

OMB Control Number: 2040-XXXX
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Plant ID: Insert Plant ID
Plant Name: Insert Plant Name



Steam Electric Questionnaire

PART F - MANAGEMENT PRACTICES FOR PONDS/IMPOUNDMENTS AND LANDFILLS

Table of Contents

Section Title	Tab Name
Part F Instructions	Part F Instructions
Pond/Impoundment and Landfill Use	Part F Section 1
Pond/Impoundment Management Practices	Part F Section 2
Landfill Management Practices	Part F Section 3.1
Landfill Costs	Part F Section 3.2
Leachate Treatment System Design	Part F Section 4.1
Leachate Treatment System Flows	Part F Section 4.2
Leachate Treatment System Units	Part F Section 4.3
Leachate Treatment Unit Information	Part F Section 4.4
Leachate Treatment System Costs	Part F Section 4.5
Leachate Treatment System Equipment	Part F Section 4.6
Groundwater Monitoring Practices	Part F Section 5
Part F Comments	Part F Comments
Steam Electric Questionnaire Code Tables	Code Tables

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name

PART F. MANAGEMENT PRACTICES FOR PONDS/IMPOUNDMENTS AND LANDFILLS

INSTRUCTIONS

Complete Part F of the questionnaire for your plant. As you are completing the electronic form, note the following: When you enter your plant name and plant ID on the Part F TOC tab, all name and ID fields throughout Part F will automatically populate. Refer to the overall questionnaire instructions, the glossary, and the acronym list for assistance with completing Part F.

Please provide all free response answers in the highlighted yellow areas. Throughout Part F, you may need to make copies of certain sections/questions. Instructions are provided throughout Part F regarding making copies. Note that pond/impoundment unit, landfill, leachate treatment system, and leachate treatment unit names or IDs must be populated on the copied tab or section, located in the upper right corner under "Plant ID" and "Plant Name", in order to correlate the requested information.

Throughout Part F Section 4, information is requested on leachate treatment units and systems that are planned, under construction/installation, or planned to begin construction/installation by December 31, 2020. Provide design information, or best engineering estimates as necessary, for these planned systems/units. Additionally, enter "NA" in the field or checkbox if the information requested is not applicable for planned systems/units (e.g., a question that requests flow rate data for year 2009).

Use the Part F Comments tab to do the following: provide additional information as requested in certain questions within Part F; indicate atypical data (e.g., if 2009 information is not representative of normal operations); and note methods used to make best engineering estimates in the event that exact data are not available.

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name

Part: F**Section Title: 1. Pond/Impoundment and Landfill Use**

Instructions: Part F requests information for all active/inactive/open and retired/closed *pond/impoundment* units and *landfills*, including those located on non-adjointing property, used for the storage, treatment, and/or disposal of *process wastewater, residues*, or by-products (or *sludges* or water streams containing the residues or by-products) from the combustion of coal or petroleum coke, including, but not limited to, *fly ash, bottom ash*, boiler slag, or flue gas emission control residues. This includes liquid-borne material and solid material.

CBI? Yes

F1-1. Does the plant have one or more active/inactive/open or retired/closed *pond/impoundment* units or *landfills*, including those located on non-adjointing property, used for the storage, treatment, and/or disposal of process wastewater, residues, or by-products (or sludges or water streams containing the residues or by-products) from the combustion of coal or petroleum coke, including, but not limited to, fly ash, bottom ash, boiler slag, or flue gas emission control residues (this includes liquid-borne material and solid material)? [Check the box below.]

Note: Answer "yes" to this question even if all the pond/impoundments and landfills are closed.

Yes (Continue)

No (Skip to the next Questionnaire Part)

Plant ID: Insert Plant ID

Plant Name: Insert Plant Name

Pond/Impoundment Unit ID: Insert Pond ID

Part: F
Section Title: 2. Pond/Impoundment Management Practices

Instructions: Complete Section 2 for each active/inactive/open and retired/closed *pond/impoundment* unit, including those located on non-adjoining property, used for the storage, treatment, and/or disposal of *process wastewater*, *residues*, or by-products (or *sludges* or water streams containing the residues or by-products) from the combustion of coal or petroleum coke, including, but not limited to, *fly ash*, *bottom ash*, boiler slag, or flue gas emission control residues. This includes liquid-borne material and solid material. Enter the pond/impoundment unit ID in the space provided above (use pond/impoundment unit IDs assigned in Table A-4). Please provide all free response answers in the highlighted yellow areas.

Make a copy of Section 2 for each active/inactive/open and retired/closed pond/impoundment unit, including those located on non-adjoining property, using the "Copy Section 2" button below.

Copy Section 2

Pond/Impoundment Unit Design

CBI?

Yes

F2-1. If known, indicate the hydrologic design criteria of the pond/impoundment unit.

- 100-year, 24-hour storm event
- ½ Probable maximum flood
- Other (specify):
- None

CBI?

Yes

F2-2. Has the pond/impoundment unit ever experienced an overflow or other type of release, excluding routine permitted *discharges*, since January 1, 1995?

Yes

State when the overflow occurred and describe the reason for the overflow (e.g., experienced two 100-year, 24-hour storm events within one month):

[Redacted]

No

(Skip to Question F2-4)

CBI?

Yes

F2-3. Has a non-permitted pond/impoundment overflow or other type of release been discharged to a receiving water, since January 1, 1995? If so, identify the name of the receiving water.

Yes (specify name of receiving water):

[Redacted]

No

Leachate Collection and Leak Detection Systems

CBI?

Yes

F2-4. Does the pond/impoundment unit have a system to collect *leachate* (including leaks, seepage, toe drains, or similar releases)?

Yes

Leachate collection system

Leak detection system

Other collection system (specify):

[Redacted]

No

(Skip to Question F2-9)

CBI?

Yes

F2-5. Provide the volume of leachate (including leaks, seepage, toe drains, or similar releases) collected in 2009 (gpd AND gpy) and the frequency of process wastewater generation (days). Also provide a description of the estimation method below.

gpd
AND
 gpy Over days

Description of estimation method:

CBI?

Yes

F2-6. Does the plant collect stormwater, rainfall, or process wastewaters in the collection system for this pond/impoundment unit? If yes, identify the stormwater, rainfall, or process wastewaters and their flow rates. If the process wastewater is not one of the response options provided, select "Other" in the drop-down box and specify the type of process wastewater in the yellow highlighted space below.

Yes

- Uncontaminated stormwater gpy
- Rainfall gpy
- Process Wastewaters 2 gpy

If other, explain:

No

CBI?

Yes

F2-7. Indicate all intermediate and final destination(s) of the leachate. If the plant *recycles* the leachate, indicate the plant process to which this waste is recycled. [Check all boxes that apply.]

Transferred back into pond/impoundment unit

Combined with pond/impoundment unit effluent

Transferred to other pond/impoundment units. Provide ID of the pond/impoundment unit previously defined in Table A-4:

[Redacted]

Transferred to on-site treatment system, including those located on non-adjointing property.

Is this wastewater treatment system previously defined in Table D-2?

Yes (specify the wastewater treatment system ID from Table D-2):

[Redacted]

No (section 4 of Part F must be filled out for this treatment system)

Transferred back to storage tank

Indirect discharge to a publicly or privately owned treatment works

Immediately recycled back to plant process. Please describe how the leachate is reused:

[Redacted]

Discharged to surface water. Provide NPDES permitted outfall number (from Part A Section 2.2):

[Redacted]

Other, explain:

[Redacted]

CBI?

Yes

F2-8. If the leachate is sent to a pond or storage tank, are chemicals used to treat the leachate (e.g., lime for pH control)? If yes, indicate which chemicals are used. [Check all boxes that apply].

Yes

Lime

Sodium Hydroxide

Sulfuric Acid

Other (specify):

[Redacted]

No

NA

Monitoring and Inspections

CBI?

Yes

F2-9. Does the plant and/or its engineering contractors regularly monitor/inspect the structural integrity of the pond/impoundment unit?

Yes (Continue)

No (Skip to Section 3)

CBI?

