

WORKSHEET 11.0 COOLING WATER INTAKE INFORMATION

This worksheet **is required** for all TPDES permit applications.

Does this facility withdraw or propose to withdraw surface water for cooling purposes?

Yes No

If **yes**, complete this worksheet; otherwise, stop here.

1. COOLING WATER SYSTEM DATA (Instructions, Pages 1-2)

a. Complete the following table with information regarding the cooling water system.

Table 19 – Cooling Water System Data

Total DIF	
Total AIF	
Intake Flow Uses (%)	
Contact cooling	
Non-contact cooling	
Process uses	
Other	
Annual Operation (days/year)	

b. Provide the following information as an attachment.

Attachment:

- i. A narrative description of the design and operation of the facility's cooling water system.
- ii. A flow distribution and water balance diagram that includes all sources of water to the facility, recirculating flows, and discharges.
- iii. A USGS Topographic Quadrangle Map with the location of each CWIS and any intake pipe(s) clearly marked and assigned an identification number.
- iv. A description of water reuse activities, if applicable.
- v. Design drawings and engineering calculations prepared by a qualified professional and data to support the information provided in above item a.
- vi. Previous year (a minimum of 12 months) of AIF data.

2. COOLING WATER INTAKE STRUCTURE(S) DATA (Instructions, Pages 2-3)

- a. Complete the following table with information regarding each cooling water intake structure (this includes primary and make-up CWIS(s)).

Table 20 - Cooling Water Intake Structure(s) Data

CWIS ID				
Owner				
Operator				
PWS	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
PWS Registration No.				
Independent Supplier	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
TPDES Permit No.				
≥25% AIF	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Independent Supplier AIF				
CWIS DIF				
CWIS AIF				
Intake Flow Uses (%)				
Contact cooling				
Non-contact cooling				
Process uses				
Other				
Daily Operation (hrs/day)				
Annual Operation (days/year)				
Latitude				
Longitude				

- b. Provide the following information as an attachment

Attachment:

- i. A narrative description of existing or proposed impingement and entrainment technologies or operation measures and a summary of their performance, including, but not limited to, reductions in impingement mortality and entrainment due to intake location and reductions in total water withdrawals and usage.
- ii. A narrative description of the configuration and operation, including any seasonal changes, for each CWIS and where it is located in the water body and in the water column.
- iii. Design drawings and engineering calculations of each CWIS.

Note: If the facility is selecting CCRS as the method of compliance for impingement, design drawings are not required for a CWIS that pre-dates the CWA if the engineering schematics of the CWIS no longer exist. Include an explanation with the above described narrative description.

3. SOURCE WATER PHYSICAL DATA (Instructions, Page 3)

- a. Complete the following table with information regarding the CWIS(s) source waterbody (this includes primary and make-up CWIS(s)).

Table 21 – Source Waterbody Data

CWIS ID				
Source waterbody				
Mean annual flow				
Determination source				

- b. Provide the following information as an attachment.

Attachment:

- i. A narrative description of the source water for each CWIS, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports your determination of the water body type where each cooling water intake structure is located.
- ii. A narrative description of the source waterbody's hydrological and geomorphological features.
- iii. Scaled drawings showing the physical configuration of all source water bodies used by the facility, including the source waterbody's hydrological and geomorphological features. Note: The source waterbody's hydrological and geomorphological features may be included on the USGS topographic map submitted for item 1.b.iii.
- iv. A description of the methods used to conduct any physical studies to determine your intake's area of influence within the waterbody and the results of such studies.

4. OPERATIONAL STATUS (Instructions, Page 4)

- a. Is this application is for a power production or steam generation facility?

Yes No

If yes, provide the following information as an attachment; otherwise, proceed to item b.

Attachment:

- i. Describe the operating status of each individual unit, including age of each unit, capacity utilization rate (or equivalent), for the previous five years (a minimum of 60 months), and any seasonal changes in operation.
- ii. Describe any extended or unusual outages that significantly affect current data for flow, impingement, entrainment, or other factors.
- iii. Identify of any operating unit with a capacity utilization rate of less than 8 percent averaged over a block contiguous period of two years (a minimum of 24 months).
- iv. Describe any major upgrades completed within the last 15 years, including but not limited to boiler replacement, condenser replacement, turbine replacement, or changes to fuel type.

- b. Process Units

- i. Is this application is for a facility which has process units that use cooling water other than for power production or steam generation?

