (1) Paper and Allied Products (SIC Major Group 26), (2) Chemical and Allied Products (SIC Major Group 28), (3) Petroleum and Coal Products (SIC Major Group 29), and Primary Metals (SIC Major Group 23). Together, EPA estimates that these six industrial groups account for more than 99 percent of all cooling water used in the United States. The screener questionnaire, of which this ICR is about, will be directed toward a sample of facilities in the latter two groups. Because data are available from existing sources for the traditional steam electric utility group to produce a sample frame and to enable a stratified sample of facilities to be drawn, EPA does not need to issue a screener survey to facilities in this category. A detailed questionnaire, however, will be sent to a sample of these facilities. EPA's justification for the detailed questionnaire and the targeted industrial groups and facilities will be explained under the Agency's ICR package for that effort.

EPA intends to administer the screener questionnaire to 2,600 facilities. Facilities that receive the screener questionnaire must complete it and return it to EPA within 45 days of receipt. The Agency's contractor will then QA the data and enter the respondents' answers into a computer database for tabulation and analysis. EPA estimates that the cost of the screener survey effort to industry will be \$548 per facility. Section 6 of this ICR more fully outlines the factors affecting the cost of the survey effort.

2. Need For and Use of the Collection

2(a) Need/Authority for the Collection

EPA is developing regulations implementing Section 316(b) of the Clean Water Act, 33 U.S.C. 1326(b) pursuant to a Consent Decree entered on October 10, 1995 in Cronin v. Reilly,⁴ a lawsuit brought against the Agency by a coalition of environmental groups headed by the Hudson Riverkeeper. The Consent Decree (see *Attachment 2*) establishes a judicially enforceable seven year schedule for EPA to propose and take final action with respect to a Section 316(b) regulation. OMB reviewed and agreed to the Consent Decree in September 1994. To ensure that any Section 316(b) regulation is based on accurate information, EPA initiated a variety of data-gathering activities. The screener questionnaire represents one mechanism through which EPA is gathering background industry- and facility-level information about cooling water intake structures. EPA will use the information collected through the screener questionnaire to select facilities for receipt of the detailed industry questionnaire. EPA has authority to collect this information under Section 308 of the CWA (33 U.S.C. Section 1318).

OMB's regulations implementing the Paperwork Reduction Act provide that an agency submission of a proposed collection of information shall certify that the proposed collection of information "is necessary for the proper performance of the functions of the Agency, including that the information to be collected will have practical utility...." 5 C.F.R. § 1309(a). According to OMB's draft Paperwork Reduction Act guidance dated February 3, 1997, "[t]he term 'need' means that some programmatic or policy requirement... exists." (Draft Guidance at 38.) The Draft Guidance continues, "'Need' has been used as the administrative equivalent to stating that the collection of information 'is necessary for the proper performance' of the functions of the agency. 44 U.S.C. 3508." (Draft Guidance at 38, n. 160.) With respect to the "practical utility" component of "need," the Draft Guidance states, "The term 'practical utility' refers to the usefulness of information (considering its accuracy, adequacy, and reliability) to carry out the agency's functions in a timely manner." (Draft Guidance at 39.)

⁴ United States District Court, Southern District of New York, 93 Civ. 0314 (AGS).

EPA believes the collection of the information requested in the screener questionnaire is necessary for the proper performance of the functions of the agency. The Consent Decree in Cronin v. Reilly obligates EPA to propose regulations implementing Section 316(b) no later than July 2, 1999 and to take final action with respect to the regulations no later than August 13, 2001. The information collected through the screener questionnaire, in conjunction with other data (i.e., from case studies and studies from manufacturers), will help EPA evaluate the performance of various candidate BTA technologies and determine where and under what environmental conditions these technologies are being used. This will help EPA develop regulatory options for evaluation and select a regulatory option when the Agency takes final action as required by the Consent Decree.

In its statement disapproving EPA's first ICR for this effort (EPA ICR number 1828.01), OMB specifically directed EPA to document more fully that the information to be collected is necessary for the proper performance of the functions of the Agency, including the practical utility of the information being collected. The Disapproval Statement directed that this showing include (1) "evidence that significant adverse environmental impacts are occurring as a result of cooling water intake structures;" (2) "evidence that point sources are not currently using best technology available to minimize such impacts;" and (3) "evidence that a national regulatory approach of the type this information collection is designed to support would be more effective at implementing the statutory requirements than the current approach relying on site specific information, best professional judgement of NPDES permit writers, and state regulations tailored to meet local conditions and concerns." Each of these areas is addressed below.

1. Evidence that Significant Adverse Environmental Impacts Are Occurring as a Result of Cooling Water Intake Structures.

EPA's May 1977 *Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment* describes two ways in which cooling water intake

structures can cause adverse environmental impacts. The first is entrainment, which occurs when organisms are drawn through the cooling water intake structure into the cooling system. There, the organisms are subject to mechanical, thermal, and toxic stress. Mortality of entrained organisms is extremely high. The second effect is the impingement of fish and other aquatic organisms on devices installed on the cooling water intake structure to prevent debris from entering the facility's cooling water system. Organisms are trapped against these screening devices by the velocity of the water passing through the cooling water intake structure.

Research of the available literature and Section 316(b) demonstration studies obtained from NPDES permit files has identified numerous documented cases of impacts associated with impingement and entrainment and the subsequent effects of these actions on populations of aquatic organisms. For example, specific losses associated with individual steam electric generating plants include 3 to 4 billion larvae and post larvae per year,⁵ 23 tons of fish and shellfish of recreational, commercial or forage value lost each year,⁶ and 1 million fish lost during a three-week study period.⁷ Several studies estimating the impacts of entrainment on populations of key commercial or recreational fish predicted declines in population size. Studies focusing on entrainment mortality in the Hudson River predicted reductions in the year-class strength for 6

⁵ *Brunswick Nuclear Steam Electric Generating Plant of Carolina Power and Light Company Located near Southport, North Carolina, Historical Summary and Review of Section 316(b) Issues.* EPA Region IV, September 19, 1979

⁶ *Findings and Determination under 33 U.S.C. Section 1326, In the Matter of Florida Power Corporation Crystal River Power Plant Units 1, 2, and 3. NPDES Permit No. FL0000159.* EPA Region IV, December 2, 1986

⁷ *Impingement Losses at the D.C. Cook Nuclear Power Plant during 1975-1982 with a Discussion of Factors Responsible and Possible Impact on Local Populations,* Thurber, Nancy J. and David J. Jude. Special Report No. 115 of the Great Lakes Research Division. Great Lakes and Marine Waters Center. The University of Michigan. 1985.

species ranging from 4 percent to 79 percent depending on the species.⁸ A modeling effort looking at the impact of entrainment mortality on the population of a selected species in the Cape Fear estuarine system predicted a 15 to 35 percent reduction in the population.⁹

The following are among other more recent documented examples of impacts occurring as a result of cooling water intake structures:

A. Brayton Point. New England Power Company's Brayton Point plant is located in Mt. Hope Bay, in the northeastern reach of Narragansett Bay, Rhode Island. In order to increase electric generating capacity, Unit 4 was switched from closed-cycle to once-through cooling in 1985. The modification of Unit 4 resulted in an increase in cooling water intake flow of 45 percent. Studies designed to evaluate whether the cooling water intake structure was affecting fish species abundance trends found that Mt. Hope Bay experienced a progressively steady rate of decline in finfish species of recreational, commercial, and ecological importance.¹⁰ In contrast, species abundance trends were relatively stable in coastal areas and portions of Narragansett Bay that are not influenced by the cooling water intake structure. Further strengthening the evidence that the cooling water intake structure was contributing to the documented declines was the finding that the rate of population decline increased substantially with the full implementation of the once-through cooling mode for Unit 4. The modification of Unit 4 is estimated to have resulted in an 87 percent reduction in finfish abundance based on a time series-intervention model.

⁸ *Estimates of Entrainment Mortality for Striped Bass and Other Fish Species Inhabiting the Hudson River Estuary*, Boreman, John and Phillip Goodyear. American Fisheries Society Monograph 4:152-160, 1988.

⁹ *Brunswick Nuclear Steam Electric Generating Plant of Carolina Power and Light Company, Historically Summary and Review of Section 316(b) Issues*. EPA Region IV, 1979.

¹⁰ *Comparison of Trends in the Finfish Assemblages of Mt. Hope Bay and Narragansett Bay in Relation to Operations of the New England Power Brayton Point Station*. Mark Gibson, Rhode Island Division Fish and Wildlife, Marine Fisheries Office, June 1995 and revised August 1996.

These impacts were associated with both impingement and entrainment as well as the thermal discharge of cooling water. Entrainment data indicated that 4.9 billion tautog eggs, 0.86 billion windowpane eggs, and 0.89 billion winter flounder larvae were entrained in 1994 alone. Using adult equivalent analyses, the entrainment and impingement of fish eggs and larvae in 1994 translated to a loss of 30,885, 20,146, and 96,507 pounds of adult tautog, windowpane, and winter flounder, respectively.

B. San Onofre Nuclear Generating Station. The San Onofre Nuclear Generating Station (SONGS) is on the coastline of the Southern California Bight, approximately 2.5 miles southeast of San Clemente, California. The marine portions of Units 2 and 3, which are once-through, open-cycle cooling systems, began commercial operation in August of 1993 and 1994, respectively. Since then, many studies have been completed to evaluate the impact of the SONGS facility on the marine environment.¹¹

Studies of kelp beds in near shore waters within the vicinity of the SONGS facility determined that the operation of cooling water intake structures resulted in a 60 percent (80 hectare) reduction in the area covered by moderate to high density kelp. Studies indicated that poor survival and lack of development of new kelp plants was the result of increased turbidity due to withdrawal of intake water at SONGS. The loss of kelp was also determined to be detrimental to fish communities associated with the kelp forests. For example, fish living close to the cobble bottom in the impact area experienced a 70 percent decline in abundance. Fish living in the water column in the impact areas had a 17 percent loss in abundance and a 33 percent decline in biomass relative to control populations. The abundance of large invertebrates within kelp beds also declined for many species, particularly snails.

¹¹ Review of Southern California Edison, San Onofre Nuclear Generating Station (SONGS) 316(b) Demonstration. Prepared by SAIC, July, 20, 1993.

Estimates for losses of midwater fish species due to direct entrainment by cooling water intake structures at SONGS is between 16.5 to 45 tons per year. This loss represents a 41 percent mortality rate for fish (primarily northern anchovy, queenfish, and white croaker) entrained by intake water at SONGS. In a normal year, approximately 350,000 juvenile white croaker would be killed through entrainment at SONGS. This number represents 33,000 adult individuals or 3.5 tons of adult fish. Changes in densities of fish populations within the vicinity of the plant were observed in species of queen fish and white croaker relative to control populations. Within 3 kilometers of SONGS, the density of queenfish and white croaker decreased by 34 to 63 percent in shallow water samples and 50 to 70 percent in deep water samples.

In its Disapproval Statement, OMB stated that EPA should “clearly state its interpretation” of the term “adverse environmental impact.” How that term should be defined for purposes of a Section 316(b) regulation is a major issue in this proceeding. Therefore, EPA has conducted outreach, including discussion at a public meeting held on June 29, 1998, to receive input from stakeholders on how this term should be defined. Representatives of New York State declared at the public meeting that New York considers the death of a single organism as a result of a cooling water intake structure to be an “adverse environmental impact” for purposes of Section 316(b). Representatives of environmental groups who attended the public meeting also advocated this approach. On the other hand, industry representatives took the position that no “adverse environmental impacts” are occurring unless the cooling water intake structure affects the health of the aquatic community as a whole. EPA intends to include a definition of “adverse environmental impacts” in the regulatory proposal that it must issue under the Consent Decree. The Agency will base the definition, in part, on the data and other information that it will receive from the administration of the screener and detailed industry questionnaires. EPA will carefully consider public comment on this issue before taking final action. EPA believes it is premature for

the Agency to define “adverse environmental impacts” at this time for purposes of a Section 316(b) regulation.

EPA has considered how to define “adverse environmental impact” in other contexts in the past. For example, the May 1977 *Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment* stated, “Adverse aquatic environmental impacts occur wherever there will be entrainment or impingement damage as a result of the operation of a specific cooling water intake structure.” (Guidance at 15.) The guidance recognized, however, that some impingement and entrainment is unavoidable. It was made clear that the magnitude of the impact is the critical question to be answered and that this should be addressed on a case-by-case basis, considering the species involved, the magnitude of the losses, years of intake operation remaining, ability to reduce losses, and other factors. The collection of just such data is an essential goal of EPA’s overall information collection efforts.

Existing and historical studies like those described earlier in this section provide only a partial picture of the severity of environmental impacts associated with cooling water intake structures. Most importantly, the methodologies for evaluating adverse environmental impacts

used in the 1970s and 1980s, when the majority of Section 316(b) evaluations were performed, were inconsistent and incomplete. For example, some studies only reported gross fish or larvae losses; others reported fish losses in numbers based on species and life stage; finally, others reported percent losses with respect to fish population. Recent advances in environmental assessment techniques now provide better tools to evaluate the significance of impacts associated with the operation of cooling water intake structures. Models calculating predicted impacts to fish populations have improved as additional data are generated on the life histories of key species.

EPA has published guidance resulting from more than 10 years of research on the development and implementation of biocriteria as a tool for assessing the health of aquatic communities. The biocriteria steering committee is working on a stressor identification protocol to evaluate the relative contribution of specific stressors on biological communities. Just this year, EPA published final *Guidelines for Ecological Risk Assessment* developed by a forum of technical experts within and outside of EPA, refined by comments received following public notice of draft guidelines and reviewed by the Science Advisory Board. These guidelines provide a framework for evaluating the adverse ecological effects that may result from individual or multiple stressors and will improve the quality and consistency of site-specific evaluations of the magnitude of adverse environmental impacts associated with cooling water intake structures. EPA believes these tools may improve the reliability and comparability of Section 316(b) evaluations and contribute to the development of a regulatory definition of adverse environmental impact. However, EPA needs to collect data in order to apply these tools in a scientifically sound manner.

2. Evidence That Point Sources Are Not Using Best Technology Available To Minimize Adverse Environmental Impacts.

Minimal data are available to characterize the current utilization of technologies to minimize adverse environmental impacts from cooling water intake structures. EPA evaluated sources of available data in an effort to determine which technologies are being used. For traditional steam electric utilities, data on cooling water intake structure technologies was available from an industry source.¹² Similar information has not been compiled for either the

¹² Edison Electric Institute. *Power Statistics Database*. Utility Data Institute, McGraw Hill. 1994.

nonutility power producers nor the other industry categories withdrawing cooling water. In collecting, assembling, and reviewing background information on cooling water use, EPA found very little useful information on the steam electric nonutility power producing sector and the four other industries (Chemicals and Allied Products, Primary Metals, Petroleum and Coal Products, and Paper and Allied Products). Most regions and States have focused their Section 316(b) approaches only on traditional steam electric utilities. The NPDES permit files that EPA has reviewed do not contain information on BTA for the other categories of facilities that are known to use cooling water. In discussions with EPA Regional officials, only two regions (Regions IV and V) were identified where other industrial facilities (specifically steel mills) that use cooling water were evaluated for potential impacts; however, modifications to the intake structures at these facilities have not been made.