Yes

F2-10. Indicate which of the following monitoring measures or inspections are performed on the pond/impoundment unit by the plant and/or its engineering contractors, the frequency of monitoring, and the average number of hours spent each year performing monitoring activities:

<input type="checkbox"/> Seepage	<input type="text"/>	Inspections/year	<input type="text"/>	hrs/year
<input type="checkbox"/> Piezometric levels	<input type="text"/>	Inspections/year	<input type="text"/>	hrs/year
<input type="checkbox"/> Pool levels (indication of rapid drawdown)	<input type="text"/>	Inspections/year	<input type="text"/>	hrs/year
<input type="checkbox"/> Deformation/movement of dike/embankment	<input type="text"/>	Inspections/year	<input type="text"/>	hrs/year
<input type="checkbox"/> Compaction testing	<input type="text"/>	Inspections/year	<input type="text"/>	hrs/year
<input type="checkbox"/> Spillway/weir/outflow structural integrity	<input type="text"/>	Inspections/year	<input type="text"/>	hrs/year
<input type="checkbox"/> Other (specify):	<input type="text"/>	Inspections/year	<input type="text"/>	hrs/year
<input type="checkbox"/> Other (specify):	<input type="text"/>	Inspections/year	<input type="text"/>	hrs/year

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name
Landfill ID: Insert Landfill ID

Part: F**Section Title: 3.1 Landfill Management Practices**

Instructions: Complete Section 3.1 for each active/inactive/open and retired/closed *landfill*, including those located on non-adjointing property, used for the storage, treatment, and/or disposal of *process wastewater, residues, or by-products (or sludges or water streams containing the residues or by-products)* from the combustion of coal or petroleum coke, including, but not limited to, *fly ash, bottom ash, boiler slag, or flue gas emission control residues*. This includes liquid-borne material and solid material. Enter the landfill ID in the space provided above (use landfill IDs assigned in Table A-6). Please provide all free response answers in the highlighted yellow areas.

Note: This includes landfills located on non-adjointing property that are under the operational control of the plant. This also includes landfills, within 20 miles, owned/operated by the plant's ultimate parent firm, for the purpose of storing/disposing of process wastewaters, residues or by-products, from the plant.

Make a copy of Sections 3.1 for each active/inactive/open and retired/closed landfill, including those located on non-adjointing property, using the "Copy Section 3.1" button below.

Copy Section 3.1

CBI?

Yes

F3-1. List the date the landfill was built, and the landfill's surface area and approved/licensed volume capacity and height when it was originally built.

Date built
 Surface area, acres
 Volume capacity, cubic feet
 Approved/licensed height, feet

CBI?

Yes

F3-2. List the landfill's current surface area, and volume, and height above the original elevation of the stored materials.

Surface area, acres
 Volume of stored materials, cubic feet
 Height above original elevation, feet

CBI?

Yes

F3-3. Is the landfill closed? If yes, provide the date it was closed. If not, list the year of the landfill's expected end of life (i.e., closure), and the expected surface area, and volume and height of stored materials at its expected end of life.

Yes. Date closed:

No. Year of expected end of life (closure):

Surface area, acres
 Volume of stored materials, cubic feet
 Height above original elevation, feet

CBI?

Yes

F3-4. Has the landfill been expanded since the date it was built?

Yes (Continue)

No (Skip to Question F3-8)

CBI?

Yes

F3-5. Identify the type of expansion.

Lateral expansion

Vertical expansion

Both lateral and vertical expansion

CBI?

Yes

F3-6. Describe the expansion(s) to the landfill, since January 1, 2000, including starting and ending dimensions (surface area, volume of stored materials, height). Additionally, provide the date(s) of expansion (month/yr).

[Redacted area]

CBI?

Yes

F3-7. Provide the total cost associated for any expansion(s), since January 1, 2000. Include the costs associated with the *leachate collection system*, if included as part of the landfill, in the costs provided.

Note: Total costs should include purchased equipment, installation, buildings, site preparation, land, engineering costs, construction expenses, and any other costs available.

\$ [Redacted] Total cost of expansion

CBI?

Yes

F3-8. Does the landfill have a *liner*?

Yes (Complete Table F-1)

No (Skip to Question F3-9)

Table F-1. Landfill Liner

Type of Liner (Mark all that apply)	Liner Layer Number (number from inner to outer layer)	Thickness of Liner Layer (cm)	Permeability of Liner Layer (cm/sec)
<input type="checkbox"/> Compacted clay			
<input type="checkbox"/> Geosynthetic clay			
<input type="checkbox"/> High density polyethylene (HDPE)			
<input type="checkbox"/> Other (specify)			
<input type="checkbox"/> Other (specify)			
<input type="checkbox"/> Other (specify)			

CBI?

F3-9. Does the landfill have a cap/cover?

Yes

Yes (Complete Table F-2)

No (Skip to Question F2-10)

Table F-2. Landfill Cap/Cover

Type of Cap/Cover (Mark all that apply)	Cap/Cover Layer Number (number from inner to outer layer)	Thickness of Cap/Cover Layer (cm)	Permeability of Cap/Cover Layer (cm/sec)
<input type="checkbox"/> Compacted clay			
<input type="checkbox"/> Geosynthetic clay			
<input type="checkbox"/> High density polyethylene (HDPE)			
<input type="checkbox"/> Vegetative cover			
<input type="checkbox"/> Other (specify)			
<input type="checkbox"/> Other (specify)			
<input type="checkbox"/> Other (specify)			

CBI?

F3-10. Has the plant built any structures on top of the closed landfill?

Yes

Yes (Continue)

No (Skip to Question F3-11)

NA. The landfill is not closed. (Skip to Question F3-11)

Provide a description of the structure(s) and any challenges that the plant faced building on top of the landfill.

Leachate Collection System

CBI?

Yes

F3-11. Does the landfill have a system to collect *leachate* (including leaks, seepage, toe drains, or similar releases)?

Yes

Leachate collection system

Leak detection system

Other collection system (specify):

[Redacted]

No

(Skip to Question F3-16)

CBI?

Yes

F3-12. Provide the volume of *leachate* collected in 2009 (gpd AND gpy) and the frequency of process wastewater generation (days). Also provide a description of the estimation method below.

[Redacted] gpd
AND
[Redacted] gpy

Over [Redacted] days

Description of estimation method:

[Redacted]

CBI?

Yes

F3-13. Does the plant collect stormwater, rainfall, or process wastewaters in the collection system for this landfill? If yes, identify the stormwater, rainfall, or process wastewaters and their flow rates. If the process wastewater is not one of the response options provided, select "Other" in the drop-down box and specify the type of process wastewater in the yellow highlighted space below.

Yes

Uncontaminated stormwater

[Redacted] gpd

Rainfall

[Redacted] gpd

Process Wastewaters 2

[Redacted] gpd

If other, explain: [Redacted]

No

CBI?

Yes

F3-14. Indicate all intermediate and final destination(s) of the leachate. If the plant *recycles* the leachate, indicate the plant process to which this waste is recycled. [Check all boxes that apply.]

Transferred to pond(s)/impoundment(s). Provide the IDs of the pond/impoundment unit(s) previously defined in Table A-4:

[Redacted]

Transferred to on-site treatment system, including those located on non-adjointing property. Is this wastewater treatment system previously defined in Table D-2?

Yes (specify the wastewater treatment system ID from Table D-2):

[Redacted]

No (Section 4 of Part F must be filled out for this treatment system)

Transferred back to storage tank

Indirect discharge to a publicly or privately owned treatment works

Immediately recycled back to plant process. Please describe how the leachate is reused:

[Redacted]

Discharged to surface water. Provide NPDES permitted outfall number (from Part A Section 2.2):

[Redacted]

Other, explain:

[Redacted]

CBI?

Yes

F3-15. If the leachate is sent to a pond or storage tank, are chemicals used to treat the leachate (e.g., lime for pH control)? If yes, indicate which chemicals are used. [Check all boxes that apply].

Yes

Lime

Sodium Hydroxide

Sulfuric Acid

Other, explain:

[Redacted]

No

NA

Stormwater Runoff

CBI?

