



Industry Short Technical Questionnaire: Phase II Cooling Water Intake Structures

January 2000

**U.S. Environmental Protection Agency (EPA)
Office of Wastewater Management
Washington, DC**

Notice of Estimated Burden

EPA estimates that completion of the entire *Industry Short Technical Questionnaire: Phase II Cooling Water Intake Structures* will require an average of **10** hours per plant. This estimate includes time for reading the instructions and reviewing the information necessary to respond to the questionnaire form. Any comments regarding EPA's need for the information, the accuracy of the provided burden estimate, and suggested methods for reducing respondent burden (including the use of automated collection techniques) should be addressed to: ***Director, Regulatory Information Division, Office of Policy, Mail Code 2137, U.S. EPA, 401 M Street, SW, Washington, DC 20460.*** Please include the OMB Control Number, listed in the left-hand margin on this page, with any correspondence.

FORM APPROVED ❖ OMB CONTROL NO. 2040 - 0213 ❖ EXPIRATION DATE: 12/31/02

Certification Statement

Instructions

The individual responsible for directing or supervising the preparation of the enclosed *Industry Short Technical Questionnaire: Phase II Cooling Water Intake Structures* must read and sign the Certification Statement below before returning both documents to the U.S. Environmental Protection Agency. The certifying official must be a responsible corporate official or his (or her) duly authorized representative. The Certification Statement must be completed and submitted in accordance with the requirements contained in the *Code of Federal Regulations* at 40 CFR 122.22.

I certify under penalty of law that the attached questionnaire was prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, accurate and complete. In those cases where we did not possess the requested information, we have provided best engineering estimates or judgments. We have, to the best of our ability, indicated what we believe to be company confidential business information as defined under 40 CFR Part 2, Subpart B. We understand that we may be required at a later time to justify our claim in detail with respect to each item claimed confidential. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment as explained in Section 308 of the Clean Water Act (33 U.S.C., Section 1318).

_____ Signature of Certifying Official	_____ Date
_____ Printed Name of Certifying Official	() _____ Telephone No.
_____ Title of Certifying Official	

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General Information and Instructions

Why This Questionnaire?

The U.S. Environmental Protection Agency (EPA) is currently developing regulations under Section 316(b) of the Clean Water Act, 33 U.S.C., Section 1326(b). Section 316(b) provides that any standard established pursuant to Sections 301 or 306 of the Clean Water Act (CWA) and applicable to a point source require that the location, design, construction, and capacity of *cooling water intake structures* reflect the best technology available (BTA) for minimizing adverse *environmental impact*. Answers to the enclosed short technical questionnaire will help EPA identify the types and sizes of utilities that are subject to Section 316(b).

Please note that data from this short technical questionnaire are *not* intended to identify whether a specific plant's cooling water intake structures are having an adverse impact on the environment. Moreover, questionnaire responses are *not* intended to identify whether a specific plant is employing BTA with respect to minimizing adverse environmental impacts from cooling water intake structures, though they may help EPA determine BTA options for various classes of plants. The questionnaires are simply tools for characterizing some of the following: type and nature of plants using cooling water, specific uses of cooling water, design and configuration of cooling water systems and cooling water intake structures, types of technologies being used at intake structures, and whether plants have previously evaluated the environmental impacts of their cooling water intake structures. Data from the questionnaires will be factored into ongoing research being conducted by EPA that is more specifically designed to determine the nature of adverse impacts and the types of control technologies that might minimize such impacts. All of EPA's research efforts will feed the development of regulatory options, some of which will subsequently be fashioned into a proposed rulemaking that will be put forth for public review and comment.

Please note that it is not the intent of EPA to require facility personnel to go to unusual lengths to retrieve information to respond to this questionnaire. Responses should be based on data that can be accessed from plant records with reasonable diligence.

The enclosed short technical questionnaire consists of three main sections. Section 1 requests general plant information, such as plant name, location, and Standard Industrial Classification (SIC) codes. Section 2 requests information from plants on such topics as National Pollutant Discharge Elimination System (NPDES) permit status, whether cooling water is used and, if so, whether it is withdrawn by the plant from surface water. Finally, information is requested on the types of activities for which the plant uses cooling water directly withdrawn from surface water. The purpose of these two sections is to help EPA determine the nature of plants within an industry group that use cooling water. Additionally, the information will help EPA identify (i.e., "screen") plants that are not subject to Section 316(b). These out-of-scope plants will be exempted from completing the remaining sections of the questionnaire. Plants that will be considered "out-of-scope" will include those that (1) are not point sources as defined under Section 502(14) of the Clean Water Act (33 U.S.C., 1362(14)), (2) do not use cooling water as that term is defined for the purposes of this questionnaire, or (3) do not receive any of their cooling water supply from a surface water source.

General Information and Instructions

Section 3 requests plants to provide basic design and operational data on their cooling water intake structures and cooling water systems. Many of the questions are in multiple-choice format. The following types of information are being requested: total number of cooling water intake structures, originating sources of cooling water, total cooling water intake flow rates and operating days for a typical calendar year, total number of cooling water systems and their respective configurations, placement of cooling water intake structures in surface water bodies, control technologies being used at intake structures, and whether plant or firm owners have ever conducted or commissioned environmental or ecological studies of the potential impacts of any of their cooling water intake structures.

Authority

EPA has authority to administer this questionnaire under Section 308 of the CWA (33 U.S.C., Section 1318). Late filing of the questionnaire, or failure to follow any related EPA instructions, may result in civil penalties, criminal fines, or other sanctions provided by law.

Where to Get Help?

 **Toll-Free Help Line**
Industry Short Technical Questionnaire: Phase II Cooling Water Intake Structures

Science Applications International Corporation (SAIC)
Available weekdays, 9:00 a.m. to 5:00 p.m., Eastern Time

Toll-Free Phone No.: 1-800-246-3113
Direct Dial Phone No.: 703-318-4676 (long distance charges will apply)

Certification Statement

A responsible corporate official or his (or her) duly authorized representative must verify the accuracy of the plant's responses to the questionnaire by reading and signing the enclosed Certification Statement. This statement must be returned to EPA along with the completed questionnaire.

When and How to Return the Questionnaire?