Until more detailed information is collected, EPA cannot state whether the point source facilities using cooling water are using BTA to minimize adverse environmental impacts. EPA will be collecting this information through the screener and detailed questionnaires. The screener questionnaire will help EPA identify the specific facilities that use cooling water within each of the industrial groups being studied and the degree to which cooling water is used within and across these groups.

The remainder of this discussion will focus on the traditional steam electric data that EPA has collected to characterize that industry's cooling water intake structures.

Traditional steam electric utilities use a wide variety of cooling water intake technologies to maximize cooling system efficiency and minimize environmental impacts. Data on technologies used at these facilities can be found in the *Power Statistics Database*, a database funded by the Edison Electric Institute and maintained by the Utility Data Institute (UDI). The database consists of a compilation of limited information on cooling water intake structures voluntarily reported by traditional steam electric utilities to UDI. Updated yearly until 1994, the database

provides information on the technologies employed at individual facilities, but it does not provide information on whether the technology employed was determined to be BTA. The database field indicating whether a Section 316(b) determination had been made for a given facility is incomplete. More importantly, the database cannot help EPA evaluate whether the technologies employed at specific cooling water intake structures would be considered BTA at the present time.

Nevertheless, EPA has looked at what technologies have been implemented at traditional steam electric utilities. Based on knowledge gained from extensive literature reviews and dialogue with other Federal, State, industry, academic, consulting, and environmental experts, EPA has made assumptions about what technologies might be considered “best” under certain circumstances. EPA has concluded, however, that it needs additional data to fully evaluate the extent to which BTA is being employed at existing traditional steam electric facilities. The detailed questionnaire is being designed to collect some of this data from these entities. Based on the available data, EPA’s preliminary evaluation of BTA implementation status for the traditional steam electric industry follows.

The most common technologies reported to be in use by steam electric utilities are trash racks and screens that prevent debris from entering and damaging the facilities’ cooling water systems. They also serve to exclude larger fish and aquatic organisms from entering the systems. A few of these screening systems are equipped with fish return mechanisms; however, many of these systems are not operated to ensure the survival of the impinged organisms.

As a result of discussions with NPDES permitting authorities and utility officials, it appears that fine mesh screens are an effective technology for minimizing entrainment. They can, however, increase impingement. As of 1994, data submitted to the *Power Statistics Database* indicate that of the 703 steam electric plants withdrawing cooling water from surface water sources, 14 (2 percent) employed fine mesh screens on at least one cooling water intake structure.

These 14 plants represented about one percent of the cooling water withdrawn from surface waters by plants reporting data. These findings might suggest that BTA is not being used and that EPA should evaluate the implementation status of Section 316(b) further.

Low intake velocity has also been frequently mentioned as a design criterion for minimizing impingement at cooling water intake structures. There is some debate regarding whether approach velocities should be at or below a half foot per second (0.5 fps) or 1 fps to be protective.¹³ EPA has looked at the data in the *Power Statistics Database* and found that of the 389 plants that reported an intake velocity above zero (zero was both a reported value and a default value for data not reported), 88 (23 percent) reported a velocity at or below 0.5 fps, and 92 (24 percent) reported a velocity at or below 1 fps. These findings might indicate that, in general, BTA is not being used and that EPA should evaluate the implementation status of Section 316(b) further.

Some believe that closed-cycle cooling systems (e.g., systems employing cooling towers) are the best means of protecting organisms from impingement and entrainment because of the significant reduction in the volume of intake water needed by a closed-cycle facilities. Of the 703 steam facilities in the *Power Statistics Database* reported as withdrawing cooling water from surface waters, 263 (37 percent) reported the use of closed-cycle cooling systems. Most (245) of these plants were reported as being located on fresh water bodies. The other 18 were reported as using brackish or saline water as their source water.

¹³The 0.5 feet per second (fps) approach velocity value has been frequently cited by some NPDES permitting authorities and utility officials as an informal standard for minimizing impingement. The following citation is for what appears to be the first Federal document that advocated this value as a “standard”: John Boreman (National Power Plant Team), *Impacts of Power Plant Intake Velocities on Fish*, U.S. Fish and Wildlife Service, March 1977. Some industry officials have argued during the course of meetings with EPA that 1 fps would be just as good a “standard” as 0.5 fps.

Another effective approach for minimizing adverse environmental impacts associated with cooling water intake structures is to locate the intake structures in areas with low abundance of aquatic life and design the structures so that they do not provide attractive habitat for aquatic communities. However, this approach is of little utility for existing facilities where options for relocating intake structures are infeasible. For example, the *Power Statistics Database* indicates that a number of steam electric power generation facilities are located on estuarine water bodies which are considered to be areas of high productivity and abundance. In addition, estuaries are often nursery areas for many species. The flow to these facilities totaled 15.7 percent of the total once-through cooling water flow being withdrawn by steam electric plants in 1994. BTA for these facilities might include reductions in the total volume of cooling water allowed to be withdrawn (by use of a closed-cycle cooling system). However, there is not sufficient available information for EPA to conclude that closed-cycle cooling would be BTA for these facilities. EPA intends to collect data through the screener and detailed questionnaires to better assess the use and operation of closed-cycle cooling systems.

Based on the information evaluated, EPA believes there is reason to be concerned that many point sources are not using BTA to minimize adverse environmental impacts. Although some data are available to identify what technologies are being employed on cooling water intake structures at traditional steam electric facilities, knowing the technology employed does not allow a judgment on whether the technology is best available for minimizing adverse environmental impacts at a particular location. EPA believes there may be “suites” of technologies that are appropriate for sites with certain characteristics; however, it is too early in EPA’s evaluation process for such a determination to be made. Because each site could potentially employ a different technology that might be considered BTA, information on whether a Section 316(b) determination has already been made and reevaluated within the last NPDES permit term is needed to assess whether the facility is meeting BTA for purposes of Section 316(b). EPA will use the detailed questionnaire to gather such information.

3. Evidence that a National Regulatory Approach Is Warranted.

NPDES permitting authorities have the requirements of Section 316(b) codified in a diversity of ways. In 1993, EPA evaluated State regulations and statutes, seeking information on each State's regulations/statutes relating to Section 316(b). Of the 40 States with NPDES permitting authority, only three were found to have statutes or regulations specifically addressing cooling water intake structures in any detail. For example, California's Water Code includes provisions addressing the protection of the marine environment from effects caused by cooling water intake structures. The Water Code requires that new or modified coastal power plants or other industrial installations using seawater for cooling, heating, or industrial processing use the best available site, design technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life.

Maryland was also found to have requirements relating to cooling water intake structures. Maryland's regulations closely mirror the statutory language of Section 316(b) by requiring that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impacts. Maryland's regulations, however, go beyond this and require that a facility install and operate modifications to mitigate impingement provided that these costs over a five-year period do not exceed five times the estimated annual value of impingement loss as determined by State procedures. Regarding entrainment losses, Maryland's regulations require the discharger to determine the extent of entrainment loss on a "spawning or nursing area of consequence." If entrainment loss results in "significant adverse environmental impact," the discharger must install and operate functional modifications to mitigate the entrainment loss. Facilities withdrawing less than 10 million gallons per day from surface waters are excluded from these requirements if the volume withdrawn is less than 20 percent of the design stream flow for nontidal waters or the annual average net flow past the discharge point that is available for dilution for tidal waters.

Several NPDES States have included language in their statutes or regulations referencing either Section 316(b) or 40 *CFR* Part 125, Subpart I, the blank section of the Federal NPDES regulations reserved for criteria applicable to cooling water intake structures. For example, New Jersey’s NPDES regulations state, “[T]he criteria applicable to cooling water intake structures shall be as set forth in 40 *CFR* Part 125, Subpart I when the USEPA adopts these criteria.” Other States merely restate the statutory language. New York’s NPDES regulations require that “[t]he location, design, construction and capacity of cooling water intake structures, in connection with point source thermal discharges, shall reflect the best technology available for minimizing adverse environmental impact.”

Table A1. below summarizes some of the State authorities EPA identified (with appropriate citations).

Table A1. Selected NPDES State Statutory/Regulatory Provisions Addressing Impacts from Cooling Water Intake Structures

NPDES State	Citation	Summary of Requirements
Connecticut	RCSA § 22a, 430-4	Provides for coordination with other Federal/State agencies with jurisdiction over fish, wildlife, or public health, which may recommend conditions necessary to avoid substantial impairment of fish, shellfish, or wildlife resources
New Jersey	NJAC § 7:14A-11.6	Criteria applicable to intake structure shall be as set forth in 40 <i>CFR</i> Part 125, when EPA adopts these criteria
New York	6 NYCRR § 704.5	The location, design, construction, and capacity of intake structures in connection with point source thermal discharges shall reflect BTA for minimizing environmental impact

NPDES State	Citation	Summary of Requirements
Maryland	MRC § 26.08.03	Detailed regulatory provisions addressing BTA determinations
Illinois	35 Ill. Admin. Code 306.201 (1998)	Requirement that new intake structures on waters designated for general use shall be so designed as to minimize harm to fish and other aquatic organisms
Iowa	567 IAC 62.4(455B)	Incorporates 40 CFR part 401, with cooling water intake structure provisions designated “reserved”
California	Cal. Wat. Code § 13142.5(b)	Requirements that new or expanded coastal power plants or other industrial installations using seawater for cooling shall use best available site, design technology, and mitigation measures feasible to minimize intake and mortality of marine life

Additionally, in discussions with State and EPA regional contacts, EPA has found that there are differences in the manner in which States implement their Section 316(b) authority through the years. Some States and Regions review Section 316(b) requirements each time an NPDES permit is reissued. These permitting authorities may reevaluate the potential for impacts and whether operations or other conditions influencing the potential for impacts have changed at the facility. Other permitting authorities were found to have made initial determinations for facilities in the 1970s but not to have revisited the determinations since.

Based on the above findings, EPA believes that approaches to implementing Section 316(b) vary greatly. It is evident that some authorities have regulations and other program mechanisms in place to ensure continued implementation of Section 316(b) and evaluation of potential impacts from cooling water intake structures, while others do not. Furthermore, Section

316(b) determinations are currently made on a case-by-case basis, based on permit writers' best professional judgment. Through discussions with some State permitting officials

(e.g., in California, Georgia, and New Jersey), EPA was asked to establish national standards in order to help ease the case-by-case burden on permit writers and to promote national uniformity with respect to implementation of Section 316(b).

2(b) Practical Utility/Users of the Data

EPA plans to administer the screener questionnaire to only a sample of steam electric nonutility power producers and firms and facilities within the following four industry groups: Chemicals and Allied Products, Primary Metals Industry, Petroleum and Coal Products, and Paper and Allied Products. Screener questionnaires will *not* be sent to facilities in the traditional steam electric utility industry category. The screener questionnaire will enable EPA to reduce the universe of facilities to be sampled for receipt of a detailed questionnaire by focusing only on those point source facilities that use cooling water directly withdrawn from surface water. EPA believes this approach will minimize the administrative burden on industry associated with the detailed questionnaire.

As stated in Section 1(b) above, the screener questionnaire contains two types of questions: scoping and stratifying. Scoping questions will help EPA determine if a facility may be subject to regulation under Section 316(b). Facilities that will be considered "out-of-scope" for receipt of the detailed questionnaire will include those that (1) are not point sources as defined under Section 502(14) of the Clean Water Act (33 U.S.C. Section 1362(14)), (2) do not use cooling water, or (3) receive their entire cooling water supply from local water suppliers, their own groundwater supply, or the water supplies of facilities other than themselves. Information obtained from the screener questionnaire will enable EPA to direct its detailed

questionnaire to a representative sample of only those point source facilities known to withdraw cooling water from surface water.

Responses to the stratifying questions will enable EPA to determine the strata under which facilities will be randomly selected to receive the detailed questionnaire. The strata will be based on the unique features of cooling water use that EPA believes may affect a facility's potential for causing adverse environmental impact as a result of the operation of its cooling water intake structures (e.g., water source type and intake flow rate). The strata will also be defined on the basis of facility size and sales revenue to facilitate the analyses that EPA must conduct under the Regulatory Flexibility Act (RFA). Other "stratifying" types of questions in the screener questionnaire will provide data that will enable EPA to systematically sample facilities within strata having characteristics EPA wishes to capture through the survey effort (e.g., cooling water intake technology types, cooling water system types, etc.). If EPA were to pursue implementation of the detailed questionnaire using an unstratified, simple random sample, the Agency would likely under-sample subsets of facilities that are potentially important to the Section 316(b) rulemaking effort.

3. Nonduplication, Consultations, and Other Collection Criteria

3(a) Nonduplication

In order to avoid collecting information with the screener questionnaire that is duplicative of data available through other sources, EPA conducted extensive research of existing literature, both within and outside the Agency, on cooling water intake structures and industry groups likely

to use cooling water. The purpose of the research was to identify the types of point sources using cooling water directly withdrawn from surface water, the volume and purposes for which

the cooling water was being used, how the cooling water intake structures of these point sources were designed and being operated, and what Section 316(b) measures had already been implemented. The absence of data, and in some instances the age of the data, established the need for the screener and detailed questionnaires. *(Available data sources along with their shortcomings and strengths are discussed below.)* The information requested by EPA in the questionnaires does not duplicate any current data available to the Agency in a useful form.

Within EPA, OWM and OST project managers identified and reviewed effluent guideline data sources, Permit Compliance System (PCS) data, and information from the Industrial Facilities Database (IFD). Outside sources reviewed included those from other government agencies and industry groups, including data available through the U.S. Bureau of Census, the U.S. Department of Energy's (DOE's) Energy Information Administration (EIA), the U.S. Geological Survey (USGS), the Edison Electric Institute (EEI), and the Utility Data Institute (UDI).

These data sources allowed EPA to identify categories of point source dischargers using cooling water. Three major industry categories were identified as using cooling water and included the following: traditional steam electric utilities, steam electric nonutility power producers, and other industries. Considerably more information was found to be available for the traditional steam electric utility category than for the others. As a result, EPA is not including facilities in this category in its universe of facilities to receive the screener questionnaire. An overview of the information available from existing data sources for each of the three major industry categories is provided below.

Traditional Steam Electric Utility Data Sources

To date, traditional steam electric utilities that are point sources under the Clean Water Act have been the primary focus of EPA's Section 316(b) implementation efforts as these facilities require substantial amounts of cooling water. Facilities that generate electricity by means of steam as the thermodynamic medium are associated with large volumes of cooling water use to meet condenser requirements.

DOE/EIA Data Sources. The Energy Information Administration (EIA) is an independent statistical and analytical agency within the U.S. Department of Energy (DOE). In support of its analytic activities, the EIA administers a series of data collection efforts which include extensive surveys of electric utilities' financial operations and surveys of their production and disposition of electricity. EPA carefully reviewed the different data collection forms used by EIA and identified several that collect data of interest to EPA. These forms were also found to collect data that can support EPA's economic analyses of the effects of the Section 316(b) regulation on the traditional steam electric utility industry. The use of this data will enable EPA to reduce the scope and burden of the detailed questionnaire developed for facilities in this industry category. Following are brief descriptions of each of the EIA data collection forms associated with traditional steam electric utilities.