Yes

F3-16. Does the plant combine the conveyed *stormwater runoff* that has contacted the uncapped portion of the landfill with leachate?

Yes

No

CBI?

Yes

F3-17. Indicate all intermediate and final destination(s) of the conveyed stormwater runoff that has contacted the uncapped portion of the landfill. If the plant *recycles* the stormwater runoff, indicate the plant process to which this waste is recycled. [Check all boxes that apply.]

Transferred to pond/impoundment unit(s). Provide the ID(s) of the pond/impoundment unit(s) previously defined in Table A-4:

[Redacted]

Transferred to on-site treatment system, including those located on non-adjointing property. Indicate the type of treatment system below. Provide the ID of the wastewater treatment system previously defined in Table D-2, otherwise enter NA:

[Redacted]

Chemical precipitation

Constructed wetlands

Biological reactor - aerobic

Other (specify):

[Redacted]

Biological reactor - anoxic\anaerobic

Transferred to storage tank

Indirect discharge to a publicly or privately owned treatment works

Immediately recycled back to plant process. Please describe how the leachate is reused:

[Redacted]

Discharged to surface water. Provide NPDES permitted outfall number (from Part A Section 2.2):

[Redacted]

Other, explain:

[Redacted]

CBI?

Yes

F3-18. Does the plant combine the conveyed *stormwater runoff* that has contacted the capped portion of the landfill with leachate?

Yes

No

CBI?

Yes

F3-19. Indicate all intermediate and final destination(s) of the conveyed stormwater runoff that has contacted the capped portion of the landfill. If the plant *recycles* the stormwater runoff, indicate the plant process to which this waste is recycled. [Check all boxes that apply.]

Transferred to pond/impoundment unit(s). Provide the ID(s) of the pond/impoundment unit(s) previously defined in Table A-4:

[Redacted]

Transferred to on-site treatment system, including those located on non-adjointing property. Indicate the type of treatment system below. Provide the ID of the wastewater treatment system previously defined in Table D-2, otherwise enter NA:

[Redacted]

Chemical precipitation

Constructed wetlands

Biological reactor - aerobic

Other (specify):

[Redacted]

Biological reactor - anoxic\anaerobic

Transferred to storage tank

Indirect discharge to a publicly or privately owned treatment works

Immediately recycled back to plant process. Please describe how the leachate is reused:

[Redacted]

Discharged to surface water. Provide NPDES permitted outfall number (from Part A Section 2.2):

[Redacted]

Other, explain:

[Redacted]

Plant ID: Insert Plant ID
 Plant Name: Insert Plant Name
 Landfill ID: Insert System ID

Part: F
Section Title: 3.2. Landfill Costs

Instructions: Complete Section 3.2 for each active/inactive/open and retired/closed landfills that began operating at the plant on or after January 1, 2000. This includes landfills located on non-adjointing property, used for the storage, treatment, and/or disposal of process wastewater, residues, or by-products (or sludges or water streams containing the residues or by-products) from the combustion of coal or petroleum coke, including, but not limited to, fly ash, bottom ash, boiler slag, or flue gas emission control residues. This includes liquid-borne material and solid material. Enter the landfill ID in the space provided above (use landfill IDs assigned in Table A-6). Please provide all free response answers in the highlighted yellow areas.

Note: This includes landfills located on non-adjointing property that are under the operational control of the plant. This also includes landfills, within 20 miles, owned/operated by the plant's ultimate parent firm, for the purpose of storing/disposing of process wastewaters, residues or by-products, from the plant.

Make a copy of Sections 3.2 for each active/inactive/open and retired/closed landfill, including those located on non-adjointing property, using the "Copy Section 3.2" button below.

CBI?
 Yes

F3-20. Provide annual O&M cost data in Table F-3 for each landfill identified in Table A-6 that was operated in 2009. Provide best engineering estimates when actual data are not readily available. If you provide an estimate, note the methods that were used to make the estimates in the Comments page.

Note: Do NOT include O&M costs for leachate treatment systems, as the information will be collected in Section 4.5.

Table F-3. O&M Cost for Landfills for 2009

O&M Cost Category	2009 Annual Cost	Rate	Staffing/ Consumption
Operating labor	\$ <input type="text"/>	\$ <input type="text"/> per hour (average rate of labor)	<input type="text"/> No. of workers <input type="text"/> hpd <input type="text"/> dpy
Maintenance labor	\$ <input type="text"/>	\$ <input type="text"/> per hour (average rate of labor)	<input type="text"/> No. of workers <input type="text"/> hpd <input type="text"/> dpy
Maintenance materials	\$ <input type="text"/>		
Chemicals	\$ <input type="text"/>		
Plants/organic matter	\$ <input type="text"/>		
Energy - Power for pumping	\$ <input type="text"/>	\$ <input type="text"/> per kWh	<input type="text"/> kWh/hr
Energy - Power for operations other than pumping	\$ <input type="text"/>	\$ <input type="text"/> per kWh	<input type="text"/> kWh/hr

Steam	\$ [redacted]	\$ [redacted] per pound	[redacted] pounds/hr
Hazardous Sludge Disposal - Dredging	\$ [redacted]	\$ [redacted] per <input type="radio"/> Gal <input type="radio"/> Ton	
Hazardous Sludge Disposal - Landfilling	\$ [redacted]	\$ [redacted] per <input type="radio"/> Gal <input type="radio"/> Ton	
Nonhazardous Sludge Disposal - Dredging	\$ [redacted]	\$ [redacted] per <input type="radio"/> Gal <input type="radio"/> Ton	
Nonhazardous Sludge Disposal - Landfilling	\$ [redacted]	\$ [redacted] per <input type="radio"/> Gal <input type="radio"/> Ton	
Other:	\$ [redacted]		
Other:	\$ [redacted]		
Total O&M Cost (2009)	\$ [redacted]		

CBI?

Yes

F3-21. Provide capital cost data in Table F-4 for all landfills identified in Table A-6, including planned leachate treatment systems. Provide best engineering estimates when actual data are not readily available. For all costs, do not adjust for inflation. For example, if the plant incurred a land cost in 2002, enter the cost in the "Cost" column and enter "2002" in the "Year on which Cost is Based" column.

Note: If no records are available on this leachate treatment system, provide an explanation in the Comments page.

Note: Do NOT include capital costs for leachate treatment systems, as the information will be collected in Section 4.5.

Table F-4. Capital Cost for Landfills

Project	Cost	Year on which Cost is Based
Direct Costs		
<u>Purchased equipment</u> (includes all equipment for the installation or the upgrade: mechanical equipment; piping; instrumentation; electrical equipment; plants/organic matter for constructed wetland(s); spare parts; freight charges; taxes; insurance; and duties)	\$	
<u>Purchased equipment installation</u> (includes installation of all equipment; piping; instrumentation/calibration; electrical equipment; mechanical equipment; structural supports, insulation, and paint)	\$	
<u>Buildings</u> (buildings constructed to house operator rooms, or other operations associated with the system; also includes plumbing, heating, ventilation, dust collection, air conditioning, lighting, telephones, intercoms, painting, sprinklers, fire alarms)	\$	
<u>Site preparation</u> (includes site clearing, all demolition, grading, roads, walking areas, fences)	\$	
<u>Land</u> (includes property costs and survey fees)	\$	
Total Direct Costs	\$	
Indirect Costs		
<u>Engineering Costs</u> (includes process design and general engineering, cost engineering, consulting fees, supervision, inspection for each category below: a. Engineering Contract Firm Costs b. Owner's Overhead Engineering Costs <input type="checkbox"/> Hired outside engineering firm to oversee design and/or installation of the treatment system.	\$	
<u>Construction expenses</u> (includes temporary construction offices, roads, communications, fencing; construction tools and equipment; permits, taxes, insurance)	\$	
<u>Other Contractor's Fees</u>	\$	
<u>Contingency actually expended</u> (to compensate for unpredictable events such as storms, floods, strikes, price changes, errors in estimates, design changes, etc.)	\$	
Total Indirect Costs	\$	
Total Capital Cost	\$	

Plant ID: Insert Plant ID
 Plant Name: Insert Plant Name

Part: F
Section Title: 4.1. Leachate Treatment System Design

Instructions: Complete Section 4.1 (Question F4-1 and F4-2) for all leachate treatment systems (as specified in Question F2-7 and F3-14) which the plant operates or plans to operate or construct/install by December 31, 2020. Note that *wastewater treatment systems* previously defined in Table D-2 that receive pond/impoundment or landfill *leachate* should NOT be included in this table and you do not need to provide information for those systems in this section. Refer to your responses to Questions F2-7 and F3-14 to identify the systems that need to be included in this table. Please provide all free response answers in the highlighted yellow areas.