Yes No

If **yes**, continue; otherwise, proceed to item c.

ii. Does the facility use or intend to use reductions in flow or changes in operations to meet the requirements of 40 CFR 125.94(c)?

Yes No

If **yes**, provide descriptions of the following information as an attachment, otherwise proceed to item c.

Attachment:

1. Individual production processes and product lines
2. The operating status, including age of each line and seasonal operation
3. Any extended or unusual outages that significantly affect current data for flow, impingement, entrainment, or other factors
4. Any major upgrades completed within the last 15 years and plans or schedules for decommissioning or replacement of process units or production processes and product lines.

c. Is this application a for nuclear power production facility?

Yes No

If **yes**, include a description of completed, approved, or scheduled upgrades and Nuclear Regulatory Commission relicensing status of each unit at the facility as an attachment; otherwise, proceed to item d.

Attachment:

d. Is this application for a manufacturing facility?

Yes No

If **yes**, include descriptions of current and future production schedules and any plans or schedules for any new units planned within the next five years (a minimum of 60 months) as an attachment; otherwise proceed to Worksheet 11.1.

Attachment:

WORKSHEET 11.1

IMPINGEMENT MORTALITY

This worksheet **is required** for any TPDES permit application for a facility that withdraws or proposes to withdraw surface water for cooling purposes

Complete one copy of this worksheet for each individual CWIS the facility uses or proposes to use.

CWIS ID:

1. APPLICABILITY (Instructions, Page 5)

- a. Does the facility withdraw or propose to withdraw water for cooling purposes from Waters of the United States that meets the definition in 40 CFR § 122.2?

Yes No

If **no**, provide the following information as an attachment. If **yes**, proceed to **item c**.

Attachment:

- i. A brief description of the source water the facility withdraws or proposes to withdraw water for cooling purposes.
- ii. Supporting documentation for the above description.

- b. Is the waterbody from which the facility withdraws or proposes to withdraw water for cooling purposes a man-made impounded water body originally constructed for cooling purposes?

Yes No

If **no**, continue. If **yes**, include a copy of the CWA Section 404 permit or other supporting project documentation as an attachment and continue.

Attachment:

- c. Does the CWIS have a design intake flow of ≥ 2 MGD?

Yes No

- d. Does the facility use $\geq 25\%$ of the total water withdrawn by the CWIS for cooling purposes (average monthly basis)?

Yes No

- e. Does the CWIS withdraw water from a WOTUS with a federally listed threatened or endangered species or critical habitat designation?

Yes No

If you answered **no** to questions **2.b.**, **2.c.**, or **2.d.**, stop here and proceed to Worksheet 11.3. If you answered **yes** to questions **2.b.**, **2.c.**, and **2.d.**, complete the rest of this worksheet.

2. IMPINGEMENT COMPLIANCE TECHNOLOGY OPTION SELECTION (Instructions, Page 5)

Indicate with a checkmark the method of compliance with the Impingement Mortality Standard selected by the facility and provide the requested information for the method selected.

- Closed-cycle recirculating system (CCRS) [40 CFR § 124.94(c)(1)]
- 0.5 ft/s Through-Screen Design Velocity [40 CFR § 124.94(c)(2)] – Proceed to Worksheet 11.3
- 0.5 ft/s Through Screen Actual Velocity [40 CFR § 124.94(c)(3)]
- Existing offshore velocity cap [40 CFR § 124.94(c)(4)] – Proceed to Worksheet 11.3
- Modified traveling screens [40 CFR § 124.94(c)(5)]
- System of technologies [40 CFR § 124.94(c)(6)]
- Impingement mortality performance standard [40 CFR § 124.94(c)(7)]
- Reuse of other water for cooling purposes [40 CFR § 124.94(c)(10)]
- De minimis rate of impingement [40 CFR § 124.94(c)(11)]
- Low capacity utilization power-generation facilities [40 CFR § 124.94(c)(12)]

If you selected 0.5 ft/s Through-Screen Design Velocity [40 CFR § 124.94(c)(2)] or existing offshore velocity cap [40 CFR § 124.94(c)(4)], proceed to Worksheet 11.3.

3. IMPINGEMENT COMPLIANCE TECHNOLOGY INFORMATION (Instructions, Pages 5-7)

Complete the following sections based on the selection made for item 1 above.

a. CCRS [40 CFR § 124.94(c)(1)]

- Indicate with a checkmark if the CWS meets the definition of CCRS located at 40 CFR 125.91(c) and provide a response to the following questions.

i. Does the facility use or propose to use a CWIS to replenish water losses to the CWS?