- Form EIA-767, the *Steam-Electric Plant Operation and Design Report*, collects facility identification information for steam electric plants with a generating capacity greater than 10 megawatts and operational data from plants with a generating capacity of 100 megawatts or more.
- Form EIA-412, the *Annual Report of Public Electric Utilities*, collects accounting, financial, and operating data from publicly-owned electric utilities.

- Form EIA-860, the *Annual Electric Generator Report*, collects data on the status of electric generating plants and associated equipment in operation and those scheduled to be in operation within the next 10 years of the date of report filing.
- Form EIA-861, the *Annual Electric Utility Report*, collects data on electricity generation, wholesale purchases, and sales and revenue by class of consumer and State.

UDI Data Source. The Utility Data Institute (UDI), a database publishing division of the McGraw Hill Companies, historically compiled and published the Edison Electric Institute's (EEI's) *Power Statistics Database*. The database, however, has not been updated since the 1995 version which reports data for 1994. The *Power Statistics Database* contains data for every conventional, utility-owned steam electric plant in the United States and its Territories. Since the *Power Statistics Database* covers traditional steam electric utilities, which will not be sent a screener questionnaire, it will be discussed in greater depth in EPA's ICR package developed later this year for the detailed industry questionnaire.

Steam Electric Nonutility Power Producers

Nonutility power producers consist of two defined groups: industrial self-generators and nonindustrial generators. Industrial self-generators are entities that primarily exist to generate electricity onsite for an industrial host facility or to serve the energy loads of both an industrial host and other customers. These generators are often located onsite or near an industrial host and may be classified under the host's SIC code. Many of the industrial self-generators employ cogeneration technology, which is a technology to produce electricity and useful thermal energy from the same energy sources. Nonindustrial generators are entities that primarily exist to serve the energy loads of others exclusively, such as selling electricity to the utility grid or steam to an industrial plant, and are classified under SIC Major Group 49. EPA's intent is to focus in on

facilities that employ steam to generate electricity in both of these categories as this mode of electricity generation is known to require substantial quantities of cooling water use.

It should be noted that facilities identified as nonutility industrial self-generators under data sources pertaining to nonutility power producers may also be identified under data sources regarding the four “other industry” categories EPA is investigating. Steps have been taken to eliminate any facilities that may be represented twice in the data sources being used to generate the sample frames for the screener questionnaire.

DOE/EIA Data Sources. The EIA collects names, addresses, and operational data from nonutility power producers with capacities greater than one megawatt. This information is collected under Form EIA-867, which is entitled the *Annual Nonutility Power Producer Report*. EPA has evaluated EIA’s data collection instrument and has determined that in addition to name and address information for each nonutility power producer, EPA also needs information on unit types and megawatt capacity. Knowledge of unit type (e.g., steam turbine, gas turbine, hydroelectric, etc.) enables one to determine if all or a portion of the prime mover employs steam as the thermodynamic medium, thereby requiring cooling water use. Megawatt capacity information enables EPA to gauge the general cooling requirements if the facility’s prime mover is a steam turbine.

EIA, however, informed EPA project managers that the majority of facility-level information in the Form EIA-867 database is confidential. EIA noted that they could give EPA name and address information for facilities but could not provide technical data at this reporting level. Such information could only be provided in an aggregate form. EPA asked EIA officials about the possibility of an Inter-Agency Agreement to allow the release of specific confidential data to EPA. Unfortunately, EIA officials felt obligated to withhold the data since EPA would be using the data for regulatory purposes. Since EIA will not share their confidential data with EPA, the Agency has no other recourse but to collect duplicative data.

UDI Data Source. The *UDI Directory of U.S. Cogeneration, Small Power, and Industrial Power Plants* contains data for more than 4,300 nonutility power producer plants. The database, however, is not exclusive to facilities that have steam electric generators. The database also contains nonutility power producers that use turbines that do not require cooling water, such as gas turbines, geothermal units, wind and solar installations, and a variety of other prime mover types. The primary focus of the UDI database is on facilities that provide at least some electricity for sale to traditional utilities. This would likely exclude some of nonutility power producers that are industry self-generators. Data elements included in the database for facilities include capital cost (when available), location by NERC region, State, county, and town, and listings of various organizations involved in the operation, use, funding, and/or design of these plants. Data elements for each facility listing include the megawatt, facility type, fuel use, status (operational, stand-by, under construction, etc.), and major installed equipment by unit.

The UDI database contains some of the information EPA requires, but EPA is not satisfied with the coverage and reliability of the data sources. Data are compiled from annual reports to shareholders (utilities and other companies); business press; Federal Energy Regulatory Commission (FERC) filings; private surveys; Public Utility Commissions; State and regional compendia; trade press; utility reports; and vendor and supplier experience and installation lists. Unlike the Form EIA-867 database, there is no overall quality control or quality assurance of the data. Thus, the database is of little use for regulatory purposes.

EEI Data Source. The Edison Electric Institute (EEI) is an industry organization that conducts educational programs, maintains a library and database, and compiles statistics about the electric power industry. EEI conducts an annual survey and presents statistics on nonutility power producers in a document entitled, *Capacity and Generation of Non-Utility Sources of Energy*. The report contains national data on capacity and generation by sources for the year. The data included are type of producer, qualifying status, prime mover, primary energy source, and major industry group; number and size of projects; and other economic data. Some data

collected with the survey duplicates data requested in EPA's screener questionnaire. However, EEI's data are considered confidential and can only be purchased in an aggregated form. EPA requires data on a facility-specific basis for the Section 316(b) rulemaking effort.

Other Industries

Based on a review of the *1982 Census of Manufactures* and its corresponding *Water Use Survey*, EPA initially identified 18 major industry categories, besides traditional steam electric utilities and steam electric nonutility power producers, that use cooling water. EPA then narrowed its search to focus, for the purposes of the survey effort, on four of the major groups showing substantial cooling water use. The four groups include the following: (1) Paper and Allied Products (SIC 26), (2) Chemical and Allied Products (SIC 28), (3) Petroleum and Coal Products (SIC 29), and (4) Primary Metals (SIC 33). Below is a brief summary of the additional data sources EPA evaluated, in addition to the *1982 Census of Manufactures*, to identify whether data regarding cooling water intake structures was readily available and current for facilities within these industry groups.

EPA Effluent Guideline Data Sources. EPA project managers reviewed existing effluent guidelines development documents for the industrial categories identified in the *1982 Census of Manufactures* as using cooling water in an attempt to collect information on cooling water intake structures. The reviews showed that the development documents contain very little information on cooling water and nothing on the characteristics of cooling water intake structures. Most of the development documents only broadly characterize the total volume of intake water for a particular subcategory of the industry. Furthermore, there is little or no documentation on the different uses of the intake water (e.g., process water, cooling water, etc.) nor the volumes or flows that can be attributed to each use. In cases where the development document does distinguish between process water and cooling water, the document typically only gives the percentage of water used for noncontact cooling water versus the percentage for contact cooling

water. Consequently, little information about cooling water intake structure characteristics or cooling water use is available in past effluent guideline development documents.

EPA project managers also compared the draft Section 316(b) screener and detailed questionnaires to a draft questionnaire recently developed by OST as part of a recent effort to revise effluent guidelines for the iron and steel industry. The project managers found no duplication in the information being requested in the screener questionnaire and the iron and steel survey instrument, except for facility verification data. Between the cooling water detailed questionnaire and the iron and steel questionnaire, EPA project managers found no duplication of requests for technical information, but did find some overlap in the financial data being requested. Because the criteria for selecting facilities to receive questionnaires under both survey efforts is substantially different, EPA cannot rely on the financial data expected to be collected through the iron and steel questionnaire or vice-versa.

EPA's project managers also reviewed the Agency's 1996 *Preliminary Data Summary for the Petroleum Refining Categories*. The report was found to contain minimal information on cooling water use. The report merely confirms that cooling water is used in the petroleum refining industry.

EPA Office of Water Data Sources. The EPA's Office of Water maintains two databases that track and evaluate discharges to waters of the United States: PCS and IFD databases. EPA project managers examined the data element dictionary for the PCS database and determined that PCS data do not include key data items requested in the screener and detailed questionnaires, such as cooling water use and characteristics, operational data on cooling water intake structure operations, financial information, or electricity generation data. The IFD database was found to contain a few data elements that would allow cooling water intake flows to be quantified. However, the project managers questioned the quality of the data because the database is only sporadically updated and because no stringent quality assurance measures are in place.

DOC Census Bureau Data Sources. The Bureau of the Census, a division of the U.S. Department of Commerce (DOC), conducts a periodic census of the nation's industrial and business activities called the Census of Manufactures. As part of the *1982 Census of Manufactures*, DOC conducted a water use survey of facilities using more than 20 billion gallons per year. Cooling water use was also identified under the survey. DOC has not continued to include the water use survey as part of the *Census of Manufactures* due to limited resources. The most recent census, *1992 Census of Manufactures*, did not collect data on cooling or other water use.

The *1982 Census of Manufactures* collected data from all manufacturing sites concerning employment, inventories, capital expenditures, value added by manufacture, economic concentration ratios in manufacturing, fuel and electric energy consumption, and water use in manufacturing. EPA requested access to the Census data and learned that the data are confidential and therefore not available to EPA on a site-specific basis. EPA may only access DOC's final report, which aggregates the data by standard industrial classification (SIC) code. In addition, the data on cooling water use are aggregated at the two-digit SIC major group level and are not comprehensively available at the more discerning three and four-digit levels to protect the private entities which the SIC codes represent. As discussed earlier, EPA used these data to determine the broad industrial categories reported as using large amounts of cooling water. EPA questions the relevance of using the Census data further to support rulemaking analyses since the data are nearly 16 years old and are not available on a facility-specific basis.

USGS Survey Sources: The United States Geologic Survey (USGS) published a document in 1993 called *Estimated Use of Water in the United States in 1990* (Solley et al. 1993). The report describes water withdrawals in the U.S. based on 1990 data collected by USGS district offices in conjunction with State Agencies as stored in the Water Use Files of the database system WATSTORE. The report, however, does not distinguish between withdrawals made for cooling versus process or other purposes. While the report provides interesting

information on industrial water use relative to other water users, it does not contain information on cooling water use information. Moreover, the information is dated.

3(b) Public Notice Required Prior to ICR Submission to OMB

In accordance with the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*), EPA published a notice in the *Federal Register* on September 18, 1997 (62 *FR* 49007) announcing that the draft cooling water intake structure screener questionnaire was available for public comment. A copy of the *Federal Register* notice is located in *Attachment 3*.

EPA received only two requests for the screener questionnaire. The Agency believes it received such a small number of requests because the screener questionnaire was made available on OWM's Internet home page. In addition, EPA conducted outreach with representatives of several of the affected parties in advance of the ICR to obtain their input on the content of the questionnaire.

EPA received six letters making 75 separate comments on the draft screener questionnaire noticed in the September 18, 1997 *Federal Register*. Comments were received from four industry associations, one industrial facility, and one environmental group. Comments ranged from simple requests for 60 days instead of 30 days to complete the screener questionnaire to challenges about EPA's need to gather facility economic and financial information. As a result of the insights gained from the public comment and pretest activities (see Section 3(c) on Consultations), EPA simplified and shortened the screener questionnaire. For example, several financial questions were moved to the back of the instrument so that only those facilities within the scope of CWA Section 316(b) would have to provide the information requested. Similarly, EPA reduced the level of detail in the questions in the electricity generation section of the instrument. A copy of the previous version (August 1997) of the *EPA Industry Screener Questionnaire: Phase I Cooling Water Intake Structure*, as well as two comparisons of the August 1997 and February 1998

versions are provided in *Attachment 4*. A detailed listing of the comments made and EPA's responses is located in *Attachment 5*.

On May 8, 1998, EPA published a notice in the *Federal Register* (63 *Fed. Reg.* 25,473) announcing that it had submitted the ICR for the screener questionnaire to OMB for review. EPA received only one comment letter during the 30-day comment period. The comment letter came from a traditional utility. However, as stated earlier, EPA does not intend to send the screener questionnaire to traditional steam electric utilities. EPA did not receive comments from any of the entities that are being targeted with the screener questionnaire.

As discussed at the outset of this ICR resubmittal, OMB disapproved EPA's initial ICR package (EPA ICR number 1828.01) on September 21, 1998 (see *Attachment 1*). Based on discussions with OMB officials, EPA has revised the screener questionnaire further to eliminate questions solely requesting characterization data and to minimize respondent burden in the remaining questions by changing the structure or scope of the questions themselves. Of most significance for reducing respondent burden, EPA has reduced the collection of intake flow data from five years to one *typical* calendar year. (EPA's revised questionnaire is provided as *Attachment 10*.)

3(c) Consultations

The following paragraphs describe the specific outreach activities that EPA staff performed during the Section 316(b) screener questionnaire development period. These activities were intended to provide EPA with feedback on issues such as questionnaire format, terminology, and technical quality. All of the representatives of the organizations with whom EPA conducted outreach activities thought the process was productive and beneficial.

As stated previously, EPA conducted an outreach program to industry groups, environmental groups, and other government entities to obtain early feedback on the Agency's Section 316(b) survey effort. With regard to the screener questionnaire, EPA distributed the draft survey instrument in November of 1996 to representatives of a number of industry associations and environmental groups. EPA then met individually with representatives of these groups to discuss the draft document. EPA believes that this early review and comment opportunity significantly improved the quality of the draft screener questionnaire noticed in the *Federal Register* for public comment in September 1997. Most of the organizational representatives thanked EPA for incorporating many of their early suggestions into the draft screener questionnaire. Table A2 provides a listing of the industry associations and professional organizations that participated in EPA's early outreach program:

Table A2. Industry Organization Representatives

Organization	Point of Contact	Phone Number
American Forest and Paper Association	Jerry Schwartz	(202) 463-2581
American Iron and Steel Institute	Bruce Steiner	(202) 452-7112
American Petroleum Institute	Jacki Sincore	(202) 682-8326
Chemical Manufacturers Association	Toni Wagner	(703) 741-5248
Utility Water Act Group	Kristy Bulleit	(202) 955-1547
Edison Electric Institute`	Richard Bosak	(202) 508-5641
Electric Power Research Institute	Kent Zammit	(415) 855-2097

Later in the screener questionnaire development process, EPA decided to include the Aluminum Association (Lisa Williams, (202) 862-5129) and the Electric Power Supply Association (Eugene Peters, (202) 789-7200 extension 106) in the Agency's outreach effort.

In addition to the outreach activities with representatives of industry trade associations and related professional groups, EPA met with representatives of the environmental organizations listed in Table A3 in January of 1997 to discuss the Agency's Section 316(b) information collection efforts.