CBI?
 Yes

F4-1. In Table F-5, list all leachate treatment systems (as specified in Question F2-7 and F3-14), not including wastewater treatment systems previously defined in Table D-2, which the plant operates or plans to operate. For each leachate treatment system, EPA assigned a number (e.g., LTS-1, LTS-2) in Table F-5, which will be used throughout the remainder of the survey. In the "Plant Designation" column, provide the plant's name for each leachate treatment system. As an example, if a plant operates a chemical precipitation leachate treatment system that discharges to an ash pond/impoundment system, the leachate treatment system should be identified in Table F-5 as LTS-1 and the ash pond/impoundment system should have been previously identified in Table D-1. For each planned leachate treatment system, provide an estimate of the expected average annual flow rate of the effluent from the treatment system.

Table F-5. Plant Leachate Treatment Systems

LTS System ID	Plant Designation	Treatment System Footprint (ft ²)	Year Initially Brought On Line	Number of Leachate Collection Systems Contributing to the System	Distance from Leachate Collection System* (ft)	Approximate Distance to Final Outfall (ft)
<i>Operating Leachate Treatment Systems</i>						
LTS-1						Outfall number: <input type="text"/>
LTS-2						Outfall number: <input type="text"/>
LTS-3						Outfall number: <input type="text"/>
LTS-4						Outfall number: <input type="text"/>
LTS-5						Outfall number: <input type="text"/>
LTS-6						Outfall number: <input type="text"/>
<i>Planned Leachate Treatment Systems</i>						
LTS-A						Outfall number: <input type="text"/>
LTS-B						Outfall number: <input type="text"/>
LTS-C						Outfall number: <input type="text"/>

* If there are multiple leachate collection systems transferring leachate to the treatment system, provide the average distance for all leachate collection systems.

CBI? Yes

F4-2. Attach a block diagram that shows the leachate treatment operations, the process wastewaters that currently enter or are planned to enter the leachate treatment system, and the ultimate destinations of the leachate treatment system effluent(s). Specific instructions for the diagram are provided in the checklist below. The diagram should have a level of detail similar to EPA's Example EPA_F-1 shown below.

NOTE: You may use an existing diagram, such as a water balance diagram included in the plant's NPDES Form 2C, and mark the additional required information on the diagram by hand.

Provide as many diagrams as necessary to convey the information requested in the checklist below. Number each block diagram in the upper right corner; the first block diagram should be numbered F-1, the second F-2, etc. Include the plant name, plant ID, and leachate treatment system ID in the upper right hand corner of the diagram.

Diagram(s) attached.

Block Diagram Checklist

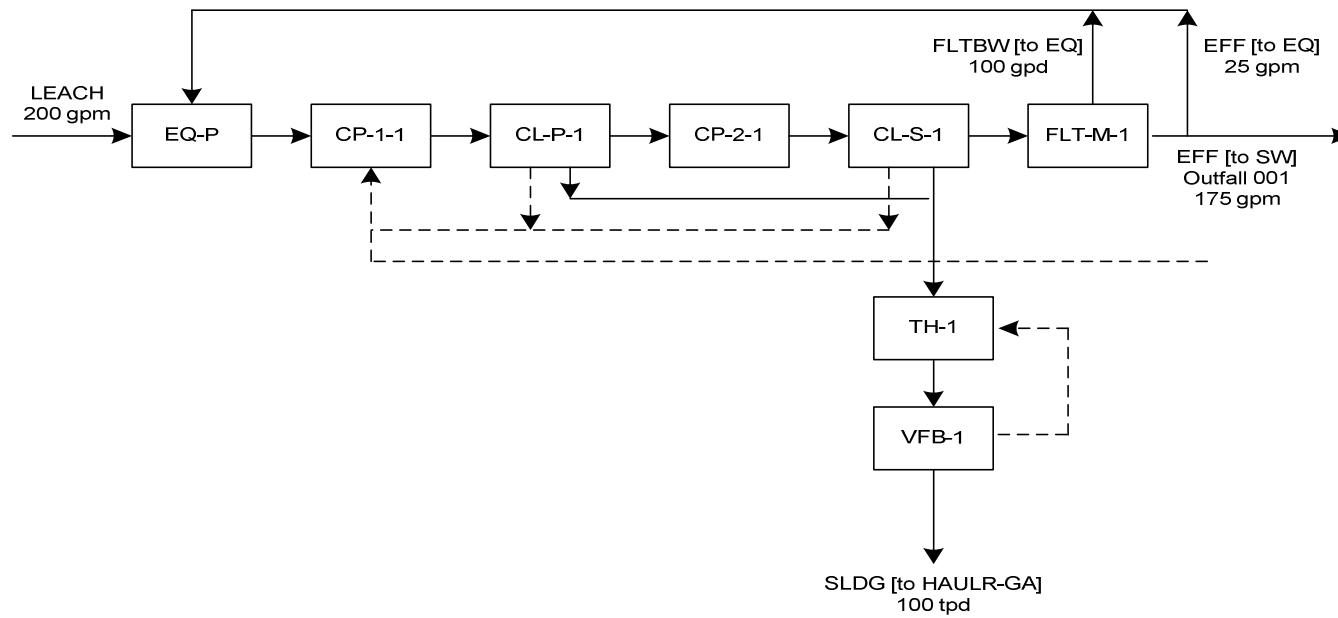
Mark the boxes below to verify that you have completed each checklist item...

- Include the block diagram number, plant name, plant ID, and leachate treatment system ID on the diagram.
- Include each leachate treatment unit operation. Show all influent and effluent streams from the units and label all influent and effluent streams from the leachate treatment system using the codes on the "Code Tables" tab provided at the end of this workbook. Effluent streams may include process wastewater and *sludges*.
- If a *process operation* does not have an EPA-assigned number, use the plant-designated name for the process operation. When sources or destinations are not shown on the diagram (i.e., the stream is entering from a location not shown on the diagram), describe the source or destination and add the block diagram number, when appropriate, where the stream's previous location can be seen. Use codes from the "Code Tables" tab provided at the end of this workbook. **Note that the codes listed in the "Wastewater Treatment Unit" table on the "Code Tables" tab should be used for assigning the leachate treatment units.**
- Indicate where chemical addition occurs (i.e., into or between which leachate treatment units). For constructed wetland treatment cells, indicate and note on the diagram where within or near the constructed wetland treatment cell the chemical is added (e.g., within the constructed wetland treatment cell near the leachate influent point, within the constructed wetland treatment cell near the effluent, in the effluent/discharge canal). The chemicals indicated should correspond to the chemicals listed in Table F-9.
- Identify the final, general destination of the treated leachate (e.g., treated leachate effluent to *POTW* or surface waters; solid wastes to on- or off-site destinations). Use codes from the "Code Tables" tab provided at the end of this workbook, when applicable.
- Indicate, as appropriate, where treated leachate is *reused* or *recycled* within the plant (e.g., reuse of settling pond/impoundment water as fly ash sluice).
- Include the average annual (2009) flow rates for influent and effluent streams from the leachate treatment system on the diagram (in gpm or gpd). For planned leachate treatment systems, provide the design flow rates for the system. Note that these should be the same flow rates that are entered into Table F-6 in Question F4-3. If the actual number of days of operation for 2009 is not known, the total annual flow may be divided by 365 days and a comment added to the Comments page. If the leachate stream is intermittent, provide amount and frequency; for example "100 gal, twice/day, 100 dpy" or "1000 gpm, 4 hpd, 365 dpy".
- Include *NPDES permit* outfall numbers, if applicable.