- Yes No

If **no**, proceed to **item ii**. If **yes**, provide the following information as an attachment and continue

Attachment:

1. CWIS ID
2. 12 months of intake flow data for any CWIS used for make-up intake flows to replenish cooling water losses, excluding intakes for losses due to blowdown, drift, or evaporation.
3. A narrative description of any physical or operational measures taken to minimize make-up withdraws.

Note: You do not need to complete a separate Worksheet 11.1 for each CWIS listed in this section.

ii. Does the facility use or propose to use cooling towers?

- Yes No

If **no**, proceed to Worksheet 11.2. If **yes**, provide the following information and proceed to Worksheet 11.3.

1. Average number of COCs prior to blowdown:

Table 22 - Average COCs prior to blowdown

Cooling Tower ID				
COCs				

Provide COC monitoring data for each cooling tower from the previous year (a minimum of 12 months) as an attachment.

Attachment:

2. Calculated number of COCs that each cooling tower can accomplish prior to exceeding permitted effluent limitations

Table 23 - Calculated COCs prior to blowdown

Cooling Tower ID				
COCs				

- b. 0.5 ft/s Through Screen Actual Velocity [40 CFR § 124.94(c)(3)]

Provide daily intake flow measurement monitoring data from the previous year (a minimum of 12 months) as an attachment and continue to Worksheet 11.3.

Attachment:

- c. Modified traveling screens [40 CFR § 124.94(c)(5)]

Provide the following information as an attachment and continue to Worksheet 11.2.

Attachment:

- i. A site-specific impingement technology performance optimization study
- ii. Biological sampling data from the previous two years (a minimum of 24 months).
- iii. A narrative description of the biological data collection methods.

- d. System of technologies [40 CFR § 124.94(c)(6)] or impingement mortality performance standard [40 CFR § 124.94(c)(7)]

Provide the following information as an attachment and continue to Worksheet 11.2.

Attachment:

- i. A description of the system of technologies used or proposed for use by the facility to achieve compliance with the impingement mortality standard.
- ii. A site-specific impingement technology performance optimization study
- iii. Biological sampling data from the previous two years (a minimum of 24 months).
- iv. A description of the biological data collection methods.

- e. Reuse of other water for cooling purposes [40 CFR § 124.94(c)(10)]

- i. Include any supplemental information to Worksheet 11.0, item 1.b.iv. as an attachment and continue to Worksheet 11.3.

Attachment:

f. De minimis rate of impingement [40 CFR § 124.94(c)(11)]

1. Include monitoring data from the previous year (a minimum of 12 months) of intake flow measured at a frequency of 1/day on days of operation as an attachment.

Attachment:

2. If the rate of impingement caused by the CWIS is extremely low (as an organism or age-one equivalent count), include supplemental information to Worksheet 11.0, item 1.b.vi. to support as an attachment.

Attachment:

3. Proceed to Worksheet 11.3

g. Low capacity utilization power-generation facilities [40 CFR § 124.94(c)(12)]

Provide monthly utilization data from the previous 2 years (a minimum of 24 months) for each operating unit as an attachment and continue to Worksheet 11.3.

Attachment:

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WORKSHEET 11.2 SOURCE WATER DATA

This worksheet **is required** for all TPDES permit applications for a facility that withdraws or proposes to withdraw surface water for cooling purposes.

Complete one copy of this worksheet for each source waterbody of a CWIS for which a facility has selected an Impingement Mortality Technology Option described at 40 CFR § 125.94(c)(1) and (5)-(7).

Name of source waterbody:

1. SPECIES MANAGEMENT (Instructions, Page 8)

- a. The facility has obtained an incidental take exemption or authorization for its cooling water intake structure(s) from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service.

Yes No

If **yes**, any information submitted in order to obtain that exemption or authorization may be used to satisfy the permit application information requirement of paragraph 40 CFR § 125.95(f). If included, provide the attachment number.

Attachment:

- b. Is the facility requesting a waiver from application requirements at 40 CFR § 122.21(r)(4) in accordance with 40 CFR § 125.95 for any CWIS(s) that withdraw from a man-made reservoir that is stocked and managed by a state or federal natural resources agency or the equivalent?

Yes No

If yes, include a copy of the most recent report to TPWD, or equivalent, as an attachment.

Attachment:

- c. The facility has no knowledge of federally listed threatened or endangered species or critical habitat designations within the source water body.