You must complete and return the short technical questionnaire and Certification Statement to EPA within **45 calendar days** after receiving the materials at your plant or firm. Please return your materials, in the enclosed self-addressed envelope, to:

☒ **Industry Short Technical Questionnaire: Phase II Cooling Water Intake Structures**

316 (b) Survey
U.S. Environmental Protection Agency
c/o SAIC (R-1-3)
11251 Roger Bacon Drive
Reston, VA 20190-5201

NOTE: Please *keep a copy* of the completed questionnaire and Certification Statement for your records.

If you have extenuating circumstances that preclude you from meeting the 45 day deadline, please contact Deborah Nagle at the following email address: Survey.316b@epamail.epa.gov to discuss your situation.

Confidential Business Information

You may assert a business confidentiality claim for *some* or *all* of your responses to the short technical questionnaire, as described in 40 *CFR* 2.203(b) (*see full text below*). Complete regulations governing confidentiality of business information (CBI) appear in 40 *CFR*, Part 2, Subpart B.

40 CFR 2.203(b) Method and time of asserting business confidentiality claim. A business which is submitting information to EPA may assert a business confidentiality claim covering the information by placing on (or attaching to) the information, at the time it is submitted to EPA, a cover sheet, stamped or typed legend, or other suitable form of notice employing language such as 'trade secret,' 'proprietary,' or 'company confidential.' Allegedly confidential portions of otherwise nonconfidential documents should be clearly identified by the business, and may be submitted separately to facilitate identification and handling by EPA. If the business desires confidential treatment only until a certain date or until the occurrence of a certain event, the notice should so state.

▶ You may claim confidentiality of business information for any of your responses by one of the methods described above. If no claim of confidentiality has been made, EPA may make the data available to the public without further notice. Please note that you may be required to justify any claim of confidentiality at a later time. Note, however, that certain types of information cannot be considered confidential under the CWA (e.g., plant location, water body, water body type, intake flow data).

If EPA reveals information covered by a claim of confidentiality, the Agency will strictly follow the requirements and procedures set forth in 40 *CFR* Part 2, Subpart B. Overall, EPA may reveal submitted information protected by a CBI claim *only* to other employees, officers, or authorized representatives of the United States who are responsible for implementation of the Clean Water Act. EPA has extensive standard operating procedures in place to handle, store, and transmit CBI data and has a long history of successfully managing this type of information. In addition, personnel expected to handle CBI data are required by the Agency to be trained and certified.

Agency contractors will have access to CBI data so that work can be performed under their contracts relative to the Section 316(b) rulemaking. All EPA contracts require that contractor employees must use CBI data *only* to perform work specified by EPA. The information is *not* to be shown to anyone, other than EPA officials, without prior written approval having been received from the affected business or from EPA's legal office.

Specific Instructions for Completing the Questionnaire

Plant or firm personnel most knowledgeable of the subject areas covered by the questions posed should complete the questionnaire:

- **Please answer the questions in sequence unless you are directed to SKIP forward in the questionnaire.** This is important since many questions are only applicable to some respondents.
- **Clearly mark responses to all questions with a black or blue ink pen, *or* type responses in the spaces provided.**
- For each question, **please read all instructions and definitions carefully.**
- Most key terms are defined at the point where they first appear in the questionnaire. They are also defined in the *Glossary*, which is attached to the back of the questionnaire. **Before responding to a given question, please read the definitions of any key terms used and any question-specific instructions.**
- **Please use the units specified when responding to questions requesting measurement data (e.g., gallons per day).**
- **Please provide responses on the basis of the time period(s) cited in each question.** Note that the time periods under which information is requested varies from question to question.
- **Please indicate whether information provided in any of your responses is confidential.** Such information will be protected under EPA's confidentiality procedures. To claim a particular response as containing confidential business information, follow the identification procedures described on the previous page and found under 40 *CFR* 2.203(b).

Section 1: General Plant Information

1. (a) Does the above mailing label reflect the plant's full legal name and address?

Yes (1)

SKIP TO Q.2

No (2)

(b) Please provide the complete legal name and mailing address for the plant:

Name of Plant: _____ (1)

Street Address: _____ (2)

P.O. Box (if applicable): _____ (3)

City, State ZIP: _____ (4)

Telephone Number: () _____ (5)

DUNS Number: _ _ _ - _ _ _ - _ _ _ _ _ (6)

[Check (✓) here if none.]

1 General Plant Information

2. Please identify the person responsible for questionnaire responses, and please provide the appropriate title and contact information:

NOTE: The plant contact person provided here should be the person most knowledgeable about the information provided in this survey. This person is not required to be the certifying official.

Name: _____ (1)

Title: _____ (2)

Employer (full legal name): _____ (3)

Relationship to Plant (e.g., domestic parent firm, contractor, etc.): _____ (4)

Telephone No: () _____ (5a) Fax No: () _____ (5b)

Best Time to Contact: _____ (6)

3. Is the plant presently in commercial service?

Yes (1)

No (2)

NOTE: To clarify for plants who are not in a commercial business, interpret this question as "Is your plant currently operating?"



STOP

If answer is No, please stop here and return questionnaire with a completed Certification Statement.

4. What are the four-digit **Standard Industrial Classification (SIC) codes** associated with the plant's main lines of business? [Please use the SIC codes contained in the Office of Management and Budget's 1987 Standard Industrial Classification Manual. This listing can also be found at the following Internet site: www.osha.gov/cgi-bin/sic/sicscr5.]

NOTE: Since the 1930s, SIC codes have been used to facilitate the collection, tabulation, presentation, and analysis of data relating to U.S. business establishments by Federal statistical agencies (e.g., Office of Management and Budget or OMB, Bureau of the Census, etc.). The system was last updated by OMB in 1987. It was recently replaced by the North American Industry Classification System (NAICS) in 1997; however, it continues to be used by many Federal agencies. EPA believes it would be unnecessarily confusing to ask plants to classify themselves using NAICS codes for the purposes of this questionnaire.

Primary ___ ___ ___ ___ (1)


Secondary ___ ___ ___ ___ (2)

Other ___ ___ ___ (3a) ___ ___ ___ (3b) ___ ___ ___ (3c)

Section 2: General Scoping Data

5. Does the plant presently have or is the plant presently in the process of obtaining a **National Pollutant Discharge Elimination System (NPDES) permit**?

Yes (1)

No (2) 


STOP

If answer is No, please stop here and return questionnaire with a completed Certification Statement.

NOTE: NPDES permits are required to be held under Section 402 of the Clean Water Act (33 U.S.C. 1342 et seq.) by any point source that discharges pollutants directly to waters of the United States. Plants that discharge 100 percent of their effluent (including storm water) to publicly-owned treatment works, privately-owned treatment works, and/or to ground water injection wells should answer "No" to this question.