Table A3. Environmental Organization Representatives

Organization	Point of Contact	Phone Number
Hudson Riverkeepers	John Cronin/Theresa Hanczor	(914) 424-4149
New York/New Jersey Baykeeper	Andrew Willner	(908) 291-0176
Widener University School of Law (Delaware Baykeepers)	Jim May	(302) 477-2060
US Fish and Wildlife Service	David Sutherland	(410) 573-4535

EPA contacted the National Resources Defense Council (NRDC), but the NRDC chose at the time to not participate in the process. NRDC, however, did advertise the January 1997 meeting on its environmental outreach network. Representatives of the environmental groups indicated to EPA that they were generally pleased with the Agency's Section 316(b) information collection efforts.

EPA also made presentations on its Section 316(b) rulemaking efforts at six professional and industry association meetings. EPA presenters encouraged the attendees at these meeting to provide any comments they felt might improve the screener questionnaire.

Lastly, EPA conducted a pretest of the screener questionnaire. Three facilities (one pulp and paper plant and two chemical plants) volunteered through their respective industry group to complete the draft screener questionnaire. The purpose of the pretest was for EPA to learn about how efficiently recipients could provide the required information and to allow the recipients to provide suggested changes to improve the screener questionnaire. In particular, EPA requested comment on the following topics:

- (I) Whether the proposed screener questionnaire was necessary for the proper performance of the functions of the Agency, including whether the information would have practical utility;
- (ii) the accuracy of the Agency's estimate of the burden of the proposed screener questionnaire, including the validity of the methodology and assumptions used;
- (iii) the screener questionnaire's quality, utility, and clarity; and
- (iv) minimization of the burden of the screener questionnaire on those designated to respond, including through the use of appropriate automated electronic,

mechanical, or other technology collection techniques or other forms of information technology collection techniques or other forms of information technology (e.g., permitting electronic submission of responses).

In addition, EPA requested that the recipients provide feedback on the amount of time required to complete the screener questionnaire. EPA received constructive suggestions from pretest respondents. The Agency incorporated many of these comments into the final draft of the screener questionnaire (see *Attachment 7* for revised edition of screener questionnaire based on pretest and other input). EPA incorporated all comments made by pretest respondents into the Comment/Response document included at *Attachment 5*.

Based on OMB's September 1998 denial (*Attachment 1*) of EPA's initial ICR for the screener questionnaire, EPA has consulted with OMB officials to discuss further options for minimizing respondent burden as posed by the screener questionnaire. A revised survey instrument is attached to this ICR resubmittal as *Attachment 10* which reduces overall respondent burden by 40 hours.

3(d) Effects of Less Frequent Collection

The cooling water intake structure screener questionnaire is a one-time data collection activity. Therefore, completion of this section is not relevant.

3(e) General Guidelines

The proposed data collection activity will be conducted in accordance with Paperwork Reduction Act regulations at 5 *CFR* 1320.5(d)(2).

3(f) Confidentiality

In accordance with 40 *CFR* 2.203, the General Information and Instructions section of the screener questionnaire informs respondents of their right to claim responses as confidential. Procedures for making Confidential Business Information (CBI) claims are specifically spelled out in the screener questionnaire. Respondents are also informed of the terms and rules governing the protection of CBI under the CWA.

EPA and its contractors will follow OST's existing CBI plan to protect data labeled as confidential. The plan requires the following activities:

- Secure handling of completed screener questionnaires which precludes access by unauthorized personnel.
- Storing completed screener questionnaires and databases in secured areas of EPA and the authorized contractors' offices, with access restricted to authorized EPA and contractor personnel only.
- Restricting any publication or dissemination of confidential study results or findings to aggregate statistics and coded listings. Individual respondents will not be identified in summary reports, and EPA's contractors will not release respondents' names to unauthorized individuals.

Each EPA contractor that collects, processes, or stores CBI is responsible for ensuring the confidentiality of the data. The contractor is to safeguard the information as described in 40 *CFR*

2.211(d) and is obligated to use or disclose the information only as permitted by the contract under which the information is being furnished.

3(g) Sensitive Questions

No sensitive questions pertaining to private or personal information, such as sexual behavior or religious beliefs, are being asked in the screener questionnaire. Therefore, completion of this section is unnecessary.

4. The Respondents and the Information Requested

4(a) Respondents/SIC

The screener questionnaire, which is the subject of this ICR, is the first step of a two-step survey process. The second step of the survey process consists of a detailed questionnaire to be distributed to a sample of facilities identified in part under the screener effort. EPA has classified the industries potentially affected by Section 316(b) into three major groups, which include the following: (a) traditional steam electric utilities, (b) steam electric nonutility power producers, and (c) other industries. EPA is further limiting the scope of the industry groups to be considered under the “other industry” category to the following four: (1) Paper and Allied Products, (2) Chemical and Allied Products, (3) Petroleum and Coal Products, and (4) Primary Metals. EPA estimates that these six industrial sectors account for more than 99 percent of all cooling water withdrawals in the United States.

A screener questionnaire is intended to be sent to a sample of facilities in the steam electric nonutility power producer and the “other industry” categories. A screener questionnaire will *not* be sent to traditional steam electric utilities, because EPA has enough information on these entities to make a screener questionnaire unnecessary. A sample of facilities in all three major groups, however, will receive a detailed questionnaire. The SIC codes associated with the

categories of facilities to be surveyed are provided in Table A4. (A more detailed accounting of SIC codes covered by the nonutility power producer category is provided in *Attachment 6* to this ICR).

Table A4. Industry Categories and SIC Codes

Respondent Industry Categories	SIC Codes
Traditional Steam Electric Utilities¹	SIC codes 4911 and 493
Steam Electric Nonutility Power Producers² Industrial Self-Generators Nonindustrial Generators	See Attachment 6 SIC Major Group 49
Other Industries² Paper and Allied Products Chemicals and Allied Products Petroleum & Coal Products Primary Metals	SIC codes 2611, 2621, and 2631 SIC codes 28 except 2895, 2893, 2851, and 2879 SIC codes 2911 SIC codes 3312, 3315, 3316, 3317, 3353, 3363, 3365, and 3366

¹A sample of facilities under this category are to be sent a detailed questionnaire *only*.

²A sample of facilities under these categories are to be sent both a screener and detailed questionnaire.

4(b) Information Requested

(I) *Data items, including record keeping requirements*

The screener questionnaire does not include any record keeping requirements. The questionnaire submitted with EPA's initial ICR (EPA ICR no. 1828.01) is located in *Attachment 7*. A revised screener questionnaire, which responds to OMB's September 1998 concerns regarding the Paperwork Reduction Act and which is the subject of this ICR resubmittal (EPA ICR no. 1828.02), is included as *Attachment 10*. The remaining discussion referencing the screener questionnaire pertains to this latest edition. *EPA's Industry Screener Questionnaire: Phase I Cooling Water Intake Structures* is comprised of the following sections:

Certification Statement (page 1). This document, once signed by a responsible corporate official or his or her authorized representative, confirms the authenticity and accuracy of questionnaire responses. The Certification Statement was slightly modified by EPA since the previous version to include language that directly acknowledges that recipients have provided best engineering estimates when actual data were not available.

General Information and Instructions (pages 3 to 7). This section of the package discusses such topics as the purpose of the questionnaire, EPA's authority for conducting the survey, who must complete the questionnaire, where help on questions can be obtained, Certification Statement requirements, when and how questionnaires can be returned to EPA, and how responses can be claimed as CBI. Finally, specific instructions for completing the questionnaire are provided.

Section 1: General Facility Information (pages 8 to 9). This section requests general facility information, such as facility name, location, and SIC codes.

Section 2: General Scoping Data (pages 10 to 11). In this section, EPA requests information from facilities on such topics as NPDES permit status, whether cooling water is being used and, if so, whether it has been directly obtained by the facility from a surface water source.

Finally, respondents are asked to identify the general activities for which they require cooling water.

The purpose of both Sections 1 and 2 is to help EPA determine the types and numbers of facilities within an industry group that use cooling water directly withdrawn by the facilities themselves from surface water. The information will help EPA identify (i.e., “screen”) facilities that are not subject to Section 316(b). These out-of-scope facilities will then be exempted from completing the remaining sections of the questionnaire. Moreover, they will be excluded from the pool of facilities to receive the detailed questionnaire.

Facilities that will be considered “out-of-scope” for receiving the detailed questionnaire will include those that (1) are not a point source as defined under Section 502(14) of the Clean Water Act (33 U.S.C., 1362(14)), which EPA will determine for the purposes of the questionnaire, (2) do not use contact or noncontact cooling water as that term is defined for the purposes of the questionnaire, or (3) do not directly withdraw any of their cooling water from a surface water source.

Section 3: Design and Operational Data for Cooling Water Intake Structures and Cooling Water Systems (pages 12 to 18). In this section, EPA asks facilities to provide basic design and operational data on their cooling water intake structures and cooling water systems. The following type of information is being requested: total number of cooling water intake structures, originating surface water sources from which cooling water is withdrawn, average daily cooling water intake flow rate and total number of operating days for a typical calendar year since January 1, 1995, total number of cooling water systems and their respective configurations, placement of cooling water intake structures in water bodies, control technologies being used at intake structures, and whether facility or firm owners have ever conducted or commissioned environmental or ecological studies of the potential impacts of any of their cooling water intake structures.

Section 4: Facility and Firm-Level Economic Data (pages 19 to 21). In this section, EPA asks for information to identify the total estimated number of full-time equivalent employees and annual sales revenue for the facility's fiscal year 1997 for both the facility as well as the firm that owns the facility. Address information and SIC codes applicable to the domestic parent firm is also requested when appropriate. If a domestic parent firm's main line of business is "electric services" (i.e., has an SIC code of 4911), such firms are asked to provide an estimate of its total annual sales of electricity for all the facilities it owns for the facility's fiscal year 1997.

The information requested in this section will enable EPA to stratify the sample of facilities to receive the detailed questionnaire according to firm size. Sample stratification according to business size is needed in order that EPA collect sufficient data on qualified small businesses. EPA requires this information to complete analyses under the Regulatory Flexibility Act. The information will also help EPA design its approach for conducting economic impact analyses of Section 316(b) regulatory options, once these options are identified.

Section 5: Facility Production or Electricity Generation Data (page 22). Finally, Section 5 requests information from those facilities that generate electricity using cooling water that they have withdrawn directly from surface water. These facilities are asked to indicate the gross amount of electricity they generated during the facility's fiscal year 1997 or another typical fiscal year since January 1, 1995 using cooling water they withdrew directly from surface water. In addition, they are asked to indicate their total annual sales of electricity for the same time period for the electricity they generated using cooling water withdrawn directly from surface water. The information in this section will help EPA classify in-scope facilities based on their economic status as either a nonutility power producer or an industrial facility. The economic portion of the detailed questionnaire will be tailored to these specific statuses. The economic data from both the screener and the detailed questionnaires will support EPA's economic impact analyses of Section 316(b) regulatory options.

Glossary (pages G1 to G8). Definitions of terms used in the screener questionnaire are contained in the *Glossary* that accompanies the document. Definitions of key terms also are generally provided in the questionnaire at the point at which the terms are first used. These definitions are intended for use *only* in connection with the questionnaire. The definitions are *not* to be considered regulatory definitions.

To help facilitate understanding of the EPA's logic in developing the screener questionnaire, a flow diagram for each section of the screener questionnaire has been provided. *Attachment 8* contains the flow diagram for the screener questionnaire submitted as part of EPA's initial ICR (EPA ICR no. 1828.01). A revised flow diagram, corresponding to the revised screener questionnaire at *Attachment 10*, is provided as *Attachment 11* to this resubmittal of the ICR (EPA ICR no. 1828.02). The remaining discussion concerning the flow diagram pertains to this revised version. The flow diagram identifies which questions in the screener questionnaire are scoping or stratifying in nature. Scoping questions are intended to help EPA identify industrial NPDES point source facilities, which are subject to Section 316(b). Facilities that are found to be out-of-scope with respect to Section 316(b) will be eliminated from the sample frame from which the sample of facilities to receive the detailed questionnaire will be drawn. Stratifying questions are intended to provide data that will enable EPA to stratify the sample used in conjunction with the detailed questionnaire. Further elaboration of the types of questions and justifications for their inclusion in the screener questionnaire submitted with EPA's initial ICR (at *Attachment 7*) are located in *Attachment 9*. Justifications pertaining to the revised screener questionnaire (at *Attachment 10*), the subject of this ICR resubmittal, are provided in *Attachment 12*.

(II) *Respondent activities*

Under EPA's initial ICR request (EPA ICR no. 1828.01), respondents were to complete and return the screener questionnaire and Certification Statement to EPA within 60 calendar days after receiving the materials. Under this ICR resubmittal, EPA has reduced this response period

to 45 days. EPA believes that the significant reduction in the size of the questionnaire and related burden justify this reduction of response days. EPA plans to include a self-addressed envelope to aid facilities in returning their materials. When requesting quantitative data in the screener questionnaire, EPA asks that actual data be provided; however, EPA notes that it will accept good faith estimates when actual data are not available. EPA also is allowing facilities to provide data for a *typical* calendar year when data for the most recent year are unavailable or are not representative of the facility's operations. EPA is confident that the information being requested in the screener questionnaire is of a type typically maintained by the facilities to be surveyed. Based on pretest results, EPA expects respondents to engage in the following activities to complete the screener questionnaire and return it to EPA:

- Acknowledge receipt of screener questionnaire by signing certified mail post card
- Review instructions
- Search data sources
- Type or write in the information requested
- Review the information provided (management)
- Read and sign the Certification Statement
- Mail the completed screener questionnaire and signed Certification Statement to EPA.

5. The Information Collected - Agency Activities, Collection, Methodology and Information Management

5(a) Agency Activities

OWM and OST project managers have planned for and allocated resources for the efficient and effective management of information collected related to cooling water intake

structures. With regard to developing, administering, and analyzing the screener questionnaire, EPA will perform the following activities:

- Review other related Agency and government questionnaires.
- Develop draft, pretest, and draft final versions of the screener questionnaire.
- Meet with stakeholders to receive comments on the draft screener questionnaire.
- Provide Notice of Availability of screener questionnaire for public comment in the *Federal Register*.
- Pretest the screener questionnaire at three facilities.
- Revise the screener questionnaire based on public and pretest comments received.
- Develop the comment/response document.
- Develop the sample frame consisting of five major industry groups (note that traditional steam electric utilities will not be sent a screener questionnaire).
- Design a sampling strategy for screener questionnaire.
- Draft ICR for screener questionnaire and submit it to OMB (April 1998).
- Meet with OMB officials to discuss screener questionnaire and related ICR package.
- Revise screener questionnaire, justifications, sampling strategy, and ICR package based on discussions with OMB officials.
- Provide additional Notice of Availability of screener questionnaire for public comment in the *Federal Register*.
- Revise the screener questionnaire based on public comments.
- Develop the comment/response document based on the second *Federal Register* notice.
- Finalize requirements for handling, storing, and using CBI data at EPA and contractor facilities.
- Develop and maintain a tracking system for screener questionnaire mailing and processing activities.