If you believe that the diagram should be treated as confidential, stamp it "Confidential" or write "Confidential" or "CBI" across the top. If any diagram is not marked "Confidential", it will be considered nonconfidential under 40 CFR Part 2, Subpart B.

Review:

If any of the statements above were not checked, revise the block diagram(s) and ensure all statements have been checked.



Example EPA_F-1. Block Diagram for Leachate Treatment System

Plant ID: Insert Plant ID

Plant Name: Insert Plant Name

Leachate Treatment System ID: Insert System ID

Part: F

Section Title: 4.2. Leachate Treatment System Flows

Instructions: Complete Section 4.2 (Question F4-3) for each leachate treatment system identified in Table F-5, including planned systems, systems under construction/installation, or planned to be constructed/installed by December 31, 2020. Enter the leachate treatment system ID in the yellow highlighted space provided above (use the leachate treatment system ID assigned in Table F-5).

Make a copy of Section 4.2 for each leachate treatment system identified in Table F-5 using the "Copy Section 4.2" button below.

Copy Section 4.2

CBI?

Yes

F4-3. Complete Table F-6 for each leachate treatment system identified in Table F-5. Identify the process wastewaters generated from pond/impoundment(s) and/or landfill(s), previously defined in Table A-4 and Table A-6, that are treated by the leachate treatment system. Please provide the flow rates of the process wastewater into the leachate treatment system. For planned leachate treatment systems, provide the design flow rates for the system.

Table F-6. Leachate Treatment System Flows in 2009

Process Wastewater	Pond/Impoundment Unit or Landfill ID (Identified in Table A-4 or A-6)	Influent to the Treatment System		
		Average Annual (2009) Flow Rate		
Process Wastewaters 1 ▼		gpm	hpd	dpy
Other:		OR	gpd	dpy
Process Wastewaters 1 ▼		gpm	hpd	dpy
Other:		OR	gpd	dpy
Process Wastewaters 1 ▼		gpm	hpd	dpy
Other:		OR	gpd	dpy
Process Wastewaters 1 ▼		gpm	hpd	dpy
Other:		OR	gpd	dpy
Process Wastewaters 1 ▼		gpm	hpd	dpy
Other:		OR	gpd	dpy
Process Wastewaters 1 ▼		gpm	hpd	dpy
Other:		OR	gpd	dpy
Process Wastewaters 1 ▼		gpm	hpd	dpy
Other:		OR	gpd	dpy
Process Wastewaters 1 ▼		gpm	hpd	dpy
Other:		OR	gpd	dpy

Plant ID: Insert Plant ID

Plant Name: Insert Plant Name

Leachate Treatment System ID: Insert System ID

Part: F

Section Title: 4.3. Leachate Treatment System Units

Instructions: Complete Section 4.3 (Questions F4-4 through F4-7) for each leachate treatment system identified in Table F-5, including systems that are planned, under construction/installation, or planned to be constructed/installed by December 31, 2020. Enter the leachate treatment system ID in the yellow highlighted space provided above (use leachate treatment system ID assigned in Table F-5).

Make a copy of Section 4.3 for each leachate treatment system identified in Table F-5 using the "Copy Section 4.3" button below.

NOTE: If the leachate treatment system includes a pond/impoundment unit, include the pond/impoundment unit in Table F-7.

Copy Section 4.3

CBI?

Yes

F4-4. In Table F-7, list all leachate treatment units comprising the leachate treatment system including units that are operating, under construction/installation, or planned to be constructed/installed by December 31, 2020. For each leachate treatment unit, assign an ID using the leachate treatment unit ID options presented in the drop-down box; however, if a pond/impoundment unit is included as part of the leachate treatment system, enter the pond/impoundment unit ID assigned in Table A-4 in the space labeled "Pond ID". The drop-down menu accounts for the possibility of multiple leachate treatment system units; they are numbered sequentially. Note that these terms originated from the code tables on the "Code Tables" tab, provided at the end of this workbook. For example, if the leachate treatment system includes two clarifiers, select Clarification, Primary-1 for the first clarifier and Clarification, Secondary-1 for the second. In the "Plant Designation" column, provide the plant's name for each leachate treatment unit. In the "Date Added to WWT System" column, either enter the date the unit was/will be installed if the unit is a retrofit, or enter "original" if the unit was part of the original wastewater treatment system installation.

Note: A constructed wetland cell is considered one leachate treatment unit.

Table F-7. Leachate Treatment Units

Leachate Treatment Unit ID	Plant Designation
Wastewater Treatment Units ▼	
Other:	
Pond ID:	
Wastewater Treatment Units ▼	
Other:	
Pond ID:	
Wastewater Treatment Units ▼	
Other:	
Pond ID:	
Wastewater Treatment Units ▼	
Other:	
Pond ID:	
Wastewater Treatment Units ▼	
Other:	
Pond ID:	
Wastewater Treatment Units ▼	
Other:	
Pond ID:	
Wastewater Treatment Units ▼	
Other:	
Pond ID:	
Wastewater Treatment Units ▼	
Other:	
Pond ID:	
Wastewater Treatment Units ▼	
Other:	
Pond ID:	
Wastewater Treatment Units ▼	
Other:	
Pond ID:	

CBI?
 Yes

F4-5. In Table F-8, list all improvements to the leachate treatment system planned up to December 31, 2020. For each planned improvement to the leachate treatment system, provide the appropriate Leachate Treatment Unit ID (if applicable), using the Code Tables. However, if the improvement relates directly to a pond/impoundment, use the pond/impoundment ID assigned in Table A-4. Provide a description of the improvement, the expected date of the improvement, and the total capital cost related to the improvement.

Note: Total capital costs should include purchased equipment, installation, buildings, site preparation, land, engineering costs, construction expenses, and any other costs available.

Table F-8. Planned Improvements to the Leachate Treatment System

Leachate Treatment Unit ID	Description of Improvement	Expected Date of Improvement (day/month/year)	Total Capital Cost
Wastewater Treatment Units ▼			
Other: _____			\$ _____
Pond ID: _____			
Wastewater Treatment Units ▼			
Other: _____			\$ _____
Pond ID: _____			
Wastewater Treatment Units ▼			
Other: _____			\$ _____
Pond ID: _____			
Wastewater Treatment Units ▼			
Other: _____			\$ _____
Pond ID: _____			
Wastewater Treatment Units ▼			
Other: _____			\$ _____
Pond ID: _____			

CBI?

Yes

F4-6. Were any of the above planned improvements to the leachate treatment system, or the planned leachate treatment system, planned in preparation for potential limit changes in the future?

Yes (Provide further information)

No (Skip to Question F4-7)

Please identify which pollutants and/or limits, in particular, the improvement or system will target.

[Redacted area]

CBI?

Yes

F4-7. Provide the typical flow rate for the leachate treatment system, the maximum flow rate for 2009, and the annual average flow rate for 2009. In addition, provide the duration and frequency of the effluent transfers from the leachate treatment system in 2009. If the leachate treatment system is planned, only provide the design flow rate and enter "N/A" in all other fields.

[Redacted] Typical flow rate in 2009, gpm

[Redacted] Maximum daily flow rate in 2009, gpd

[Redacted] Average annual flow rate in 2009, gpy

[Redacted] Duration of effluent transfers from treatment system in 2009, hpd

[Redacted] Frequency of effluent transfers from treatment system in 2009, dpy

CBI?
 Yes

F4-12. Indicate the *pollutants* targeted for removal by this leachate treatment unit using techniques other than settling (e.g., adding chemicals to remove certain metals). [Check all boxes that apply.]

- Metals (specify):
- Mercury
- Chlorides
- Sulfates
- TDS
- TSS
- Other:

CBI?
 Yes

F4-13. Of the pollutants listed in Question F4-12, which effluent limitation(s) drives/will drive the operation of this leachate treatment unit? Provide the pollutant(s) and the limitation(s) ($\mu\text{g/L}$ or mg/L).