6. Since January 1, 1996, has **cooling water** been used for contact or noncontact cooling purposes at the plant? [Please consider all cooling water used regardless of the type of water source or provider from which it has been obtained.]

Yes (1)

No (2) 

STOP


If answer is No, please stop here and return questionnaire with a completed Certification Statement.

DEFINITION

For the purposes of this questionnaire, the term "**cooling water**" refers to both contact and noncontact cooling water, including water used for air conditioning, equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content. The intended use of the cooling water is to absorb waste heat rejected from the process or processes employed or from auxiliary operations on the plant's premises.

7. Since January 1, 1996, has the plant directly obtained any portion of its cooling water from a **surface water source**?

Yes (1)

No (2) 

STOP

If answer is No, please stop here and return questionnaire with a completed Certification Statement.

NOTE: In order for a plant to directly withdraw cooling water from surface water, it must have an **intake structure**.

DEFINITIONS

For the purposes of this questionnaire, **surface water** includes lakes, ponds, or reservoirs; nontidal rivers or streams; tidal rivers; estuaries; fjords; oceans; and bays/coves. A **cooling water intake structure** is the total structure and associated technologies used to direct water from a water body into a plant up to the point of the first intake pump or series of pumps. The intended use of the cooling water is to absorb waste heat rejected from processes employed or from auxiliary operations on the plant's premises. Single cooling water intake structures might have multiple intake bays. If a plant has an intake structure that withdraws water for other purposes in addition to cooling, the entire intake structure should be considered a cooling water intake structure for the purposes of this questionnaire.

2 General Scoping Data

8. In the matrix below, please indicate the activities for which your plant has used cooling water directly withdrawn from surface water since January 1, 1996? [Please check (✓) all applicable activities.]

Activities Requiring Cooling Water Directly Withdrawn by Plant From Surface Water Since January 1, 1996	
Item No.	Activities
8(a)	<p>Electricity Generation (including equipment cooling) <input type="radio"/> (1)</p> <p><input type="checkbox"/> Check (✓) here if any of plant's generating units that use cooling water are part of a combined cycle unit.]</p> <p>Definition: For the purposes of this questionnaire, a combined cycle unit is an electric generating unit that has one or more gas turbines or internal combustion engines and one or more steam boilers. Part of the required input to the boiler(s) is provided by the exhaust gas (waste heat) of the combustion turbines(s).</p>
8(b)	<p>Air Conditioning (Cooling and Heating of Indoor Air) <input type="radio"/> (2)</p> <p>Definition: For the purposes of this questionnaire, air conditioning refers to the process and equipment used to control the temperature and humidity of indoor air. Cooling water is used in some types of air conditioning systems.</p>
8(c)	<p>Production Line (or Process) Contact or Noncontact Cooling <input type="radio"/> (3)</p> <p>(for uses other than electricity generation and excluding air conditioning)</p> <p>Definition: For the purposes of this questionnaire, the term production line refers to each of the successive steps taken at a plant to produce a product, except the production line's use of electricity.</p>
8(d)	<p>Other (please describe below): <input type="radio"/> (4)</p>

Section 3: Design and Operational Data for Cooling Water Intake Structures and Cooling Water Systems

9. How many intake structures does the plant have that directly withdraw surface water to support, at least in part, contact or noncontact cooling operations within the plant? [Consider only those intake structures presently operating or temporarily offline (i.e., expected to operate again in the future). Do not include intake structures planned or under construction or permanently offline.] _____
10. For each intake structure reported under Q.9, please indicate in the matrix below all surface water sources from which the plant has directly withdrawn contact or noncontact cooling water since January 1, 1996 (or from the date the intake structure became operational if that date was later than January 1, 1996). [Please check (✓) all water sources that apply per intake structure. If cooling water has been withdrawn from an intake canal/channel or constructed intake embayment/bay/cove, please indicate the *originating* source(s) of the water.]

Matrix 10		Matrix ___ of ___	
Originating Surface Water Sources of Cooling Water Since January 1, 1996 by Cooling Water Intake Structure (CWIS) <i>Response space has been provided for two CWISs. If your plant has more than this number of intake structures, please copy the matrix and change the CWIS code names or numbers as appropriate. Insert any additional matrices into this section of the questionnaire, and identify individual matrix sheets as Matrix "1 of 3," "2 of 3," etc.</i>			
Water Source Code	Originating Surface Water Source [Please check (✓) all sources that apply per CWIS.] <i>Note: If cooling water has been withdrawn from an intake canal/channel or constructed intake embayment/bay/cove, please indicate the originating source of the water.</i>	CWIS _____ [Please indicate plant-designated name or no. of CWIS.]	CWIS _____ [Please indicate plant-designated name or no. of CWIS.]
A	Lake, Pond, or Reservoir Definitions: <i>For the purposes of this questionnaire, a lake is an expanse of water, usually fresh, surrounded by land or by land and a manmade retainer. Lakes may be fed by rivers, streams, springs, and/or local precipitation. A pond is a still body of water generally smaller than a lake. A reservoir is an artificial body of surface water retained by a dam.</i> NOTE: <i>These terms are not to be confused with the terms cooling lake or cooling pond. The primary purpose of these water bodies is to absorb waste heat rejected from a plant's wastewater discharge.</i>	<input type="radio"/> (1)	<input type="radio"/> (1)
B	Nontidal River or Stream Definition: <i>For the purposes of this questionnaire, a river or stream is nontidal when no significant inflow of water from an ocean or bay due to tidal action occurs.</i>	<input type="radio"/> (2)	<input type="radio"/> (2)

See next page for continuation of Matrix 10.