-
- Complete sample frame, finalize sampling plan, draw samples, assign unique identification numbers, and produce mailing materials.
 - Produce and print the final version of the screener questionnaire.
 - Collate and mail screener questionnaire materials via certified mail to targeted facilities.
 - Develop and maintain screener questionnaire help lines for respondents; maintain help desk tracking system.
 - Place follow-up calls to facilities not meeting survey deadline if determined necessary.
 - Receive questionnaires and conduct initial QA of responses to verify completeness.
 - Place follow-up calls to appropriate facilities to clarify survey responses that are incomplete or unclear.
 - Perform data entry and verification activities.
 - Tabulate data and perform statistical analyses.
 - Prepare an industry profile.
 - Refine detailed industry questionnaire sample frame.
 - Perform technical and economic analyses.

As discussed previously, EPA will use the results of the screener questionnaire to determine which facilities fall within the scope of Section 316(b). Data will also be used to stratify the sample of facilities to be sent a detailed questionnaire. Facilities determined, via their responses to the screener questionnaire, to be outside the scope of Section 316(b) will be removed from the sample frame for the detailed questionnaire. Finally, the tabulated results of the screener questionnaire will be used to outline the initial framework of EPA's proposed Section 316(b) regulation.

5(b) Collection Methodology and Information Management

EPA's selection of industry groups to be sampled for the screener questionnaire was based on the (i) aggregate quantity of cooling water used by a particular industry group, (ii) number of facilities within an industry group using large quantities of water and cooling water, when known, and (iii) identification of industry groups for which effluent guidelines have been promulgated under CWA Sections 301 and 306. (EPA used information from effluent guideline rule makings to eliminate industrial categories having facilities that use little or no cooling water or with facilities that are predominantly indirect dischargers). Within SIC Major Group 49, a small, identifiable set of facilities (steam electric utilities and nonindustrial nonutility power producers) account for about 93 percent of the total industrial cooling water intake flow in the United States. Facilities in the four "other industry" categories identified by EPA to be of relevance to the survey effort account for the approximately remaining six percent of industrial cooling water intake flow in the United States. EPA believes that the approach used to narrow the potential universe of industry groups and facilities to be considered under the Section 316(b) survey effort to be reasonable.

As stated previously, the targeted universe (*the initial sample frame*) of facilities to potentially receive the screener questionnaire includes those falling under the steam electric nonutility power producer category (some in SIC Major Group 49 and some under other major manufacturing SIC groups) and those falling under SIC Major Groups 26, 28, 29, and 33. Strata have been established within the sample frame to facilitate sample selection procedures and to ensure that EPA's ultimate samples are representative of the diversity of facilities within these industry groups. Once the samples are drawn from the various strata, a revised sample frame will be created. The revised frame will be the one that is updated on the basis of screener questionnaire results and from which the sample of facilities to receive the detailed questionnaire will be drawn.

To minimize burden, EPA is allowing respondents to complete the screener questionnaire by handwriting or typing their responses. The screener questionnaire will be sent to selected

facilities via certified mail. This mailing process requires a signature by the recipient of the package at the time of delivery. The signature card is then returned to EPA for documentation and tracking purposes. By sending the screener questionnaire using this procedure, EPA ensures that the designated facility receives the package and that an initial facility point-of-contact is identified. Under EPA's initial ICR package, each facility was to have 60 days to complete and return the screener questionnaire and associated Certification Statement to EPA. In this ICR resubmittal, EPA has reduced the response time to 45 days. EPA will be providing a self-addressed envelope with the screener questionnaire package to facilitate return of the materials.

Each facility to receive a screener questionnaire will be assigned a unique identification number. EPA's tracking and analysis of survey instruments and results will be on the basis of these unique identification numbers. Each page of a given facility's screener questionnaire and associated mailing labels will include the unique identification number assigned to the facility.

While the screener questionnaire is in the field, EPA's contractors will manage a toll-free Help Line or Help Desk. The Help Desk will be staffed during normal business hours by trained contractor personnel who will provide respondents with assistance in completing their screener questionnaires. Each call and question posed and answer provided through the Help Desk will be logged into an electronic tracking system. EPA will conduct a routine review of the questions being asked and the answers being provided to ensure that survey respondents are being given consistent and useful information. The Help Desk will provide respondents with immediate responses to their inquiries, which EPA believes will ultimately reduce the overall burden posed to respondents by the questionnaire. By reducing possible misinterpretations of questions posed on the screener questionnaire, EPA expects to minimize the frequency with which it will need to contact facility personnel to clarify incomplete or inaccurate screener responses, thereby further minimizing respondent burden.

EPA and its contractors will also use an electronic tracking system to record the following information regarding each screener questionnaire:

- unique questionnaire identification number
- questionnaire type (e.g., nonutility or other industry)
- certified mail tracking number
- date questionnaire mailed
- date certified mail cards returned to EPA
- date completed questionnaire received by EPA
- indication of whether follow-up calls necessary due to incomplete information, including date, comment, and caller initial fields
- whether facility is in-scope based on questionnaire responses
- date questionnaire sent to data entry with associated batch number assigned
- date questionnaire returned from data entry
- date data processing initiated
- general comments on screener questionnaire pertinent to researchers.

Upon receipt of completed screener questionnaires, EPA and its contractors will log them into the electronic tracking system and assess whether CBI data are enclosed. If so, the data will be handled and tracked according to EPA OST and OWM requirements. EPA and its contractors will also review survey data for completeness and will conduct follow-up calls as needed. Follow-up information will also be tracked in the electronic tracking system. Screener questionnaires will then be batched for data entry. Once data entry is completed, the screener questionnaires will be stored in a CBI-approved location.

EPA considered creating electronic versions of the screener questionnaire. However, after careful analysis, EPA decided that an electronic screener questionnaire was not efficient for the following reasons:

- EPA could not be sure that the software at respondent facilities would be compatible with EPA software used to develop the screener questionnaire. Substantiating this view, one of the pretest facilities stated that the diversity of information systems available would make it impractical to require electronic submission in a specified format.
- EPA determined that development of an electronic questionnaire (especially if both an electronic and hard copy version were to be developed) for a one-time survey effort was not an efficient use of Agency resources. Since the screener questionnaire is not intended to be reused, it did not appear that either respondents or EPA would derive any significant benefits from an electronic version being developed.

EPA confirmed through pretest responses that the hard-copy version of the screener questionnaire is a simple, direct means for EPA to collect the data required. None of the pretest respondents requested an electronic questionnaire, and one respondent specifically requested that EPA not lock facilities into responding electronically. EPA developed the screener questionnaire using as many check boxes and closed-ended questions as possible to minimize respondent burden. Moreover, EPA separated the technical and economic questions to better enable facilities to separate the document within their own organizations for responses. The feedback from pretest respondents indicates that the screener questionnaire they reviewed (at *Attachment 4*) was well-organized and easy to read and understand. EPA's subsequent revisions of this questionnaire (at *Attachments 7 and 10*) further minimize respondent burden through the simplification and reduction of questions.

5(c) Small Entity Flexibility

The majority of facilities EPA is targeting to receive the screener questionnaire are not small using definitions established by the Small Business Administration (SBA). Based on EPA's research, the only industrial category being surveyed with a significant number of small businesses is the steam electric nonutility power producer category. One of the main reasons EPA decided to administer a screener questionnaire followed by a detailed questionnaire was to reduce the burden a detailed questionnaire would pose on facilities that ultimately are out-of-scope for Section 316(b). EPA hypothesizes that small entities are more likely to be out-of-scope than large facilities. Given this hypothesis and EPA's desire to minimize respondent burden, especially for small entities, EPA has designed the screener questionnaire to allow out-of-scope facilities to exit the survey before they invest time in responding to technical questions that may require a review of facility records.

For those facilities remaining in-scope, the screener questionnaire requests minimum technical and economic data to enable the Agency to refine the sample frame from which a stratified sample of facilities will be drawn for the detailed questionnaire. The detailed questionnaire in its pre-ICR status contains on the average 97 questions. The February 1998 screener questionnaire (located at *Attachment 7*) contains only 30 questions, most of which are closed-ended. The burden of the detailed questionnaire is estimated at 160 hours, whereas the average burden based on the pretest of the February 1998 screener questionnaire and other comments received from industry was 45 hours. The revised screener questionnaire, located in *Attachment 10* and dated October 1998, includes only 22 questions. Based on comments received from pretest facilities on the February 1998 version of the questionnaire, EPA estimates the average burden for this latest edition to be only 10 hours. (Further information on EPA's burden estimate is provided in Section 6 of Part A of this ICR.)

In addition to the activities described above, EPA has taken the following steps to minimize the time and effort necessary for respondents to complete the screener questionnaire:

- EPA has ensured that each question and its corresponding instructions are clear. All pretest respondents reported that the instructions and questions were easy to read and understand. There were, however, one or two questions that caused some confusion during the pretest. As a result, EPA worked with the pretest facilities to identify approaches for rewriting these questions.
- Common industry terms have been used throughout the screener questionnaire to make it more understandable. Questions have been designed using “yes/no” or “multiple choice” formats wherever possible. Furthermore, the screener questionnaire uses skip patterns to direct respondents to the questions of relevance to them.
- EPA has met with and discussed the August 1997 draft screener questionnaire (at *Attachment 4*) with representatives of the affected industry trade associations with the objective of identifying approaches for minimizing respondent burden. In subsequent reworks of the screener questionnaire, EPA incorporated changes suggested by these representatives wherever possible.
- As discussed previously, a Help Line will be operational during the period the questionnaire is in the field so that respondents can call with technical questions and receive prompt support.

5(d) Collection Schedule

EPA is hopeful that OMB will expedite approval of the screener questionnaire (within 30 days of receipt which is the duration of the required public comment period on the ICR). EPA’s collection schedule, however, reflects a conservative estimate that OMB will take the maximum allowable time (60 days) pursuant to 5 *CFR* 1320.10(b)) to review the package. Table A5

provides a list of EPA's anticipated activities, the estimated duration of each activity, and the total elapsed time period for the entire project following the date of OMB's approval of the ICR.

Figure A1 provides a Gantt chart to illustrate the time frames and interrelationships of the activities associated with the screener questionnaire.

Table A5. Duration of Screener Questionnaire Activities

Activity	Duration of Each Activity (in days)	Total Elapsed Time Period for Project (in days) Following OMB Approval
Screener Questionnaire Printed and Mailed	15	15
Receive Screener Questionnaire Responses	45	60
Screener Questionnaire Follow-up ¹	45	105
Data Entry of Screener Questionnaire Responses ¹	60	135
Detailed Questionnaire Printed and Mailed (dependent on receiving OMB approval of ICR package for this instrument)	20	155

¹There is overlap amongst these activities.

Figure A1. Schedule of Screener Questionnaire Activities

ID	Task Name	Nov 1998	Dec 1998	Jan 1999	Feb 1999	Mar 1999	Apr 1999
1	OMB Review and Approval	█					
2	Screener Questionnaire Printed and Mailed			█			
3	Receive Screener Questionnaire Responses			█			
4	Screener Questionnaire Follow-up				█		
5	Data Entry of Screener Questionnaire Responses					█	
6	Detailed Questionnaire Printed and Mailed						█

6. Estimating Respondent Burden and Cost of Collection

The following section presents EPA's estimation of burden and costs for the *Industry Screener Questionnaire: Phase I Cooling Water Intake Structures*. EPA believes that the screener questionnaire will help EPA reduce the administrative burden posed to industry by administration of the detailed questionnaire because responses will enable the Agency to exclude facilities from the universe of facilities to receive the detailed questionnaire. As discussed previously, EPA's efforts to limit the universe of industry groups to be considered for the screener and detailed questionnaires from 19 to six represents another means by which EPA has reduced the administrative burden posed to industry by the screener and detailed questionnaires.

6(a) Estimating Respondent Burden and Costs

The screener questionnaire will require recipient facilities to devote time (i.e., as measured by staff man-hours) and resources (i.e., to copy documents and mail responses) to produce acceptable responses. EPA expects that engineers, engineering supervisors, accountants, and financial personnel, along with clerical staff, will devote time to gathering and preparing survey responses. The costs to respondent facilities can be estimated by multiplying estimated time spent in each labor category by an appropriate loaded hourly salary rate. Because labor rates vary so widely among the personnel likely to be involved in completing the screener questionnaires, EPA has used an average loaded hourly rate that is representative of the average salary for the respondent industries. The labor rate used for purposes of this cost estimate is an average hourly rate for workers in the goods-producing or manufacturing industries (\$21.86 per hour).¹⁴ Average hourly rates are published by the Bureau of Labor Statistics each year. Assuming a

¹⁴ U.S. Department of Labor, Bureau of Labor Statistics. *Employer Costs for Employee Compensation - March 1977*. Release: Tuesday October 21, 1997.

fringe rate of 50 percent and a 67 percent overhead and profit rate, the hourly rate for a private sector employee would be \$54.75 $[(21.86*(1.5))*1.67]$.

To develop burden cost estimates, EPA has estimated the number of hours that will be required to complete all of the screener questions (including reviewing instructions, researching data sources, typing or writing the information requested, reviewing responses, and returning the questionnaire) and has then multiplied these results by \$54.75 per hour to generate a cost estimate. EPA originally based its estimate on screener questionnaire pretest responses from three facilities and comments from an industry representative. Fifty hours was the reported average amount of time it would take facilities to complete the screener questionnaire. This was the estimate provided in EPA's initial ICR submission (EPA ICR no. 1828.01).

Since the original estimate, EPA has further reduced the burden of the screener questionnaire. (The revised questionnaire is located at *Attachment 10*.) Specifically, EPA has significantly reduced the scope, complexity, and number of questions. All questions requesting data to solely characterize cooling water intake structure information have been removed. In addition, EPA has reduced the burden of the question requesting cooling water intake flow rates (Question 11) by limiting the amount of data requested to one typical year instead of five years. Question 11 was considered by respondents during the pretest and through other discussions with industry representatives to be the most burdensome question in the screener questionnaire.

To calculate the burden associated with the revised screener questionnaire, EPA has assumed that the first eight questions will take respondents approximately two hours to complete. These are scoping questions that can be answered easily by respondents with minimal input. All respondents are required to answer at least some of the first eight questions before they can be "skipped out" because their facilities are out-of-scope with respect to Section 316(b). EPA estimates that at least 25 percent of the total number of respondents (650 out of 2,600) will be out-of-scope and will not be required to complete the entire screener questionnaire. The other 75

percent (1,950) will be required to complete the screener questionnaire in its entirety, unless they do not generate electricity in which case they will be skipped out of Section 5.

EPA anticipates that Question 11, which now asks for the total number of operating days, average daily intake flow rates, and originating water sources for a typical year by cooling water intake structure, will now require an average of 7.3 hours for respondents to complete. This estimate is based on the assumption that most of the steam electric nonutility power producers and other industries will have records that include circulating pump data for each hour of a day over a typical year. Assuming that each nonutility power producer or other industrial facility has approximately one cooling water intake structure that employs an average of two circulating pumps, approximately 17,520 pieces of data will need to be entered into a computer to calculate the average flow rate over the year [24 hours/day * 365 days/year * 1 year * 2 pumps = 17,520]. If the data can be entered into the computer at a rate of 40 pieces per minute, approximately 7.3 hours will be required to enter the data. It is expected that this estimate would also include time for data verification.