Pollutant:

Limitation: Units

Pollutant:

Limitation: Units

Pollutant:

Limitation: Units

CBI?
 Yes

F4-14. Did the plant add chemicals to this leachate treatment unit in 2009?

- Yes (Complete Table F-9)
- No (Skip to Question F4-15)
- N/A (Leachate treatment unit is planned to be constructed. Provide information in Table F-8 to the extent possible based on plans.)

Note that "Average Dose Concentration" refers to the average concentration of the chemical within the wastewater treatment unit just after it is added to the unit.

Table F-9. Chemicals Used in Leachate Treatment Unit Operations

Chemical Type	Trade Name	Manufacturer	Purpose	Location of Chemical Addition	Average Dose Concentration (g/L)	Average Addition Rate (gpd or lb/day)		Frequency of Addition (dpy)
						<input type="radio"/> gpd <input type="radio"/> lb/day	<input type="radio"/> Solid <input type="radio"/> Liquid	

CBI?
 Yes

F4-15. Does the leachate treatment unit contain any plant species? [Check the box below.]

- Yes (Complete Table F-10)
- No ([Skip to Section 4.5](#))
- N/A (Leachate treatment unit is planned to be constructed. Provide information in Table F-8 to the extent possible based on plans.)

Table F-10. Plant Species Used in Leachate Treatment Unit Operations

Plant Species	Plant Name	Purpose

Plant ID: Insert Plant ID
 Plant Name: Insert Plant Name
 Leachate Treatment System ID: Insert System ID

Part: F
Section Title: 4.5. Leachate Treatment System Costs

Instructions: Complete Sections 4.5 and 4.6 (Question F4-16 and F4-18) for each leachate treatment system identified in Table F-5 that began operating at the plant on or after January 1, 2000. Enter the leachate treatment system ID in the highlighted yellow space provided above (use leachate treatment system IDs assigned in Table F-5).

Make a copy of Sections 4.5 and 4.6 for each leachate treatment system identified in Table F-5 using the "Copy Section 4.5 and 4.6" button below. Please note that you will create two new tabs for this section. You may delete unneeded tabs, if accidentally created.

Copy Section 4.5 and 4.6

CBI?
 Yes

F4-16. Provide annual O&M cost data in Table F-11 for each leachate treatment system identified in Table F-5 that was operated in 2009. Provide best engineering estimates when actual data are not readily available. If you provide an estimate, note the methods that were used to make the estimates in the Comments page.

Table F-11. O&M Cost for the Leachate Treatment System for 2009

O&M Cost Category	2009 Annual Cost	Rate	Staffing/ Consumption
Operating labor	\$ <input type="text"/>	\$ <input type="text"/> per hour (average rate of labor)	<input type="text"/> No. of workers <input type="text"/> hpd <input type="text"/> dpy
Maintenance labor	\$ <input type="text"/>	\$ <input type="text"/> per hour (average rate of labor)	<input type="text"/> No. of workers <input type="text"/> hpd <input type="text"/> dpy
Maintenance materials	\$ <input type="text"/>		
Chemicals	\$ <input type="text"/>		
Plants/organic matter	\$ <input type="text"/>		
Energy - Power for pumping	\$ <input type="text"/>	\$ <input type="text"/> per kWh	<input type="text"/> kWh/hr
Energy - Power for operations other than pumping	\$ <input type="text"/>	\$ <input type="text"/> per kWh	<input type="text"/> kWh/hr
Steam	\$ <input type="text"/>	\$ <input type="text"/> per pound	<input type="text"/> pounds/hr

Hazardous Sludge Disposal - Dredging	\$ [redacted]	\$ [redacted] per	<input type="radio"/> Gal <input type="radio"/> Ton	
Hazardous Sludge Disposal - Landfilling	\$ [redacted]	\$ [redacted] per	<input type="radio"/> Gal <input type="radio"/> Ton	
Nonhazardous Sludge Disposal - Dredging	\$ [redacted]	\$ [redacted] per	<input type="radio"/> Gal <input type="radio"/> Ton	
Nonhazardous Sludge Disposal - Landfilling	\$ [redacted]	\$ [redacted] per	<input type="radio"/> Gal <input type="radio"/> Ton	
Other:	\$ [redacted]			
Other:	\$ [redacted]			
Total O&M Cost (2009)	\$ [redacted]			

CBI?
 Yes

F4-17. Provide capital cost data in Table F-12 for all leachate treatment systems identified in Table F-5, including planned leachate treatment systems. Provide best engineering estimates when actual data are not readily available. For all costs, do not adjust for inflation. For example, if the plant incurred a land cost in 2002, enter the cost in the "Cost" column and enter "2002" in the "Year on which Cost is Based" column.

NOTE: If no records are available on this leachate treatment system, provide an explanation in the Comments page.

Table F-12. Capital Cost for the Leachate Treatment System

Project	Cost	Year on which Cost is Based
Direct Costs		
<u>Purchased equipment</u> (includes all equipment for the installation or the upgrade: mechanical equipment; piping; instrumentation; electrical equipment; plants/organic matter for constructed wetland(s); spare parts; freight charges; taxes; insurance; and duties)	\$	
<u>Purchased equipment installation</u> (includes installation of all equipment; piping; instrumentation/calibration; electrical equipment; mechanical equipment; structural supports, insulation, and paint)	\$	
<u>Buildings</u> (buildings constructed to house operator rooms, or other operations associated with the system; also includes plumbing, heating, ventilation, dust collection, air conditioning, lighting, telephones, intercoms, painting, sprinklers, fire alarms)	\$	
<u>Site preparation</u> (includes site clearing, all demolition, grading, roads, walking areas, fences)	\$	
<u>Land</u> (includes property costs and survey fees)	\$	
Total Direct Costs	\$	
Indirect Costs		
<u>Engineering Costs</u> (includes process design and general engineering, cost engineering, consulting fees, supervision, inspection for each category below: a. Engineering Contract Firm Costs b. Owner's Overhead Engineering Costs <input type="checkbox"/> Hired outside engineering firm to oversee design and/or installation of the treatment system.	\$ \$	
<u>Construction expenses</u> (includes temporary construction offices, roads, communications, fencing; construction tools and equipment; permits, taxes, insurance)	\$	
<u>Other Contractor's Fees</u>	\$	
<u>Contingency actually expended</u> (to compensate for unpredictable events such as storms, floods, strikes, price changes, errors in estimates, design changes, etc.)	\$	
Total Indirect Costs	\$	
Total Capital Cost	\$	

Plant ID: Insert Plant ID

Plant Name: Insert Plant Name

Leachate Treatment System ID: Insert System ID

Part: F

Section Title: 4.6. Leachate Treatment System Equipment

Instructions: Complete Section 4.6 (Question F4-18) for all ancillary pieces of equipment included in the leachate treatment system that contribute significantly to the capital costs provided in Table F-12.

Note: This tab will copy with every copy made for the previous tab (Part F Section 4.5) as the information is directly related.

CBI?

Yes

F4-18. In Table F-13, list the ancillary pieces of equipment included in the leachate treatment system that contribute significantly to the capital costs provided in Table F-12. Enter the description of the equipment and the total number of pieces of that equipment included in the system. Refer to the example shown below.

Examples of ancillary equipment:

- Aerator
- Agitator
- Chemical feed system (specify chemicals)
- Pump, sludge (specify purpose/location)
- Pump, process wastewater (specify purpose/location)

Table F-13. Ancillary Equipment of the Leachate Treatment System

Ancillary Equipment (if applicable)	Number of Ancillary Equipment Pieces in the System
<i>Pump, sludge (serving underflow from clarifiers)</i>	<i>2</i>

CBI?

Yes

F5-2. Has the plant measured *pollutant* concentrations from ash and FGD-related constituents (refer to list of analytes in Question G3-1) in ground water that exceed a primary or secondary MCL and/or state-issued standard/criteria?

Yes (Continue)

No (Skip to Question F5-4)

CBI?