3 Design and Operational Data

Matrix 10 (Continued)		Matrix ___ of ___	
Originating Sources of Cooling Water Since January 1, 1996 by Cooling Water Intake Structure (CWIS) <i>Response space has been provided for two CWISs. If your plant has more than this number of intake structures, please copy the matrix and change the CWIS code names or numbers as appropriate. Insert any additional matrices into this section of the questionnaire, and identify individual matrix sheets as Matrix "1 of 3," "2 of 3," etc.</i>			
Water Source Code	Originating Water Source [Please check (✓) all sources that apply per CWIS.] <i>Note: If cooling water has been withdrawn from an intake canal/channel or constructed intake embayment/bay/cove, please indicate the originating source of the water.</i>	CWIS _____ [Please indicate plant-designated name or no. of CWIS.]	CWIS _____ [Please indicate plant-designated name or no. of CWIS.]
C	Tidal River Definition: For the purposes of this questionnaire, a tidal river is the portion of river above the river's mouth that receives a regular, significant inflow of water from an ocean or bay due to tidal action.	<input type="radio"/> (3)	<input type="radio"/> (3)
D	Estuary Definition: For the purposes of this questionnaire, an estuary is a semi-enclosed coastal body of water that has a free connection with the open sea and is strongly affected by tidal action. In an estuary, sea water is mixed (and usually measurably diluted) with fresh water inflow from rivers. NOTE: The Chesapeake Bay and the San Francisco Bay are examples of estuaries even though the term bay appears in their names.	<input type="radio"/> (4)	<input type="radio"/> (4)
E	Ocean Definition: For the purposes of this questionnaire, an ocean is defined as marine open coastal waters other than those water bodies classified as estuaries, embayments, or fjords, which are semi-enclosed and have readily identifiable geographic boundaries.	<input type="radio"/> (5)	<input type="radio"/> (5)
F	Bay or Cove (natural, saline water) Definition: For the purposes of this questionnaire, a bay or cove is an inlet created when the shoreline of a water body is indented. Bays are generally larger than coves but are smaller than gulfs. Coves are generally sheltered. [Do not mark this response if the bay or cove is constructed; see column note above.]	<input type="radio"/> (6)	<input type="radio"/> (6)
G	Bay or Cove (natural, fresh water) [See definition and instructions directly above.]	<input type="radio"/> (7)	<input type="radio"/> (7)

11. Please complete the matrix below for each of the plant's cooling water intake structures reported under Q.9. In this matrix, EPA is requesting plants to provide, for a *typical calendar year* since January 1, 1996, the total number of days the structure was operational (Item a), its average daily intake flow rate in million gallons per day (GPD) (Item b), the latitude and longitude of the structure (in degrees, minutes, and seconds) (Items c and d), the surface water sources used (Item e), the design through-screen velocity in feet per second (Item f), and the source water flow basis used for developing the design through-screen velocity (Item g). [Please provide actual data to the extent they are readily available; otherwise, best engineering estimates may be provided.]

DEFINITION

For the purposes of this questionnaire, a *typical calendar year* is one in which the plant and its cooling water intake structures are operated in a normal, routine, regular, or otherwise standard fashion. The data provided should be similar to data from other recent calendar years of operation or from projected, near future years of operation (i.e., 1999 to 2001).

3 Design and Operational Data

Total No. of Operating Days, Average Daily Intake Flow Rate, and Originating Water Sources for a Typical Calendar Year Since January 1, 1996 by Cooling Water Intake Structure (CWIS)			
<i>Response space has been provided for two CWISs. If your plant has more than this number of intake structures, please copy the matrix and change the CWIS code names or numbers as appropriate. Insert any additional matrices into this section of the questionnaire, and identify individual matrix sheets as Matrix "1 of 3," "2 of 3," etc.</i>			
Item No.	Data Requested [For each CWIS, please provide responses for the same typical calendar year for each item in the matrix. Actual data should be provided if available; otherwise, best engineering estimates may be provided.]	CWIS _____ [Please insert same no. or name as under Matrix 10, page 5.]	CWIS _____ [Please insert same no. or name as under Matrix 10, page 5.]
11(a)	<p>No. of Operating Days for Each CWIS in Typical Calendar Year (round to the nearest day)</p> <p>Definition: For the purposes of this questionnaire, the term operating days refers to the total number of days (1 day = 24 hours) a cooling water intake structure was operational during a calendar year, excluding any days the intake structure was offline for routine maintenance or otherwise was not operational.</p> <p>NOTE: Operating days should be determined by adding the number of hours the CWIS was operational during the year and then dividing by 24 hours per day to get the total number of operating days. For example, if a plant has operated 5,840 hours during the calendar year, the total hours divided by 24 hours per day are equal to 243 calendar days.</p>	_____ days	_____ days
11(b)	<p>Average Daily Intake Flow Rate (in GPD) for Each CWIS in Typical Calendar Year</p>	_____ GPD	_____ GPD
11(c)	<p>Latitude at Point of Intake Structure Openings (in degrees, minutes, and seconds)</p> <p>NOTE: For CWISs with intake bays, please provide latitude for the central point of the intake bay openings.</p>	____° ____' ____"	____° ____' ____"
11(d)	<p>Longitude at Point of Intake Structure openings (in degrees, minutes, and seconds)</p> <p>NOTE: For CWISs with intake bays, please provide longitude for the central point of the intake bay openings.</p>	____° ____' ____"	____° ____' ____"

See next page for continuation of Matrix 11.

Total No. of Operating Days, Average Daily Intake Flow Rate, and Originating Water Sources for a Typical Calendar Year Since January 1, 1996 by Cooling Water Intake Structure (CWIS) Matrix ___ of ___

Response space has been provided for two CWISs. If your plant has more than this number of intake structures, please copy the matrix and change the CWIS code names or numbers as appropriate. Insert any additional matrices into this section of the questionnaire, and identify individual matrix sheets as Matrix "1 of 3," "2 of 3," etc.

Item No.	Data Requested [For each CWIS, please provide responses for the same typical calendar year for each item in the matrix. Actual data should be provided if available; otherwise, best engineering estimates may be provided.]	CWIS _____ [Please insert same no. or name as under Matrix 10, page 5]	CWIS _____ [Please insert same no. or name as under Matrix 10, page 5]
11(e)	Source Water Flow Basis for Design Through-Screen Velocity	Critical Low Flow <input type="radio"/> (1) Mean Flow <input type="radio"/> (2) Don't Know <input type="radio"/> (8)	Critical Low Flow <input type="radio"/> (1) Mean Flow <input type="radio"/> (2) Don't Know <input type="radio"/> (8)
11(f)	Name of Originating Surface Water Source(s) from Which Each CWIS Withdrew Cooling Water in Typical Calendar Year		
11(g)	Design Through-Screen Velocity (in fps). NOTE: For CWISs that do not employ a screen technology only, please provide a design through-technology velocity at the technology where impingement or entrainment of aquatic organisms is most likely to occur. For example, at a submerged intake structure that employs a velocity cap, provide the velocity going through the velocity cap.	_____ fps	_____ fps

12. (a) In the space provided below, please indicate the total number of **cooling water systems** that are presently operating or temporarily offline (expected to operate again in the future) at the plant. Do **not** consider cooling water systems that are planned or under construction or permanently offline.

NOTE: Please consider your plant as having only **one** cooling water system **unless** your plant has systems that are physically separated (e.g., have separate water intake **and** outlet structures) and can be operated independently. If the plant has several intake structures, but only **one** outlet structure, or vice-versa, please consider the plant as having only **one** cooling water system. An intake structure with multiple bays counts as one intake structure.

DEFINITION

For the purposes of this questionnaire, a **cooling water system** is a system that provides water to/from a plant to transfer heat from equipment or processes therein. The system includes, but is not limited to, water intake and outlet structures, cooling towers, ponds, pumps, pipes, and canals/channels. For plants that use surface water for cooling, the system begins at the first barrier to ingress and/or egress by fish and other aquatic wildlife (e.g., at the trash rack, etc.) and ends at the discharge outlet(s).

Total Number of Cooling Water Systems _____

3 Design and Operational Data

(b) Please provide the general profile data requested in the matrix below for each of the plant's cooling water systems. [Please check (✓) all applicable design configuration types per system.]

Profile of Plant's Cooling Water Systems (CWSs) <i>Response space has been provided for two CWSs. If your plant has more than this number of systems, please copy the matrix and change the CWS code numbers as appropriate. Insert any additional matrices into this section of the questionnaire, and identify individual matrix sheets as Matrix "1 of 3," "2 of 3," etc.</i>	Matrix ___ of ___	
Data Requested	CWS #1	CWS #2
Configuration of CWS [Please check (✓) all applicable configuration types per system.] NOTE: Refer to the <i>Glossary</i> for definitions of the design configurations and system components listed.	Once-Through CWSs	Once-Through CWSs
	Once-Through Only <input type="radio"/> (1)	Once-Through Only <input type="radio"/> (1)
	Once-Through with Nonrecirculating Cooling Canals/Channels, Lakes or Ponds <input type="radio"/> (2)	Once-Through with Nonrecirculating Cooling Canals/Channels, Lakes or Ponds <input type="radio"/> (2)
	Once-Through with Nonrecirculating Cooling Towers <input type="radio"/> (3)	Once-Through with Nonrecirculating Cooling Towers <input type="radio"/> (3)
	Recirculating CWSs	Recirculating CWSs
	Recirculating Only <input type="radio"/> (4)	Recirculating Only <input type="radio"/> (4)
	Recirculating with Cooling Canals/ Channels, Lakes, or Ponds <input type="radio"/> (5)	Recirculating with Cooling Canals/ Channels, Lakes, or Ponds <input type="radio"/> (5)
	Recirculating With Cooling Towers . <input type="radio"/> (6)	Recirculating With Cooling Towers . <input type="radio"/> (6)
Other <input type="radio"/> (7) <i>(please describe below):</i>	Other <input type="radio"/> (7) <i>(please describe below):</i>	

13. Which of the following terms best describe the configuration of your plant's intake structures (as reported under Q.9 above) that are being used to withdraw some portion of surface water for contact or noncontact cooling purposes? [Please check (✓) all design configurations that apply.]

NOTE: Schematics of the design configurations listed can be found in the **Glossary** accompanying the questionnaire.

Configuration of Plant's Cooling Water Intake Structures	
Item No.	Design Configurations [Please check (✓) all design configurations that apply.]
13(a)	<p>Intake Canal or Channel (<i>natural or constructed</i>) <input type="radio"/> (1)</p> <p>Definition: For the purposes of this questionnaire, an intake canal or channel is a channelized conduit that directs water through screens or other filtering devices up to the intake pump or series of pumps.</p>
13(b)	<p>Submerged Intake Structure Flush with Shoreline <input type="radio"/> (2)</p> <p>Definition: For the purposes of this questionnaire, a submerged intake structure flush with the shoreline is an intake structure whose opening is closely aligned with the shoreline and that always withdraws water from below the surface of the water body.</p>
13(c)	<p>Surface Intake Structure Flush with Shoreline <input type="radio"/> (3)</p> <p>Definition: For the purposes of this questionnaire, a surface intake structure flush with the shoreline is an intake structure whose opening is evenly aligned with the shoreline and that generally withdraws water from the surface of a water body.</p>
13(d)	<p>Intake Embayment, Bay, or Cove (<i>natural or constructed</i>) <input type="radio"/> (4)</p> <p>Definition: For the purposes of this questionnaire, an intake embayment, bay, or cove is a natural or constructed inlet along the shoreline of a water body that serves to direct water through screens or other filtering devices up to the intake pump or series of pumps.</p>
13(e)	<p>Submerged Offshore Intake Structure <input type="radio"/> (5)</p> <p>Definition: For the purposes of this questionnaire, a submerged offshore intake structure is an intake structure that extends from a plant outward into a water body. The intake opening is submerged, and the water withdrawn is always from below the surface of the water body.</p>
13(f)	<p>Other <input type="radio"/> (6)</p> <p>[Please briefly describe the configuration of any cooling water intake structure that does not fit the above categories and explain why it is unique.]</p>

3 Design and Operational Data

14. What types of technologies are being used at the plant’s intake structures, as reported under Q.9, that are intended to protect the plant’s cooling water systems and/or reduce environmental impacts posed by the intake structures themselves? [Please check (✓) all technology categories that apply.]

Technology Types Being Used at Plant’s Cooling Water Intake Structures	
Item No.	Control Technology Types [Please check (✓) all technology categories that apply.]
14(a)	<p>Fish Diversion or Avoidance Systems <input type="radio"/> (1)</p> <p>Definition: For the purposes of this questionnaire, fish diversion or avoidance systems are mechanisms designed to divert or induce fish to swim away from a water intake structure.</p> <p>Examples: Louver Barrier ❖ Velocity Cap ❖ Fish Net Barrier ❖ Air Bubble Barrier ❖ Electrical Barrier ❖ Light Barrier ❖ Sound Barrier ❖ Cable & Chain Barrier ❖ Water Jet Barrier</p>
14(b)	<p>Passive Intake Systems <input type="radio"/> (2)</p> <p>Definition: For the purposes of this questionnaire, passive intake systems are devices placed at or near the opening of an intake structure that, with little or no mechanical activity, stop debris and/or organisms from entering a plant’s water system. Most passive intake systems achieve very low withdrawal velocities at the screening medium.</p> <p>Examples: Wedge Wire Screen ❖ Perforated Pipe ❖ Perforated Plate❖ Porous Dike ❖ Artificial Filter Bed ❖ Leaky Dam</p>
14(c)	<p>Fish Handling and/or Return Systems <input type="radio"/> (3)</p> <p>Definition: For the purposes of this questionnaire, a fish handling system includes any system that collects and/or transports live organisms and debris away from an intake structure.</p> <p>Examples: Fish Conveyance Systems (troughs or pipes) ❖ Fish Basket ❖ Fish Elevator (lift basket) ❖ Fish Bypass System ❖ Fish Holding Tank</p>
14(d)	<p>Intake Screen Systems <input type="radio"/> (4)</p> <p>Definition: For the purposes of this questionnaire, intake screen systems are devices placed at or near the opening of an intake structure to mechanically stop debris and/or organisms from entering a plant’s water system.</p> <p>Examples: Revolving Drum ❖ Screen (Horizontal or Vertical) ❖ Rotating Disk ❖ Screen ❖ Fixed Screen ❖ Traveling Screen</p>
14(e)	<p>Other <input type="radio"/> (5)</p> <p>[Please denote any technology that does not fit one of the above technology categories and briefly describe why the technology(ies) is/are unique.]</p>
14(f)	<p>No Technologies <input type="radio"/> (6)</p>

15. (a) Has your plant or its firm owner ever conducted or commissioned a study of the ecological or environmental effects of any of the plant's intake structures that have withdrawn surface water for contact or noncontact cooling purposes (i.e., those intake structures reported under Q.9)?
- Yes (1)
- No (2)
- (b) Please provide the name of the most recent study completed. In addition, please provide the name and telephone number of the individual(s) we should contact if we require additional information regarding the study.

Name of Most Recent Study: _____ (1)

Contact Name: _____ (2)

Telephone Number: () _____ (3)



THANK YOU FOR COMPLETING EPA'S *INDUSTRY SHORT TECHNICAL QUESTIONNAIRE: PHASE II COOLING WATER INTAKE STRUCTURES*. WE APPRECIATE YOUR COOPERATION. PLEASE RETURN THE QUESTIONNAIRE WITH A SIGNED CERTIFICATION STATEMENT IN THE ENVELOPE PROVIDED.

3 Design and Operational Data

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Glossary

NOTE: The following terms are defined for purposes of this questionnaire only. The definitions at present do not have any legal meaning with respect to Section 316(b) of the Clean Water Act.

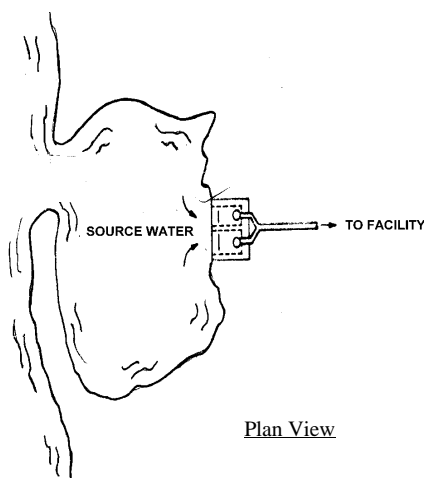
Air Conditioning: The process and equipment used to control the temperature and humidity of indoor air. Cooling water is used in some types of air conditioning systems.

Average Daily Intake Flow Rate: The total volume of cooling water withdrawn by a specific intake structure over a 24-hour day.

Bar Rack/Trash Rack: A device consisting of parallel spaced bars placed at or near the opening of an intake structure to mechanically stop debris and /or large organisms from entering a facility's water system.

Bay or Cove (*natural or constructed*): An inlet created when the shoreline of a water body is indented. Bays are generally larger than coves but are smaller than gulfs. Coves are generally sheltered. Bays and coves are considered part of the cooling water intake structure. [NOTE: The Chesapeake Bay and the San Francisco Bay are examples of estuaries even though the term *bay* appears in their name.] See Figure 1 for a graphical view of an intake structure incorporating a bay or cove.

Figure 1. Example of an Intake Structure Incorporating a Bay or Cove



Combined-Cycle Unit: An electric generating unit that consists of one or more gas turbines or internal combustion engines and one or more steam boilers. Part of the required input to the boiler(s) is provided by the exhaust gas (waste heat) of the combustion turbine(s).

Cooling Canal/Channel: An artificial, channelized waterway used to transfer heat added to water from operations within a facility to the atmosphere.

Cooling Lake: A body of water that is formed by the construction of a dam, berm, or levee in a natural watershed and which relies on the banks of the natural watershed to provide the majority of the

Glossary

containment of the impounded water. A cooling lake is a means for transferring to the atmosphere heat added to water by facility operations.

Cooling Operations: Activities that transfer heat from one medium or activity to cooling water (with the exception of nonprocess air conditioning).

Cooling Pond: A body of water that is formed by the construction of a dam, berm, or levee on land, has no significant watershed, and which requires the manmade containment surround most or all of the impounded water. A cooling pond is a means for transferring to the atmosphere heat added to water by facility operations.

Cooling Tower: A structure which functions as a heat exchanger and is designed to provide cooling by the forced evaporation of water into an air stream using either mechanical energy (forced draft) or ambient buoyancy (natural draft) to provide the movement of the air stream through the tower.

Cooling Water: Refers to both contact and non-contact cooling water, including water used for air conditioning, equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content. The intended use of the cooling water is to absorb waste heat rejected from the process or processes employed or from auxiliary operations on the facility's premises.

Cooling Water Intake Structure: The total structure used to withdraw water from a water source up to the point of the first intake pump or series of pumps. The intended use of the cooling water is to adsorb waste heat rejected from processes employed or from auxiliary operations on the facility's premises. Single cooling water intake structures may have multiple intake bays and could serve more than one generating unit. If a facility has intake structures that withdraw water for purposes besides cooling, the entire intake structure should be considered a cooling water intake structure under the questionnaire.

Cooling Water System: A system that provides water to/from a facility to transfer heat from equipment or processes therein. The system includes, but is not limited to, water intake and outlet structures, cooling towers, ponds, pumps, pipes, and canals/channels. For facilities that use surface water for cooling, a system begins at the first barrier(s) to ingress and/or egress by fish and other aquatic wildlife (e.g., at the weir wall, at the trash rack, etc.) and ends at the discharge outlet(s). *See also Cooling Water Intake Structure.*

Design Through-Screen Velocity: The value assigned during the design phase of a CWIS to the speed at which intake water passes through the intake screen (or other technology) against which organisms may be impinged or where they may be entrained.

Discharge: When used without qualification, means the discharge of a pollutant. Discharge of a pollutant means: (i) any discharge of any pollutant or combination of pollutants to waters of the United States from any point source, or (ii) any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. *See also 40 CFR 122.2.*

DUNS Number: A number assigned to a business using the Data Universal Numbering System (DUNS) developed by the Dun and Bradstreet Corporation.

Effluent: Outflow of wastewater from a facility to waters of the United States.

Estuary: A semi-enclosed coastal body of water that has a free connection with the open sea and is strongly affected by tidal action. In an estuary, sea water is mixed (and usually measurably diluted) with fresh water from land drainage. [NOTE: *The Chesapeake Bay and the San Francisco Bay are examples of estuaries even though the term bay appears in their name. For the purposes of this questionnaire, the term “tidal river” means the seaward most reach of a river/stream where the salinity is ≤ 0.5 ppt at a time of annual low flow its surface elevation responds to the effects of coastal lunar tides. Where the river salinity exceeds 0.5 ppt, the respective river reach will be viewed as estuarine.*]

Fish Diversion or Avoidance System: Mechanisms designed to divert or induce fish to swim away from cooling water intake structures.

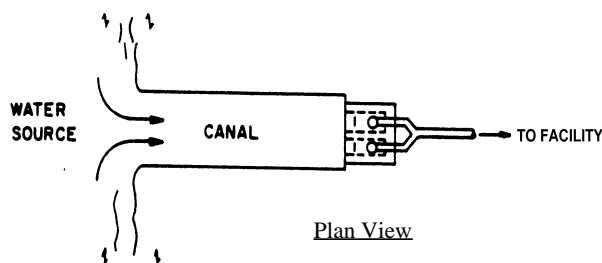
Fish Handling and/or Return System: Any system that collects, and/or transports live organisms from an intake structure back to the source water body at a point away from the influence of the intake.

Groundwater Injection Well: A man-made or improved “hole” in the ground that is deeper than its widest surface dimension and is used to discharge or dispose of fluids to groundwater (the supply of water found beneath the earth’s surface; it is usually held in aquifers and is often the source of water for streams, springs, or wells from which it may be withdrawn). There are many types of injection wells, but they are all similar in their basic function. The Federal Underground Injection Control Program has grouped injection wells into five categories—Class I through V wells.

Intake Bays: Temporary holding areas designed to direct water toward the pump well of a specific intake structure.

Intake Canal/Channel (*natural or constructed*): A channelized conduit that diverts water before its passage through screens or other filtering devices and before its entrance into an intake structure. *See Figure 2 for a graphical view of an intake structure employing an intake canal.*

Figure 2. Example of an Intake Structure Employing an Intake Canal



Intake Embayment/Bay/Cove: A natural or constructed inlet along the shoreline of a water body that serves to direct water through screens or other filtering devices up to the intake pump or series of pumps.

Intake Screen System: Devices placed at or near the opening of an intake structure to mechanically stop debris and/or organisms from entering a facility’s water system.

Intake Structure: *See Cooling Water Intake Structure.*

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Lake: A natural water body or an impounded stream, usually fresh, surrounded by land or by land and a man-made retainer (e.g., a dam). Lakes may be fed by rivers, streams, springs, and/or local precipitation.

Makeup Water: “New water” intended to replace water lost to evaporation, blowdown, and drift in a recirculating cooling water system. *See New Water.*

New Water: Water that the facility directly withdraws from a water source through an intake structure or water received from another entity. New water does not include water that is recirculated or recycled within the facility.

Non-tidal Rivers/Streams: Rivers or streams which do not receive significant inflows of water from oceans or bays due to tidal action.

North American Industrial Classification System: A new system initiated in January 1997 to classify industries. This new system replaces the existing Standard Industrial Code (SIC) system and identifies industries according to the type of production activities performed. NAICS industries are identified using a 6-digit code.

NPDES (National Pollutant Discharge Elimination System) Permit: A permit required to be held under Section 402 of the Clean Water Act (33 U.S.C. 1342 *et seq.*) by any point source discharging pollutants to waters of the United States. Permits may address effluent discharges, storm water, or sewage sludge management practices and may be issued by an EPA Region or a Federally-approved State NPDES program.

Ocean: Marine open coastal waters other than those water bodies classified as estuaries, embayments or fjords, each of which are semi-enclosed and have readily identifiable geographic boundaries.

Once-through Cooling Water System: A system designed to withdraw water from a natural or other water source, run it through a facility for contact and/or non-contact cooling purposes, and then discharge it to a water body without recirculation. Once-through cooling water systems may use canals/channels, ponds, or non-recirculating towers to dissipate waste heat from the water before it is discharged.

Operating Days: The total number of days (1 day = 24 hours) a cooling water intake structure operated during a specified time period, excluding any days the cooling water intake structure was offline for routine maintenance or otherwise was not operational. A partial day (i.e., operations of less than 24 hours) does not constitute an operating day and should not be counted as such.

Passive Intake System: Devices placed at or near the opening of an intake structure that, with little or no mechanical activity, stops debris and/or organisms from entering a facility’s water system. Most passive intake systems achieve very low withdrawal velocities at the screening medium.

Planned or Under Construction: Cooling water intake structures for which funds have been authorized and are expected to go into commercial service within the next 7 years. It does *not* include structures that are presently operational, temporarily offline, permanently offline, or operating under test conditions.

Point Source: Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. The term does not include return flows from irrigated agriculture or agricultural storm water run off. *See also 40 CFR 122.2.*

Pond: A still body of water that is generally smaller than a lake.

Presently Operating: Cooling water intake structures or cooling water systems currently taking in water for cooling purposes.

Privately-Owned Treatment Works: A treatment works that is not publicly owned and whose owner is not the operator of the works. The term includes any device and system used to handle and/or treat liquid wastes.

Process Operations: Industrial activities that directly result in the production of a facility's primary output.

Production Line: Each of the successive steps taken at a facility to produce a product, except the production line's use of electricity.

Publicly-Owned Treatment Works: A treatment works owned by the State or municipality. The term refers to any devices and systems used to store, treat, recycle, and reclaim municipal sewage or industrial wastes of a liquid nature. It also refers to sewers, pipes, and other conveyances only if they convey wastewater to a POTW treatment facility.