The remainder of questions in the screener questionnaire are estimated to require respondents approximately one-quarter hour each to collect the information needed. This estimate includes phone calls, file research, and follow-up as needed. This estimate is considered to be conservative by EPA since many of the answers to these questions are expected to be immediately known by the respondent (i.e., top-of-mind responses).

The total estimated time required for respondents to complete the entire screener questionnaire is 12.6 hours [2 hours + 7.3 hours + 3.25 hours].

EPA has estimated operation and maintenance costs based on the one-time costs each respondent will likely incur in responding to the screener questionnaire. These costs are assumed to include the cost of copying and mailing each screener questionnaire. Using a rate of \$0.05 per

impression, the average cost per respondent for copying the screener questionnaire will be \$2.00 [\$.05 * 40 impressions]. Mailing costs are estimated at approximately \$1.00 for each questionnaire.

Table A6 presents an estimate of total respondent burden and costs expected for completing the screener questionnaire for the other industry and steam electric nonutility power producers. In addition, totals are provided for two types of respondents: in-scope and out-of-scope respondents. In-scope respondents are those that are expected to complete the entire screener questionnaire. Out-of-scope respondents are those that are expected to be “skipped out” of the screener questionnaire within the first eight questions. In Table A6, EPA estimates that in-scope respondents will have a total burden of 24,570 hours and a cost of \$1,351,058. Out-of-scope respondents will have a total burden of 1,300 hours and a cost of \$73,125. Totaling the burden and costs for both respondent groups, EPA estimates total national respondent burden to be 25,870 hours (a reduction of 104,130 hours from EPA’s first ICR submittal) at a cost, in current dollars, of \$1,424,183 (a reduction of \$5,701,117 from the previous ICR submittal). The total average respondent cost for each questionnaire (including average labor and O&M costs) is expected to be approximately \$548 [$\$1,424,183 \div 2,600$] (a reduction of \$2,193 from EPA’s first ICR submittal).

Table A6. Estimating Respondent Costs to Complete Screener Survey

Type of Respondent	Total Number of Respondents	Average Burden Per Respondent (hours)	Total Burden (hours)	Average Labor Costs ^a Per Respondent (dollars)	Total Labor Costs ^a (dollars)	Average O&M Costs Per Respondent (dollar)	Total O&M Costs (dollars)	Total Costs (dollars)
In Scope	1950	12.6	24,570	\$690	\$1,345,208	\$3	\$5,850	\$1,351,058
Out of Scope	650	2	1,300	\$109.50	\$71,175	\$3	\$1,950	\$73,125
Total	2600	9.95^b	25,870	\$545^b	\$1,416,383	\$3^b	\$7,800	\$1,424,183

^a Costs assume an average aggregate labor rate of \$54.75 per hour.

^bTotals for averaged burden, labor costs, and O&M costs do not equal the sum of the column. These averages are calculated using total burdens and costs divided by the total number of respondents (2,600).

6(b) Estimating Agency Burden and Costs

Table A7 provides an estimate of the Federal labor costs associated with the screener questionnaire. In developing these costs, EPA has assumed that the activities associated with the screener questionnaire will require the efforts of three Agency employees with an average salary equivalent to a GS-14 (step 1) at a rate of approximately \$32.06 per hour. The average hourly rate is based on hourly rates found in the Office of Personnel Management's 1998 General Schedule. To obtain the total costs for Agency personnel, EPA increased the average hourly rate by 60 percent to account for overhead costs.

Assuming that one man-year equals 2,080 hours, EPA has estimated that one Agency employee will spend approximately 0.8 man-years (or 1,664 hours) developing, administering, and reviewing screener questionnaires. Estimated total labor costs for Agency employees are expected to be \$85,363. The estimate of the hourly burden and costs for Agency personnel to develop and administer the screener questionnaire is based on the hours and costs expended to date and on EPA's previous experience administering similar questionnaires.

Table A7. Estimated Federal Employee Costs

Approximate Average GS-Level	Average Labor Rate (in dollars)	Loaded Rate (in dollars)	Labor hours	Total Costs (in dollars)
GS 14 step 1	\$32.06	\$51.30	1664	\$85,363

In addition to Agency employees, contractor personnel at various professional and technical levels are also expected to spend time developing and reviewing the screener questionnaires, mailing surveys, performing data-entry tasks, and analyzing responses. EPA has estimated contractor burden hours at a composite rate of approximately \$63 per hour. The hourly burden attributed to contractors is expected to be approximately 6,771 hours. The total combined hourly burden of both contractor and EPA staff is approximately 8,435 hours. Table A8 identifies tasks to be performed by both EPA and contractor personnel and the associated hours expected for each task.

Table A8. Estimated Agency Burden (Including Both EPA and Contractor Staff Hours)

Agency and Contractor Tasks	Estimated Burden Hours
Research and Develop Sample Frames/Mailing Lists; Design and Develop Screener Questionnaire; Prepare Public Notice; Conduct Pretest; and Review and Respond to All Comments.	4,500
Develop and Maintain Tracking System and CBI Procedures.	320
Mail Screener Questionnaires and Perform Follow-up Activities Related to Mailing and Receipt by Certified Mail.	65
Perform Data Entry of Screener Questionnaire Responses.	650

Agency and Contractor Tasks	Estimated Burden Hours
Set-up and Operate Help lines; Review Responses on Screener Questionnaires; and Perform Follow-up Activities Associated with Discrepancies in Responses.	2400
Conduct Preliminary Engineering and Statistical Analyses.	500
TOTAL	8435

Table A9 presents all costs expected to be incurred by EPA to administer the screener questionnaire. EPA has estimated total costs associated with contractor support to be \$409,650. Mailing, printing, and copying costs are estimated to be \$18,500. As with the costs for Agency employees, costs associated with contractor hours and costs to develop and administer the screener questionnaire are based on hours and costs expended to date and on the contractors' previous experiences administering similar surveys.

Summing all of the costs, the total burden to the government is estimated to be \$513,510. This estimate includes the tasks detailed in Table A8 above, including the conduct of preliminary technical and economic analyses. However, the estimate does not include costs for developing regulatory options or other documentation activities.

Table A9. Breakdown of Costs to Government in Administering Survey

Cost Category	Total Cost to Agency (in dollars)
EPA Personnel	\$85,360
Contractor Support	\$409,650
Mailing, Printing, Copying	\$18,500
Total	\$513,510

6(c) Bottom Line Burden Hours and Costs

By combining the burden hours and costs to respondents and the same information for the government, EPA estimates total burden hours to be 34,305 and the total cost of administering the screener questionnaire at \$1,937,693. This information is further summarized in Table A10 below.

Table A10. Total Estimated Bottom Line Burden and Cost Summary

	Total Burden (in hours)	Total Costs (in dollars)
Respondents	25,870	1,424,183
Agency	8,435	\$513,510
Total Costs	34,305	1,937,693

6(d) Reasons For Change In Burden

The screener questionnaire is a one-time data collection activity. Therefore, completion of this section is not necessary.

6(e) Burden Statement

EPA estimates that the public reporting and record keeping burden of its screener questionnaire will average 9.95 hours per respondent (i.e., a total of 25,870 hours of burden divided among an anticipated 2,600 respondents). Burden means the total time, effort, or financial resources expended by persons to generate, maintain, or disclose or provide information to or for a Federal agency. Burden includes the time needed by respondents to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information; processing and maintaining information; disclosing and providing information; adjusting existing ways to comply with any previously applicable instructions and requirements; training personnel to respond to the collection of

information; searching data sources; completing and reviewing the collection of information; and transmitting or otherwise disclosing information. 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. OMB control numbers for EPA's regulations are listed in 40 *CFR* Part 9 and 48 *CFR* Chapter 15.

Comments regarding EPA's need for the information being requested in the screener questionnaire, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden (including the use of automated collection techniques) are to be provided to the Director, Regulatory Information Division, Office of Policy, Mail Code 2137, U.S. Environmental Protection Agency, 401 M St., SW, Washington, DC 20460 and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW, Washington, DC 20503, Attention: Desk Officer for EPA. The ICR number and OMB control number are to be included in any correspondence.

PART B OF THE SUPPORTING STATEMENT

1. Survey Objectives, Key Variables, and Other Preliminaries**1(a) Survey Objectives**

The screener questionnaire, the subject of this request, will provide the basis for the sampling design for the detailed questionnaire (the second phase of EPA's Section 316(b) survey effort and for which a separate Information Collection Request (ICR) will be submitted to the Office of Management and Budget (OMB) later this year). Screener questionnaire responses will provide (1) estimates of stratum and total population sizes, (2) information leading to choices of strata, and (3) a frame for the detailed questionnaire with addresses and strata identified.

1(b) Key Variables

For a discussion of key variables, please refer to Part A, Section 4(b) of this ICR.

1(c) Statistical Approach

The objectives of this information collection effort can be achieved by a sample survey at considerably lower cost and burden (to EPA and respondents) than would be required for a census. A statistically designed sample survey is necessary to achieve the objectives, in particular, to ensure that the resulting inferences and analyses are as statistically unbiased and as precise as is practicable. The design can be characterized as a two-phase design (with screener and detailed questionnaire phases), using stratification in the second phase. This design will be applied to each of three major industrial categories, which can also be regarded as primary strata: (1) traditional steam electric utilities, (2) steam electric nonutility power producers, and (3) other industries.

Science Applications International Corporation (SAIC) will conduct the survey under two separate contracts. SAIC, at 11251 Roger Bacon Drive, Reston, VA 20190, will provide

technical support for sample frame development and validation; data entry; design and quality assurance (QA) review of survey response database; and statistical analysis and reporting of questionnaire responses. This support will be provided under EPA Contract No 68-C4-0046 (expiring September 1999), which is monitored by the Economics and Statistics Branch, Engineering Analysis Division of EPA's Office of Science and Technology (OST). SAIC, at 1710 Goodridge Drive, McLean, VA 22102, will provide technical support for questionnaire design, collation, and mail-out; set-up and operation of a help line; follow-up and QA of responses; development and maintenance of survey tracking systems; and analysis of survey data. This support will be provided under EPA Contract No. 68-C4-0034 (expiring August 1999), which is monitored by the Permits Division of EPA's Office of Wastewater Management (OWM).

Economic and financial analyses of screener questionnaire data will be provided by Abt Associates Inc., located at 55 Wheeler Street, Cambridge MA 02138-1168. This support will be provided under EPA Contract No. 68-C4-0060 (expiring September 1999), which is monitored by the Economics and Statistics Branch, Engineering Analysis Division of EPA's Office of Science and Technology.

EPA will take suitable precautions to ensure continuity of service from one contract to the next in 1999 and 2000. These precautions will include the timely delivery of the following products in electronic format to EPA: databases, quality control (QC) reports and editing notes, and related database programs (e.g., SAS) and flow charts. Arrangements will also be made for continuity and transfer of questionnaire and help line tracking information, phone logs, coding sheets, and completed questionnaires.

1(d) Feasibility

This screener questionnaire will be conducted under the authority of Section 308 of the Clean Water Act (33 U.S.C. 1318). Screener questionnaires will be mailed to industrial and nonutility power producer facilities that are well-represented by trade organizations and are kept informed by trade publications. Such target populations have, in the past, provided very high response rates and high completion rates.

The screener questionnaire has been pre-tested, and responses have been considered as described in Part A, Section 3(c) of this ICR. The comments indicate that the screener questionnaire is well-organized and easy to read and understand. A toll-free telephone help line will be provided by contractors while the screener questionnaire is in the field. Respondents are provided information regarding these help lines in the General Information and Instructions section of the screener questionnaire.

Funding and scheduling for this project have been compared to previous and ongoing EPA effluent guideline projects. They have been judged to be sufficient given project objectives.

The collection schedule (*see Section 5(d) in Part A of this ICR*) accounts for the events and response times leading up to final analysis of survey data. This project will involve the design of analyses, computer programs, and report formats in advance of data entry of questionnaire responses. This approach will ensure that key results are reported promptly once data entry and data quality checks are finished. Completion of these tasks will require planning and coordination among the contractors for statistical, technical, and financial analyses. It will also require that the survey database be designed (and a mock-up of the database be completed) well before data entry begins so that analytical programs can be tested.

2. Survey Design

2(a) Target Population and Coverage

Section 316(b) of the Clean Water Act (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 shall reflect the best technology available for minimizing adverse environmental impact. Given this language, industries covered by effluent guidelines (CWA Sections 301 and 306) contain, as a subpopulation, the industries and facilities to be covered by a Section 316(b) rule. This subpopulation contains a large number of industrial categories and facilities, not all of which are point sources under the CWA or use substantial amounts of cooling water.

As stated previously, EPA is targeting three major industrial categories through this survey effort. The three categories include: (1) traditional steam electric utilities, (2) steam electric nonutility power producers, and (3) other industries. Through past Section 316(b) regulatory efforts and EPA's effluent guidelines program, the Agency knows that steam electric generators are the largest industrial users of cooling water. The condensers that support the steam turbines in these facilities require substantial amounts of cooling water. EPA has used databases from the Energy Information Administration (EIA) to identify these facilities. As shown in Table B1, EPA estimates that traditional steam electric utilities (SIC Codes 4911 and 493) and steam electric nonutility power producers (SIC Major Group 49) account for approximately 92.5 percent of the total cooling water intake in the United States. Given the high demand for cooling water by the facilities in these two categories on a per facility and aggregate basis, these categories are the most important target audiences for EPA's Section 316(b) survey effort. (As noted in Part A of this ICR, EPA will not issue a screener questionnaire to facilities in the traditional steam electric utility category as the Agency has enough background data on these entities. EPA plans, however, to issue a detailed questionnaire to a sample of these facilities.)

Beyond steam electric generators, EPA has looked at other industrial facilities that use cooling water for purposes besides electricity generation (e.g., to cool equipment, for quenching,

etc.). EPA has used information from the *1982 Census of Manufactures* to identify other major industrial categories showing some cooling water use. As illustrated in Table B1, four major industrial categories, together with steam electric utilities and nonutility power producers account for approximately 99 percent of the total cooling water intake in the United States. These four major industrial categories include the following: (1) Paper and Allied Products (SIC Major Group 26), (2) Chemicals and Allied Products (SIC Major Group 28), (3) Petroleum and Coal Products (SIC Major Group 29), and (4) Primary Metals Industries (SIC Major Group 33).

For the major industrial categories shown to use cooling water by the *1982 Census of Manufactures*, EPA also used information from its effluent guideline rules and development documents to identify the subcategories subject to rules requiring NPDES permits and to eliminate, for the purposes of the screener questionnaire, industrial groups that use little cooling water or that are predominately indirect dischargers. (*See similar discussion in Section 3a of Part A of this ICR.*) The resultant selection of industries for this questionnaire is shown in Tables B2 and B3.

As discussed under Section 3(a) of Part A of this ICR, nonutility power producers include industrial self-generators and nonindustrial generators. It is important to note that facilities considered industrial self-generators may be included under the frame containing facilities in the four major industrial categories being targeted by EPA. EPA has cross-referenced its nonutility power producer frame with the other industry frame to remove duplicates from the other industry frame. It is possible for a *company* (as opposed to a *facility*) to belong to both frames if it has one facility generating electricity for sale by a steam-cycle unit and another facility using cooling water for purposes other than electricity generation. Given these circumstances, the sample unit for the nonutility power producer and the other industry frames will be the facility.