Yes

F5-3. Identify the pollutants that exceeded a primary or secondary MCL and/or state-issued standard/criteria.

CBI?

Yes

F5-4. Has the plant measured pollutant concentrations from ash and FGD-related constituents (refer to list of analytes in Question G3-1) in ground water that do not exceed a primary or secondary MCL and/or state-issued standard/criteria, but do exceed *background concentrations*?

Yes (Continue)

No (Skip to Question F5-6)

CBI?

Yes

F5-5. Identify the pollutants that did not exceed a primary or secondary MCL and/or state-issued standard/criteria, but did exceed background concentrations.

Plant Name: Insert Plant ID
 Plant ID: Insert Plant Name

Part: F
Section Title: Part F Comments

Instructions: Cross reference your comments by question number and indicate the confidential status of your comment by checking the box next to "Yes" under "CBI?" (Confidential Business Information).

Question Number	Comment
CBI? <input type="checkbox"/> Yes	
CBI? <input type="checkbox"/> Yes	
CBI? <input type="checkbox"/> Yes	
CBI? <input type="checkbox"/> Yes	
CBI? <input type="checkbox"/> Yes	
CBI? <input type="checkbox"/> Yes	
CBI? <input type="checkbox"/> Yes	
CBI? <input type="checkbox"/> Yes	
CBI? <input type="checkbox"/> Yes	
CBI? <input type="checkbox"/> Yes	

CBI? <input type="checkbox"/> Yes		
CBI? <input type="checkbox"/> Yes		
CBI? <input type="checkbox"/> Yes		
CBI? <input type="checkbox"/> Yes		
CBI? <input type="checkbox"/> Yes		
CBI? <input type="checkbox"/> Yes		
CBI? <input type="checkbox"/> Yes		
CBI? <input type="checkbox"/> Yes		

Steam Electric Questionnaire Code Tables

Process Wastewaters	
<i>For Use in Tables and Questions throughout Parts A, B, C, D, and F.</i>	
Air heater cleaning water	AHCW
Ash pile runoff	APR
Boiler blowdown	BB
Boiler fireside cleaning water	BFCW
Boiler tube cleaning water	BTCW
Bottom ash sluice	BAS
Carbon capture wastewater	CCAPW
Coal pile runoff	CPR
Combined ash sluice	CAS
Combustion turbine cleaning (combustion gas portion of turbine) water	COMBCW
Combustion turbine cleaning (compressor portion of the turbine) water	COMPRCW
Combustion turbine evaporative coolers blowdown	TECB
Cooling tower blowdown	CTB
FGD scrubber purge	SCRBP
FGD slurry blowdown	FGDB
Filter Backwash	FLTBW
Floor drain wastewater	FDW
Flue gas mercury control system wastewater	FGMCW
Fly ash sluice	FAS
General runoff	GR
Gypsum pile runoff	GPR
Gypsum wash water	GYPWW
Ion exchange wastewater	IXW
Landfill runoff - capped landfill	LRC
Landfill runoff - uncapped landfill	LRUC
Leachate	LEACH
Limestone pile runoff	LPR
Mill reject sluice	MRS

Treated Wastewaters	
<i>For Use as Effluents from Pond/Impoundment Systems and/or Wastewater Treatment Systems in Part D, Table D-4.</i>	
Effluent - 1	EFF-1
Effluent - 2	EFF-2
Effluent - 3	EFF-3
Effluent - 4	EFF-4
Effluent - 5	EFF-5
Effluent - 6	EFF-6
Filter backwash	FltBW
Sludge	SLDG
<i>For Use as Inflows to Pond/Impoundment Systems and/or Wastewater Treatment Systems in Part D, Table D-3, AND Recycled Waters Throughout Questionnaire.</i>	
POND-1 Effluent	POND-1-EFF
POND-2 Effluent	POND-2-EFF
POND-3 Effluent	POND-3-EFF
POND-4 Effluent	POND-4-EFF
POND-5 Effluent	POND-5-EFF
POND-6 Effluent	POND-6-EFF
POND-7 Effluent	POND-7-EFF
POND-8 Effluent	POND-8-EFF
POND-9 Effluent	POND-9-EFF
POND-10 Effluent	POND-10-EFF
POND-A Effluent	POND-A-EFF
POND-B Effluent	POND-B-EFF
POND-C Effluent	POND-C-EFF
WWT-1 Effluent	WWT-1-EFF
WWT-2 Effluent	WWT-2-EFF
WWT-3 Effluent	WWT-3-EFF
WWT-4 Effluent	WWT-4-EFF
WWT-5 Effluent	WWT-5-EFF

Steam Electric Questionnaire Code Tables

Process Wastewaters	
<i>For Use in Tables and Questions throughout Parts A, B, C, D, and F.</i>	
Once-through cooling water	CW
Reverse osmosis reject water	RORW
SCR catalyst regeneration wastewater	SCRRW
SCR catalyst washing wastewater	SCRWW
Soot blowing wash water	SOOTW
Steam turbine cleaning water	STCW
Yard drain wastewater	YARDW

Treated Wastewaters	
<i>For Use as Influent to Pond/Impoundment Systems and/or Wastewater Treatment Systems in Part D, Table D-3, AND Recycled Waters Throughout Questionnaire.</i>	
WWT-6 Effluent	WWT-6-EFF
WWT-A Effluent	WWT-A-EFF
WWT-B Effluent	WWT-B-EFF
WWT-C Effluent	WWT-C-EFF

Steam Electric Questionnaire Code Tables

Wastewater Treatment Units	
<i>For Use in Tables and Questions Throughout Parts D and F.</i>	
Adsorptive media	ADSORB
Aerobic Biological Reactor	AERBIO
Anaerobic Biological Reactor	ANBIO
Aerobic/Anaerobic Biological Reactor	AER/ANBIO
Chemical Precipitation Reaction Tank 1 - 1	CP-1-1
Chemical Precipitation Reaction Tank 1 - 2	CP-1-2
Chemical Precipitation Reaction Tank 2 - 1	CP-2-1
Chemical Precipitation Reaction Tank 2 - 2	CP-2-2
Chemical Precipitation Reaction Tank 3 - 1	CP-3-1
Chemical Precipitation Reaction Tank 3 - 2	CP-3-2
Clarification, Primary - 1	CL-P-1
Clarification, Primary - 2	CL-P-2
Clarification, Secondary - 1	CL-S-1
Clarification, Secondary - 2	CL-S-2
Clarification, Tertiary - 1	CL-T-1
Clarification, Tertiary - 2	CL-T-2
Constructed wetland - Cell 1	CWL -1
Constructed wetland - Cell 2	CWL -2
Constructed wetland - Cell 3	CWL -3
Constructed wetland - Cell 4	CWL -4
Constructed wetland - Cell 5	CWL -5
Constructed wetland - Cell 6	CWL -6
Constructed wetland system	CWTS
Equalization, Primary	EQ-P
Equalization, Secondary	EQ-S
Filter, Microfiltration - 1	FLT-M-1
Filter, Microfiltration - 2	FLT-M-2

Destinations	
<i>For Use in Tables and Questions Throughout Parts A, C, D, and F.</i>	
Burned on site	BURN
Deep-well injection	DWELL
Discharge to POTW	POTW
Discharge to PrOTW	PrOTW
Discharge to surface water	SW
Evaporation	EVAP
Hauled off site for reuse (removal fee)	HAULR - RF
Hauled off site for reuse (given away)	HAULR - GA
Hauled off site for reuse (marketed and sold)	SOLD
Hauled off site for disposal	HAUL
Mixed with fly ash for disposal	MFA
On-site landfill (as reported in Table A-6)	LANDF
POND-1	POND-1
POND-2	POND-2
POND-3	POND-3
POND-4	POND-4
POND-5	POND-5
POND-6	POND-6
POND-7	POND-7
POND-8	POND-8
POND-9	POND-9
POND-10	POND-10
POND-A	POND-A
POND-B	POND-B
POND-C	POND-C
WWT-1	WWT-1
WWT-2	WWT-2

Steam Electric Questionnaire Code Tables

Wastewater Treatment Units	
<i>For Use in Tables and Questions Throughout Parts D and F.</i>	
Filter, Microfiltration - 3	FLT-M-3
Filter, Microfiltration - 4	FLT-M-4
Filter, Sand/Gravity - 1	FLT-S-1
Filter, Sand/Gravity - 2	FLT-S-2
Filter, Sand/Gravity - 3	FLT-S-3
Filter, Sand/Gravity - 4	FLT-S-4
Filter, Ultrafiltration - 1	FLT-U-1
Filter, Ultrafiltration - 2	FLT-U-2
Filter, Ultrafiltration - 3	FLT-U-3
Filter, Ultrafiltration - 4	FLT-U-4
Filter press - 1	FP-1
Filter press - 2	FP-2
Holding tank	HT
Ion exchange	IX
Natural wetlands	NW
pH adjustment - 1	PH-1
pH adjustment - 2	PH-2
pH adjustment - 3	PH-3
Reverse osmosis	ROS
Pond Unit - 1	SPD-1
Pond Unit - 2	SPD-2
Pond Unit - 3	SPD-3
Pond Unit - 4	SPD-4
Pond Unit - 5	SPD-5
Pond Unit - 6	SPD-6
Pond Unit - 7	SPD-7
Pond Unit - 8	SPD-8
Pond Unit - 9	SPD-9

Destinations	
<i>For Use in Tables and Questions Throughout Parts A, C, D, and F.</i>	
WWT-3	WWT-3
WWT-4	WWT-4
WWT-5	WWT-5
WWT-6	WWT-6
WWT-A	WWT-A
WWT-B	WWT-B
WWT-C	WWT-C
Reuse as boiler water	RECYC - BW
Reuse as bottom ash sluice	RECYC - BAS
Reuse as combined ash sluice	RECYC - CAS
Reuse as FGD slurry preparation water	RECYC - FGDP
Reuse as FGD absorber makeup	RECYC - FGDAB
Reuse as fly ash sluice	RECYC - FAS
Reuse as mill reject sluice	RECYC - MRS
Reuse in cooling towers	RECYC - CW

Steam Electric Questionnaire Code Tables

Wastewater Treatment Units	
<i>For Use in Tables and Questions Throughout Parts D and F.</i>	
Pond Unit - 10	SPD-10
Pond Unit - 11	SPD-11
Pond Unit - 12	SPD-12
Pond Unit - 13	SPD-13
Pond Unit - 14	SPD-14
Settling tank - 1	ST-1
Settling tank - 2	ST-2
Settling tank - 3	ST-3
Settling tank - 4	ST-4
Settling tank - 5	ST-5
Thickener - 1	TH-1
Thickener - 2	TH-2
Vacuum drum filter - 1	VF-1
Vacuum drum filter - 2	VF-2
Vacuum filter belt - 1	VFB-1
Vacuum filter belt - 2	VFB-2

Solids Handling	
<i>For Use as Planned Solids Handling for the FGD Slurry Blowdown in Part B Table B-2.</i>	
Centrifuge - 1	CENT-1
Centrifuge - 2	CENT-2
Centrifuge - 3	CENT-3
Centrifuge - 4	CENT-4
Hydrocyclones - 1	HYC-1
Hydrocyclones - 2	HYC-2
Hydrocyclones - 3	HYC-3
Hydrocyclones - 4	HYC-4
Filter press - 1	FP-1
Filter press - 2	FP-2
Thickener - 1	TH-1
Thickener - 2	TH-2
Vacuum drum filter - 1	VF-1
Vacuum drum filter - 2	VF-2
Vacuum filter belt - 1	VFB-1
Vacuum filter belt - 2	VFB-2

Part F Drop Downs

Process Wastewaters 1
Process Wastewaters 1
Select
Leachate
Stormwater
Other

Units
Units
Select
µg/L
mg/L

Process Wastewaters 2
Process Wastewaters 2
Select
Air heater cleaning water
Ash pile runoff
Boiler blowdown
Boiler fireside cleaning water
Boiler tube cleaning water
Bottom ash sluice
Carbon capture wastewater
Coal pile runoff
Combined ash sluice
Combustion turbine cleaning (combustion gas portion of turbine) water
Combustion turbine cleaning (compressor portion of the turbine) water
Combustion turbine evaporative coolers blowdown
Contaminated stormwater
Cooling tower blowdown
FGD scrubber purge
FGD slurry blowdown
Filter Backwash
Floor drain wastewater
Flue gas mercury control system wastewater
Fly ash sluice
General runoff
Gypsum pile runoff
Gypsum wash water
Ion exchange wastewater
Landfill runoff - capped landfill
Landfill runoff - uncapped landfill
Leachate
Limestone pile runoff
Mill reject sluice

Once-through cooling water
Reverse osmosis reject water
SCR catalyst regeneration wastewater
SCR catalyst washing wastewater
Soot blowing wash water
Steam turbine cleaning water
Yard drain wastewater
Other

Treated Wastewaters
Treated Wastewaters
Select
Effluent - 1
Effluent - 2
Effluent - 3
Effluent - 4
Effluent - 5
Effluent - 6
Filter backwash
Sludge
POND-1 Effluent
POND-2 Effluent
POND-3 Effluent
POND-4 Effluent
POND-5 Effluent
POND-6 Effluent
POND-7 Effluent
POND-8 Effluent
POND-9 Effluent
POND-10 Effluent
POND-A Effluent
POND-B Effluent
POND-C Effluent
WWT-1 Effluent
WWT-2 Effluent
WWT-3 Effluent
WWT-4 Effluent
WWT-5 Effluent
WWT-6 Effluent
WWT-A Effluent
WWT-B Effluent
WWT-C Effluent
Other

Wastewater Treatment Units
Wastewater Treatment Units
Select
Adsorptive media
Aerobic Biological Reactor
Anaerobic Biological Reactor

Aerobic/Anaerobic Biological Reactor
Chemical Precipitation Reaction Tank 1 - 1
Chemical Precipitation Reaction Tank 1 - 2
Chemical Precipitation Reaction Tank 2 - 1
Chemical Precipitation Reaction Tank 2 - 2
Chemical Precipitation Reaction Tank 3 - 1
Chemical Precipitation Reaction Tank 3 - 2
Clarification, Primary - 1
Clarification, Primary - 2
Clarification, Secondary - 1
Clarification, Secondary - 2
Clarification, Tertiary - 1
Clarification, Tertiary - 2
Constructed wetland - Cell 1
Constructed wetland - Cell 2
Constructed wetland - Cell 3
Constructed wetland - Cell 4
Constructed wetland - Cell 5
Constructed wetland - Cell 6
Constructed wetland system
Equalization, Primary
Equalization, Secondary
Filter, Microfiltration - 1
Filter, Microfiltration - 2
Filter, Microfiltration - 3
Filter, Microfiltration - 4
Filter, Sand/Gravity - 1
Filter, Sand/Gravity - 2
Filter, Sand/Gravity - 3
Filter, Sand/Gravity - 4
Filter, Ultrafiltration - 1
Filter, Ultrafiltration - 2
Filter, Ultrafiltration - 3
Filter, Ultrafiltration - 4
Filter press - 1
Filter press - 2
Holding tank
Ion exchange
Natural wetlands
pH adjustment - 1
pH adjustment - 2
pH adjustment - 3
Reverse osmosis
Pond Unit - 1
Pond Unit - 2
Pond Unit - 3
Pond Unit - 4
Pond Unit - 5
Pond Unit - 6
Pond Unit - 7

Pond Unit - 8
Pond Unit - 9
Pond Unit - 10
Pond Unit - 11
Pond Unit - 12
Pond Unit - 13
Pond Unit - 14
Settling tank - 1
Settling tank - 2
Settling tank - 3
Settling tank - 4
Settling tank - 5
Thickener - 1
Thickener - 2
Vacuum drum filter - 1
Vacuum drum filter - 2
Vacuum filter belt - 1
Vacuum filter belt - 2
Other