Recirculating Cooling Water System: A system designed to withdraw water from a natural or other water source to support contact and non-contact cooling uses within a facility. The water is generally sent to a cooling canal/channel, lake, pond, or tower in order for waste heat to be dissipated. (Some facilities may divert the "waste heat" to other process operations.) Once accomplished, the water is returned to the system. New source water (called make-up water) is added to the system to replenish losses due to blowdown, drift, and evaporation. For the purposes of the questionnaire, the term does not include non-recirculating cooling canals/channels, ponds, or towers.

Reservoir: A natural or constructed basin where water is collected and stored and from where it is piped for various uses.

Standard Industrial Classification (SIC) Code: A national classification system that organizes business entities into production-based and market-based categories identified by a 4-digit code. There are three levels of SIC codes: primary, secondary, and tertiary. Primary SIC codes are assigned based on the principal product or group of products produced or distributed by an establishment or for services rendered by the facility. Additional SIC codes are assigned for any secondary and tertiary products produced or for services rendered by an establishment.

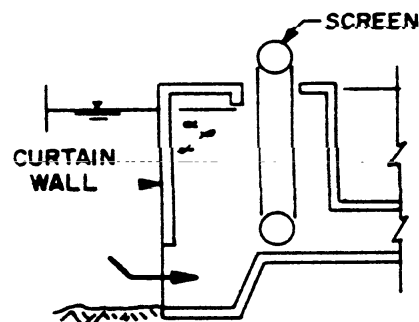
Glossary

Steam-Electric Generating Unit: A generating unit in which the prime mover is a steam turbine. The turbines convert thermal energy (steam or hot water) produced by generators or boilers to mechanical energy or shaft torque. This mechanical energy is used to power electric generators, which convert the mechanical energy to electricity, including combined cycle electric generating units.

Storm Water: The term refers to rainfall runoff, snow melt runoff, and surface runoff and drainage.

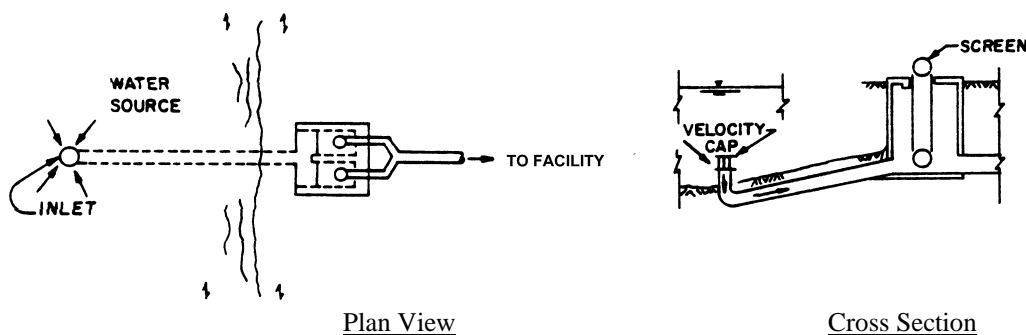
Submerged Intake Structure Flush with the Shoreline: An intake structure where the opening is evenly aligned with the shoreline and that always draws water from substantially below the surface of the water body. See Figure 3 for a graphical view of a submerged intake structure flush with the shoreline.

Figure 3. Cross Section Example of a Submerged Intake Structure Flush With Shoreline



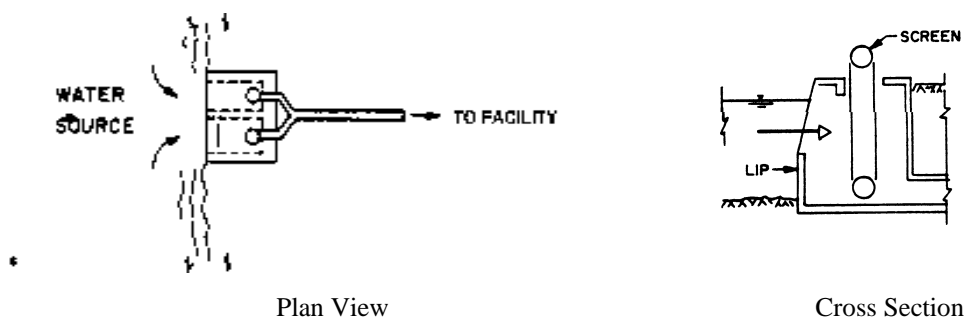
Submerged Offshore Intake Structure: An intake structure which extends from a facility outward into a water body. The intake opening is submerged and the water is always withdrawn from below the surface of the water body. See Figure 4 for a graphical view of a submerged offshore intake structure.

Figure 4. Example of a Submerged Offshore Intake Structure



Surface Intake Structure Flush with the Shoreline: An intake structure flush with the shoreline which withdraws water from or near the surface of the water body. See Figure 5 for a graphical view of a surface intake structure flush with the shoreline.

Figure 5. Example of a Surface Intake Structure Flush with Shoreline



Surface Water: Bodies of water including lakes, ponds, or reservoirs; non-tidal rivers or streams; tidal rivers; estuaries; fjords; oceans; and bays/coves.

Temporarily Offline: Cooling water systems that are presently out of commercial service but are expected to return. The category includes systems on inactive reserve and systems deactivated (i.e., systems not normally used but available for service).

Tidal Rivers: Rivers which receive regular, significant inflows of water from oceans or bays due to tidal action. [NOTE: For the purposes of this questionnaire, the term “tidal river” means the seaward most reach of a river/stream where the salinity is ≤ 0.5 ppt at a time of annual low flow its surface elevation responds to the effects of coastal lunar tides. Where the river salinity exceeds 0.5 ppt, the respective river reach will be viewed as estuarine.]

Trash Rack: See Bar Rack.

Typical Calendar Year: A year in which the facility and its cooling water intake structures are operated in a normal, routine, regular, or otherwise standard fashion.

Water Body: Any number of potential sources of intake water for cooling water intake structures. Includes municipal water sources, ground well water, oceans, lakes, reservoirs, rivers, and estuaries.

Waters of the United States (U.S.): All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide. Waters of the United States include, but are not limited to, all interstate waters and intrastate lakes, rivers, streams (including intermittent streams), mudflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds. The definition includes waters which are or could be used by interstate or foreign travelers for recreation or other purposes and those waters from which fish or shellfish are or could be taken and sold in interstate or foreign commerce or which are used or could be used for industrial purposes by industries in interstate commerce. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA are **not** waters of the U.S. See 40 CFR 122.2 for a more complete definition.

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