Table B1. Estimated Number of Steam Electric Generators and Facilities in Other Industrial Categories Ranked by Cooling Water Intake Flow Rate

(SIC Code) and Industrial Category ¹	Number of Facilities ²	Cooling Water Intake Flow ³		
		Billion Gal./Yr.	Percent of Total	Cumulative Percent
(49) Traditional Steam Electric Utilities	1,093	71,000	91	91
(49) Steam Electric Nonutility Power Producers	1,158	1,172	1.5	92.5
(28) Chemicals and Allied Products	22,579	2,797	5.53	96.1
(33) Primary Metals Industries	10,999	1,312	1.68	97.8
(29) Petroleum & Coal Products	3,509	590	.76	98.5
(26) Paper & Allied Products	9,881	534	.68	99.2
(XX) Additional 14 Categories ⁴	365,000	607	.80	100

¹ The table is based on reported primary SIC codes.

² Numbers of facilities are from Dun & Bradstreet's database except numbers for traditional steam electric utilities, which are from the Form EIA-767 database, and steam electric nonutility power producers, which are from the Form EIA-867 database.

³ Data on cooling water use are from the *1982 Census of Manufactures*, excepting traditional steam electric utilities, which are from the Form EIA-767 database, and the steam electric nonutility power producers, which are from the Form EIA-867 database.

⁴ 14 additional major industrial categories (major SIC codes) with effluent guidelines.

Table B2. Targeted Industrial Categories and Intended Allocation of Questionnaires

(SIC Code) and Category	No. Of Facilities in Target Population	 Screener Questionnaires	Detailed Questionnaires
(4911 and 493) Traditional Steam Electric Utilities	1,093 ^a	0	930
(49) Steam Electric Nonutility Power Producers	1,158 ^b	811	400
(26, 28, 29, 33) Other Industries	3,908 ^c	1,789	200
Total Population Covered	6,159	2,600	1,530

^aCount for traditional steam electric utilities comes from aggregation of the Form EIA-767, Form EIA-860, and Form EIA-861 databases.

^bCount for steam electric nonutility power producers includes both industrial self-generators and nonindustrial power generators. Data come from the Form EIA-867 database and the Utility Data Institute's database entitled, *U.S. Cogeneration, Small Power Producer, and Industrial Power Plants*.

^cCount for the Other Industries for SIC Major Groups 26, 28, 29, and 33 are for only those facilities covered by EPA's effluent guidelines. The count comes from studies supporting the development of the effluent guidelines but were taken from development documents, mailing lists, and the Permit Compliance System (PCS). *See Table B3 for counts for each of the four SIC major groups.*

Table B3. Estimated Number of Facilities in SIC Major Groups 26, 28, 29, and 33

(SIC Major Group), Industrial Sector, and Estimated Number of Facilities		Basis of Industry Facility Counts and Subtotals
(26) Paper and Allied Products		Pulp, Paper, & Paperboard (SIC codes 2611, 2621, and 2631) are covered by effluent guidelines.
Database Facility Count*	579	Count based on Pulp & Paper rulemaking— mailing list for 1996.
Subtotal for SIC Major Group 26	379	Subtraction of 200 industrial self-generators already contained in Steam Electric Nonutility Power Producer frame.
(28) Chemicals and Allied Products		Most 4-digit SIC codes under SIC Major Group 28 are covered by effluent guidelines. Based on effluent guideline data, ruled out facilities in SIC codes 2895, 2893, 2851, and 2879.
Database Facility Count*	2,617	Count based on PCS and Toxic Release Inventory (TRI) databases.
Subtotal for SIC Major Group 28	2,487	Subtraction of 130 industrial self-generators already contained in Steam Electric Nonutility Power Producer frame.
(29) Petroleum and Coal Products		Petrol Refining (SIC Code 2911) is covered by effluent guidelines. Based on review of effluent guideline material, ruled out facilities in SIC codes 2951 and 2952.
Database Facility Count*	166	Count based on oil and gas industry directories for 1996 & 1997.
Subtotal for SIC Major Group 29	95	Subtraction of 71 industrial self-generators already contained in Steam Electric Nonutility Power Producer frame.
(33) Primary Metals Industries		Includes facilities in SIC codes 3312, 3315, 3316, 3317, 3353, 3363, 3365, and 3366. Also includes facilities from U.S. Plant Directory from the Aluminum Association and selected directories for Iron and Steel producers.
Database Facility Count*	979	Count based on industry directories, Toxic Release Inventory (TRI), and PCS.
Subtotal for SIC Major Group 33	947	Subtraction of 32 industrial self-generators already contained in Steam Electric Nonutility Power Producer frame.
Total Manufacturers		3,908
*The count comes from studies supporting the development of EPA effluent guidelines but were taken from development documents, mailing lists, and PCS. Note that these numbers are much smaller than (about 14% of) the counts from the Dun & Bradstreet database (see Table B1).		

2(b) Sampling Design

As previously discussed, the screener questionnaire will provide the basis for the sampling design for the detailed questionnaire. The overall design is that of a two-phase (double) sample, the screener questionnaire being the first phase. Screener questionnaire responses will provide (1) estimates of stratum and total population sizes, (2) information leading to choices of strata, and (3) a frame for the detailed questionnaire with addresses and strata identified. The sampling design for the screener questionnaire is, therefore, primarily driven by the need to identify a suitable number of in-scope facilities and to assign them to strata. Meeting the precision and sample-size targets for the detailed questionnaire (below) will require mailing about 2,600 screeners to a sample of the 5,615 identified facilities. EPA expects a large fraction of these facilities to be outside the population of interest (or "out of scope") and expects 5 percent or more not to respond. It is essential that EPA identify enough facilities that are "in-scope" within each industrial category in order to support the detailed questionnaire (the second phase of EPA's Section 316(b) survey effort).

Answers to questions on the screener questionnaire will identify differences among facilities in terms of their size, their water sources, and intake flow rates. Such information will be used to stratify the sample of facilities to receive the detailed questionnaire. Stratification serves two essential purposes. It increases precision (reducing one source of uncertainty) for estimates of costs, benefits, and other quantities. It also enables EPA to match more accurately cost and benefit calculations, and regulatory options, to the circumstances that influence these calculations and the suitability of each option (e.g., facility age, equipment, and finances; electricity generation, intake structure and cooling system technologies in place; the environmental source of the cooling water; and the location and capacity of the cooling water intake structures).

There is another use of the stratifying information to be obtained from the screener questionnaire. The information may be used to increase precision further by modeling detailed

questionnaire responses as functions of screener questionnaire responses. EPA will evaluate this approach in order to make the best use of data and to increase the accuracy and precision of estimates. The success of such modeling can be evaluated only after questionnaire data have been obtained. This approach can be successful to the extent that (1) screener questionnaire responses or predictors are available for a larger number of facilities and companies than sampled by the detailed questionnaire and (2) detailed questionnaire responses are well-related to screener questionnaire predictors, using continuous or categorical models (regression, logistic, log-linear, and anova models). The same approach could be applied to detailed questionnaire nonresponses and missing data.

Traditional Steam Electric Utility Category

Screener questionnaires will not be mailed to facilities in this industrial category because there is enough publicly-available data on these entities for EPA to determine which facilities are in-scope. The stratification information requested in the screener questionnaire for the other target population categories will be obtained from the detailed questionnaire for the traditional steam electric utility category. EPA intends to census or heavily sample the utility category with a detailed questionnaire. The reason for using a census is primarily to provide complete information on *companies* for technical and economic analysis. Most importantly, a census allows EPA to evaluate every facilities' economic position relative to all other utilities. The traditional steam electric utility category accounts for about 90 percent of total U.S. cooling water use. Thus, the category is expected to be especially important to EPA, especially as the Agency calculates the costs and benefits of a proposed Section 316(b) regulation. Sampling would provide incomplete information, with the omitted information then supplied with more uncertainty either by modeling or by extrapolation from sampled facilities.

Steam Electric Nonutility Power Producer Category

EPA intends to obtain screener questionnaire responses from most steam electric nonutility power producers (Table B2). A portion of the nonutility category must be censured (Table B4) because these facilities are included with traditional utilities in EIA's National Energy Modeling System (NEMS). EPA plans to use NEMS and its outputs as part of its economic and financial analysis activities. EPA may request that EIA conduct analyses for EPA using NEMS. This portion of nonutility power producers will be censured using the screener questionnaire, and screener responses will determine which form of the economic portion of the detailed questionnaire each facility receives.

Other Industry Category

For the screener questionnaire, EPA intends to take a random sample of 1,789 facilities with the expectation that, at a minimum, 25 percent (could be as high as 90 percent) will be out-of-scope or unaffected by a proposed Section 316(b) regulation. In this category, EPA is very uncertain how many respondents will be in-scope and what the nonresponse rate is likely to be. It is important that EPA make allowance for a large percentage of out-of-scope and nonresponse results so that the final list of in-scope respondents will support a large-enough sample for the detailed questionnaire.

(I) Sampling Frames

For both the traditional steam electric utility and steam electric nonutility power producer categories, databases produced by EIA have been used as the primary sources for EPA's sample frames. EPA also considered databases produced by the Utility Data Institute (UDI) and the Edison Electric Institute (EEI). The EIA databases were selected because they are based on verifiable information from official contacts; reporting is mandatory; information is more complete and current; and they provide a direct link to extensive financial data (Federal Energy Regulatory Commission or FERC forms) maintained by the Department of Energy (DOE). Extensive

comparisons were made between EIA, UDI, and EEI databases to assess possible differences in the populations covered. EIA databases appear to cover the same populations of traditional steam electric utilities and steam electric nonutility power producers (within the facility megawatt capacity limits of the EIA databases).

Traditional Steam Electric Utility Category

The primary source of information is EIA Form-767. Facilities were selected based on their status codes (i.e., facilities were eliminated if they were reported as being permanently offline). EPA also evaluated and compared data from EIA Form-860 and EIA Form-861 and found that the same utilities and facilities are represented (as expected) for the selection criteria of interest (i.e., steam electric facilities). EIA's Form-767 database includes basic data for facilities having generating nameplate capacities between 10 and 100 megawatts and contains more detailed information for facilities with higher generating nameplate capacities. To include facilities with smaller nameplate capacities (i.e., less than 10 megawatts) and to include facilities with combined-cycle generating units, the frame was augmented with data from EIA's Form-860 database. The frame was then cross-referenced with EIA's Form-861 database to ensure complete coverage and to obtain address information for the facility owner.

Steam Electric Nonutility Power Producer Category

The primary source of information used to develop the frame for this category was EIA's Form-867 database, which includes facilities having a nameplate capacity of at least 1 megawatt. When requesting the Form-867 database from EIA, EPA asked that the database be subsetted to include only those facilities with generating units having a steam prime mover. (The prime mover field is confidential on a facility basis in the EIA-867 database.) The frame was then augmented with facilities having a nameplate capacity of less than 1 megawatt and meeting other selection

criteria (e.g., having a steam prime mover) from UDI's database, entitled *U.S. Cogeneration, Small Power Producer, and Industrial Power Plants*.

Other Industry Category

As noted above, other industrial categories (other than SIC Major Group 49) were selected for consideration for EPA's Section 316(b) survey effort by evaluating cooling water use data in the *1982 Census of Manufactures* and other effluent guideline development materials.

SIC Major Group 26: Paper and Allied Products. The sample frame is based upon a 1996 mailing list developed under EPA's recent (1997) Pulp and Paper effluent guideline. The list includes 565 mills. The frame has been augmented by more current facility information obtained from the American Forest Products Association and from a review of *Lockwood-Post's Directory of the Pulp, Paper, and Allied Trades*.

SIC Major Group 28: Chemicals and Allied Products. The sample frame is based upon PCS and TRI. Facilities were selected by using the reported primary SIC code and a reported National Pollutant Discharge Elimination System (NPDES) permit number. The count of facilities compare favorably to the number of facilities reported in the *SRI Directory of Chemical Producers* (1,274 companies and 3,613 facilities). Based on EPA's 1997 Study of Inorganic Chemical producers and EPA's 1987 Organic Chemical Manufacturing and Plastics and Synthetic Fibers (OCPSF) effluent guideline development documents, between 30 and 50 percent of the facilities reported by SRI (i.e., 1,100 to 1,800 facilities) are expected to be direct dischargers having NPDES permits. EPA, therefore, believes that PCS and TRI, in combination, can provide a list of all major and many of the minor dischargers within this category. This approach does not, however, provide an exact count of the population. A sample survey (screener questionnaire) of the 3,613 facilities in the SRI directory, using a feasible or reasonable sample size, would not provide an estimate of population size much more precise than presently available

to EPA. A simple query to all 3,613 could be made by telephone or postcard to establish eligibility, which would likely improve the estimate of population size albeit with additional cost and burden. EPA, however, has decided that this effort would not be worthwhile. The PCS and TRI lists have, therefore, been unduplicated and combined and will be used as the basis for EPA's sample frame for this industry group.

SIC Major Group 29: Petroleum and Coal Products. The sample frame is based upon the *1997 Worldwide Refining and Gas Producing Directory* published by Pennwell Publishing Company. The frame was compared to and was augmented with nonduplicated entries in the list of refineries published in the December 1996 issue of the *Oil and Gas Journal*.

SIC Major Group 33: Primary Metals Industries. The sample frame is based upon (a) a frame developed in 1997 for EPA's current effluent guidelines project for the Iron and Steel industry, (b) a directory provided by the Aluminum Association, and (c) PCS and TRI records for aluminum and copper producers selected on the basis of primary SIC codes and NPDES permits. The two lists for aluminum and copper producers (items b and c above) have been unduplicated and combined.

(II) Sample Sizes

Intended sample sizes are shown above in Table B2. These sample sizes stem from two approaches. The first approach is based on a precision goal with allowances being made for nonresponses and frame elements not included in the target population. The second approach is based on defensibility and burden.

Defensibility and Burden

The importance of the traditional steam electric utility category for cooling water use and its potential importance for regulatory costs and benefits motivates a detailed questionnaire census (of 1,093 facilities) for this category. (The sample size for utilities may be reduced upon further evaluation of data in the sample frame.) The burden will be less than is usual for similar surveys (e.g. for effluent guidelines) because no screener questionnaire will be sent to facilities in this category and because much of the financial information will be obtained from EIA's Form-860 database and other EIA and FERC forms. Finally, the financial portion of the detailed questionnaire will be smaller than usual. To deal with challenges to the generality of a sample survey, EPA intends to do site-specific costing for all facilities.

For the steam electric nonutility power producer category, large screener questionnaire and detailed questionnaire samples are required because of the segmentation of the industry, the diversity among facilities in terms of equipment and financial position, and the need for EPA to consider multiple strata that may have costing and financial impacts.

For the other industry category, a large screener questionnaire sample is needed because of the potentially large fraction of out-of-scope respondents expected.

Precision

This paragraph provides a simplified explanation of why the overall sample size for the screener questionnaire should be approximately 2,600 (see also Tables B2 and B4). EPA's actual sample allocation is based on additional considerations discussed later in this part. In developing the sample allocation, EPA first considered the final number of sampled facilities to which a proposed regulation Section 316(b) would apply (i.e., for which costs and benefits will need to be calculated), which might be smaller than the actual number sampled. From this final number, EPA worked back to the number of facilities to be sampled, using assumptions about nonresponses and nontarget elements. Under this approach, EPA considers each of the three major industry

categories separately. A conventional precision target is to estimate a quantity to within plus or minus 5 percent (in relative terms) with 95 percent confidence. Standard calculations from sampling theory indicate that an adequate *final* sample size would be in the range of 267 to 400 in any category for which this precision-target is desired. Applying this precision-target to the portion of the steam electric nonutility power producer category that EPA plans to census (577 facilities) and allowing that as many as one-third of these facilities might not be subject to a proposed Section 316(b) regulation, suggested a sample mail-out of 300 to 400. EPA believes that a screener questionnaire sample mail-out of roughly 2,000 is indicated in the other industry category, allowing that as many as 90 percent of the facilities in this category could be nonresponders, out-of-scope, or otherwise not subject to a Section 316(b) regulation.

(III) Stratification Variables

Stratification serves two essential purposes. It increases precision (reducing one source of uncertainty) for estimates of costs, benefits, and other quantities. It also enables one to more accurately match cost and benefit calculations, and regulatory options, to the circumstances that influence these calculations and the suitability of each option (e.g., facility age, equipment, and finances; intake and cooling technologies in place; the environmental source of cooling water; the location and capacity of the cooling water intake structures).

Strata for the screener questionnaire sample will consist of industrial categories (Table B4). Strata for the detailed questionnaire will be determined from responses to the screener questionnaire and will include differences among facilities in terms of their size, their intake water sources, and intake flow rates. Such information will be used to stratify the sample of facilities to receive the detailed questionnaire.

"Stratification" for the detailed questionnaire is being used in two ways. First, for sampling design, survey strata will be used to increase precision and to discriminate classes of facilities expected to differ in costs and benefits. Only survey strata are addressed particularly here. Secondly, for financial and technical analyses, even more "strata" (classes) of facilities will be examined to determine if regulatory distinctions can be made amongst these classes and to discriminate classes of facilities differing in costs and benefits. Some questions in the screener questionnaire are intended to provide candidate variables for the classification of facilities and, more generally, to provide candidate predictor variates (for use in categorical and regression analysis) that may help EPA determine more precisely and accurately the costs and benefits of a proposed regulation in specific situations as well as in the aggregate.

Strata will be based on (1) Small Business Administration business size cut-off values, (2) cooling water intake flow rates, (3) source of cooling water, (4) type of cooling water system, (5)

cooling water intake configuration, (6) cooling water intake technology, and (7) North American Electric Reliability Council (NERC) region. Each stratification variable will be grouped into two or more classes using expert judgement and technical information. The choice of classes is not critical to the benefits of stratification, and experts recommend more rather than fewer strata and classes. The value or level of each of these stratification variables is expected to affect costs, benefits, assessments of potential adverse impacts and best technology options, and appropriate regulatory options.

Because EPA plans to census the traditional steam electric utility category with the detailed questionnaire, stratified sampling does not apply. However, the detailed questionnaire for this category will ascertain stratum and class membership for all variables that appear in the screener questionnaire for the other industry categories.

(IV) Sampling Method

The sample for the screener questionnaire will be a randomized probability sample with stratification by industrial category (Table B3). The sample for the detailed questionnaire will be a randomized probability sample with stratification and allocation as described above. In drawing a sample, EPA will also use systematic sampling within strata and subcategories. Systematic sampling will result in more uniformly proportional coverage of EPA Regions and States. To draw a systematic sample, facilities within each stratum will be grouped by industrial subcategory, EPA Regions within subcategories, and States within Regions (and by owner or utility, if applicable). At each grouping level, the sequence of groups (e.g., Regions within each industrial subcategory) will be randomized within the next higher level of grouping. Then every k-th plant in the list will be sampled. Systematic sampling is not strictly random, and much has been written about its limitations and benefits (Cochran, WG, 1977, *Sampling Techniques*, 3rd ed., Wiley; Kish, L, 1965, *Survey Sampling*, Wiley). It is very widely used in large surveys. In a sample that

does not consist of spatially or temporally ordered units, there are no important objections to systematic sampling in a survey of the sort proposed here.

(V) Multi-Stage Sampling

There is no plan to use multi-stage (cluster) sampling for either the screener or the detailed questionnaires.

2(c) Precision Requirements

As noted above, the sampling design for the screener questionnaire is primarily driven by stratification, precision, and sample-size targets for the detailed questionnaire. Note that precision calculations below address only the sampling component of error. They do not address "measurement" (response) and misclassification errors affecting questionnaire responses. *For information on this latter topic, consult the following section on nonsampling errors.*

(I) Precision Targets

Two precision targets were used to determine desirable sample sizes for the screener questionnaire. The first concerns precision of a population proportion (or percentage): the goal was to determine a proportion to within ± 0.025 (equivalently, to determine a percentage to within ± 2.5 percent), with 95 percent confidence. The second concerns a continuous measurement (for example, revenue or cooling-water flow): the goal was to determine (with 95 percent confidence) the population mean or total for such a quantity precisely enough so that its coefficient of variation (CV) is 0.025. A coefficient of variation is the ratio of standard deviation to mean, so it is a measure of relative variability. When the CV is 0.025, it is equivalent to determining the population mean or total with a margin of error ± 5 percent of the mean value, approximately.

EPA applied these goals to each industrial category, anticipating the need to determine values specific to each category, because the industrial categories are expected to differ in many characteristics that can affect costs, benefits, and the small business impacts of regulatory options.

EPA calculated sample sizes required to achieve these goals, based on the number of facilities identified in the sample frames (Table B4).

Table B4. Sample Sizes Required to Achieve Precision Goals

Stratum	No. of Facilities in Stratum	Numbers of Screener Questionnaires Allocated to Each Stratum			
		Goal for Percentage ¹	Goal for Mean or Total ²	Final Allocation	Final Precision (+/- % error) ⁴
Nonutility Power Producers					
Nonutility Power Producers with SIC Code A = 40 to 59	450	450	450	450	0%, 0%
Small Nonutility Power Producers (<1 MW)	131	23	23	23	37%, 19%
Nonutility Power Producers with SIC Code A ≠ 40 to 59	577	332	424	338	6.9%, 3.4%
Other Industries					
Chemicals & Allied Products (SIC 28)	2,349	588	952	758	5.9%, 2.9%
Primary Metals Industries (SIC 33)	1,417	505	751	598	6.1%, 3.0%
Paper & Allied Products (SIC 26)	538	319	403	321	6.9%, 3.5%
Petroleum & Coal Products (SIC 29)	153	128	140	112	9.0%, 4.8%
TOTALS ACROSS STRATA:	5,615	2345	3143	2600	

¹ Based on a population percentage of 50%. ² Based on a CV for individual measurements of 1.

^{1,2} Numbers of questionnaires for the first two classes (rows) of nonutility power producers are not based on precision calculations; these numbers imply a census, for reasons discussed above. ³ Based on adjusting the numbers in "Goal for Mean or Total" so that the total is 2,600 questionnaires (a compromise between 2,345 and 3,143). ⁴ First number shows percent error for population mean, second number shows error in population percentage, based on notes 1 and 2 and 95% confidence level.

The sample sizes in the "Final Allocation" column are those selected for EPA's sampling plan (see also Table B2). EPA developed this final allocation so that the total number of questionnaires would sum to 2,600 (a compromise between the totals for the two precision goals, 2,345 and 3,143, also based on cost considerations). The numbers in the final allocation are a proportion of those in the column headed "Goal for Mean or Total." After making this adjustment, the achievable precision was recalculated for the final allocation and is shown in the last column. The row "Small Nonutility Power Producers (<1 MW)" pertains to a set of 131 facility names identified in the UDI database, only 23 of which have valid ("mailable") addresses (none have telephone numbers); EPA is thus unable to sample any more than 23 facilities in this subcategory.

(II) Nonsampling Errors

Costing and financial calculations entail unknown (or unquantified) errors — bias and imprecision. If these errors were quantified, they could be considered in the sample size calculations. It is important to note that such errors have not been (apparently, could not be) quantified in past effluent guideline development efforts. Thus, *only* sampling error has been estimated and reported in the record for past guidelines. This continues to apply to the present Section 316(b) effort.

Nonresponse is typically low for questionnaires sent under the authority of Section 308 of the Clean Water Act. EPA will employ several measures to reduce nonresponses. The cover letter and instructions for the screener questionnaire will explain the legal authority, responsibility to respond, reasons for the survey, and penalty for nonresponse. Delivery or nondelivery of the screener questionnaires will be tracked using certified mail. A help line will be operated while the questionnaire is in the field so that technical and administrative questions regarding the survey can be addressed. Recipients not responding by the questionnaire deadline date will be telephoned to encourage response, to answer questions, and to determine the reasons for the nonresponse.

Inaccurate or incomplete responses can occur due to misunderstandings or the misinterpretation of questions and the unintentional skipping of questions by respondents. Errors can occur when responses are coded, edited and entered into the database. The design and implementation of the screener questionnaire will employ a number of QA techniques to reduce the frequency of such errors. These techniques include the following:

- Review of questions for ambiguity and clarity
- Use of an easily-followed sequence of questions and stopping points
- Avoidance of questions requiring an open-ended response
- Provision of a limited number of carefully considered responses to each question
- Provision of clear definitions of units of measurement and of technical terms
- Provision of clear instructions with references to the definitions

- Provision of a "help line" with a toll-free number to assist respondents
- Review of questions by engineers, scientists, and economists who will telephone respondents to obtain missing information and resolve problems and inconsistencies
- Use of double-entry keypunch verification on all screener questionnaires
- Conduct of computerized comparison of selected responses to detect inconsistencies and illogical responses
- Conduct of computerized analyses to screen for out-of-range and inconsistent numerical values
- Conduct of computerized analyses to detect missing numerical data and missing units

2(d) Questionnaire Design

The purpose of the screener questionnaire is to (1) identify industrial facilities that potentially fall under the authority of Section 316(b) and (2) obtain data enabling stratification of the sample for the detailed questionnaire.

In *Attachment 10*, EPA has included a copy of its latest screener questionnaire. *Attachment 12* contains a table of justifications for each question being asked on the screener questionnaire. For each question, EPA has identified whether it is scoping or stratifying in nature

(thus, showing the linkage to survey objectives). Finally in *Attachment 11*, EPA has included a flow diagram depicting the organization and substance of the screener questionnaire by question number. This flow diagram also relates each question to survey objectives.

Aside from requesting basic identifier information, the screener questionnaire has been designed to include three types of questions: (1) closed-ended questions, (2) fill-in-the-blank questions, and (3) multiple-choice questions. The reason these types of questions are being used is to facilitate efficient reporting and ensure the consistency of responses (and, by extension, the quality of the responses). Many survey questions have been designed in two parts with the first part containing a lead-in “Yes/No” question to qualify respondents for answering the second portion of the question (Qs. 1, 15, 17, 19, and 21). Since the second portion of these questions generally requires numeric data, the questionnaire has been designed to allow fill-in-the-blank responses. EPA believes that the use of these types of questions minimizes the overall burden on respondents because it skips nonqualifying respondents ahead in the questionnaire.

The scoping questions in the screener questionnaire have generally been designed as closed-ended “yes/no” questions. Moreover, these questions have been placed as close to the front of the screener questionnaire as feasible to allow nonqualifying facilities a quick out. Once again, EPA believes this approach to questionnaire design will minimize respondent burden. Examples of these types of questions include Qs. 3, 5, 6, and 7).

The screener questionnaire has been designed to group requests for related technical data into matrices. The purpose of the matrices is to help respondents see the relationship of some of the information being requested that might otherwise be overlooked if it were requested in a linear format. Generally, the matrices request respondents to categorize aspects of the design or operation of their facility by checking applicable pre-coded responses. EPA has conducted substantial background research prior to the development of the screener questionnaire that suggests that the precoded responses are appropriate. Moreover, results of the pretest described earlier and below support these categorizations. Finally, where actual numeric data are requested (e.g., intake flow rates), responses are requested on a fill-in-the-blank basis. Examples of these types of questions include Qs. 11, 16, 20, and 22).

To further aid respondents in completing the screener questionnaire, key terms have been highlighted in the questions, and definitions have been provided at the point of first reference. Finally, a glossary is also provided with the questionnaire.

No open-ended questions were included in the screener questionnaire because EPA believes these types of questions would not efficiently enable the Agency to achieve survey objectives. Moreover, EPA believes these questions would place additional burden on industry. However, in some of the technical matrices, EPA allows elaboration of a facility's unique circumstances under the "Other" response option.

3. Pretests and Pilot Tests

Pretests of the screener questionnaire were conducted by three facilities as outlined in Part A, Section 3(c) of this ICR. EPA's responses to each comment appear in *Attachment 5*.

4. Collection Methods and Follow-up**4(a) Collection Methods**

Please refer to Section 4(b), Part A of this ICR for information on this topic.

4(b) Survey Response and Follow-Up

Please refer to Section 4(b), Part A of this ICR for information on this topic.

5. Analyzing and Reporting Survey Results

Analyses of the screener questionnaire will have the objectives of (a) constructing the sample frame for the detailed questionnaire; (b) identifying or revising stratum definitions for the industry groups; (c) improving classification of the industry groups, water body types, and cooling water intake structures and technologies; and (d) producing initial narrative and quantitative

characterizations of the industry groups, water body types, and cooling water intake structures and technologies.

5(a) Data Preparation

EPA will arrange, through its contractors, for questionnaire tracking (including a Confidential Business Information— or CBI —plan and procedures), technical review of questionnaire responses, response coding, and data entry. *See Section 1(c), Part B of this ICR for information about EPA's contractors for the survey effort.*

5(b) Analysis

Please refer to Section 4(b)(iii) of Part A of this ICR for information on this topic.

5(c) Reporting Results

All responses containing or consisting of CBI will be so identified in the survey database. Regulations governing confidentiality of business information appear at 40 *CFR* Part 2 Subpart B. Safeguards and procedures for CBI are described in a written CBI plan for OST. Each contractor, in turn, has a CBI plan under its contract with EPA.

Information not classified as CBI could potentially be shared with any interested parties. Such information is subject to a Freedom of Information Act (FOIA) requests. Results of EPA's analyses become publicly available most often in three ways: (1) within proposed and final rules published in the *Federal Register*, (2) within development and supporting documents otherwise published in support of rulemaking, and (3) within materials placed in the rulemaking docket. The first two classes of documents are being made available by EPA on the Internet with increasing frequency; this mode of reporting is a possibility for the results of the screener questionnaire described in this ICR.

ATTACHMENT 1

ATTACHMENT 2

ATTACHMENT 3

ATTACHMENT 4

ATTACHMENT 5

ATTACHMENT 6

ATTACHMENT 7

ATTACHMENT 8

ATTACHMENT 9

ATTACHMENT 10

ATTACHMENT 11

ATTACHMENT 12

ATTACHMENT 13