True False

2. SOURCE WATER BIOLOGICAL DATA (Instructions, Pages 8-9)

The following is required for new and existing facilities.

- If the answer to **1.b.** above was **no**, provide responses to all the following items and proceed to Worksheet 11.3.
- If the answer to **1.b.** was **yes** and **1.c.** was **true**, proceed to Worksheet 11.3.
- If the answer to **1.b.** was **yes** and **1.c.** was **false**, provide a response for any item below that is not contained within the most recent TPWD, or equivalent, report as an attachment to the application and enter the attachment number in the space provided and proceed to Worksheet 11.3.

Attachment:

- a. A list of the data requested at 40 CFR 122.21(r)(4)(ii) through (vi) that are not available and efforts made to identify sources of the data.
- b. Provide a list of species (or relevant taxa) in the vicinity of the CWIS and identify the following information regarding each species listed.
 - i. all life stages and their relative abundance,
 - ii. identification of all species and life stages that would be most susceptible to impingement and entrainment,
 - iii. forage base,
 - iv. significance to commercial fisheries,
 - v. significance to recreational fisheries,
 - vi. primary period of reproduction,
 - vii. larval recruitment, and
 - viii. period of peak abundance for relevant taxa.
- c. Data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the cooling water intake structure.
- d. Identify all threatened, endangered, and other protected species that might be susceptible to impingement and entrainment at your cooling water intake structures.
- e. Documentation of any public participation or consultation with federal or state agencies undertaken and provide an attachment number.

The following is required for existing facilities only. Include the following information with the above listed attachment.

- f. Identify any protective measures and stabilization activities that have been implemented, and provide a description of how these measures and activities affected the baseline water condition in the vicinity of the intake.
- g. A list of fragile species, as defined at 40 CFR 125.92(m), at the facility. The applicant need only identify those species not already identified as fragile at 40 CFR 125.92(m).

Note: New units at an existing facility are not required to resubmit this information if the cooling water withdrawals for the operation of the new unit are from an existing intake.

WORKSHEET 11.3

COMPLIANCE WITH ENTRAINMENT MORTALITY STANDARD

This worksheet **is required** for all TPDES permit applications for a facility that withdraws or proposes to withdraw surface water for cooling purposes. Complete one this worksheet for each individual CWIS the facility uses or proposes to use.

CWIS ID:

1. APPLICABILITY (Instructions, Page 10)

Is the AIF at any of the CWIS identified in Worksheet 11.0, item a.1. greater than, or equal to, 125 MGD?

Yes No

- If **no** or the facility has selected **CCRS** [40 CFR § 124.94(c)(1)] for the impingement mortality compliance method, complete item 2 and stop here.
- If **yes** and the facility is **seeking a waiver** from application requirements in accordance with 40 CFR § 125.95 for any CWIS(s) that withdraw from a man-made reservoir that is stocked and managed by a state or federal natural resources agency or the equivalent, complete item 2 and stop.
- If **yes** and the facility is **not seeking a waiver** from application requirements in accordance with 40 CFR § 125.95, complete item 2 and provide any required and completed studies listed in item 3. For any required studies in item 3 that are not complete, provide a detailed explanation for the delay and an anticipated schedule for completion and submittal.

2. EXISTING ENTRAINMENT PERFORMANCE STUDIES (Instructions, Page 10)

Include any previously conducted studies or studies obtained from other facilities addressing technology efficacy, through-facility entrainment survival, and other entrainment studies with the application. This information must include a description of each study, together with underlying data, and a summary of any conclusions or results. Provide the attachment number in the space below. Completion of this section satisfies the application requirements in 40 CFR § 122.21(r)(7).

Attachment:

3. FACILITY ENTRAINMENT PERFORMANCE STUDIES (Instructions, Pages 10-11)

- a. Provide an entrainment characterization study, as described at 40 CFR § 122.21(r)(9), as an attachment.
Attachment:
- b. Provide a comprehensive feasibility study, as described as 40 CFR § 122.21(r)(10), as an attachment.
Attachment:
- c. Provide a benefits valuation study, as described as 40 CFR § 122.21(r)(11), as an attachment.
Attachment:
- d. Provide a non-water quality environmental and other impacts study, as described as 40 CFR § 122.21(r)(12), as an attachment.
Attachment:
- e. Provide a peer review analysis, as described as 40 CFR § 122.21(r)(13), as an attachment.
Attachment: