ICR Number XXXX.XX
OMB Control Number: XXXX-XXXX
Expiration Date: mm/dd/yyyy

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

Steam Electric Questionnaire
Second FRN Version Draft

PART B - FLUE GAS DESULFURIZATION (FGD) SYSTEMS

Table of Contents

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

PART B. FLUE GAS DESULFURIZATION (FGD) SYSTEMS

INSTRUCTIONS

Part B requests information about flue gas desulfurization (FGD) systems that are located at the plant or are planned to be located at the plant. Complete Part B if you operate one or more FGD systems, or if you are currently constructing/installing or planning to construct/install one or more FGD systems by December 31, 2020.

Throughout Part B, information is requested on FGD systems that are under construction/installation or planned to be constructed/installed by December 31, 2020. Provide design information, or best engineering estimates as necessary, for these planned systems.

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

Please provide all free response answers in the highlighted yellow areas. Throughout Part B, you may need to make copies of certain sections/questions for multiple FGD systems. Instructions are provided throughout Part B regarding making copies. Note that system ID fields 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 with the correct system.

Use the Part B Comments tab to do the following: provide additional information as requested in certain questions within Part B; 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: B
Section Title: 1. General FGD System Information

Instructions: Part B requests information about flue gas desulfurization (FGD) systems that are located at the plant or are planned to be located at the plant that are used to service fossil-fueled electric generating units. See Part A Section 8 for unit classifications. Complete Part B if you operate one or more *FGD systems*, or if you are currently constructing/installing or planning to begin constructing one or more FGD systems to service fossil-fueled electric generating units.

CBI? ☐ Ye

B1-1. Does the plant operate one or more flue gas desulfurization (FGD) systems that service fossil-fueled steam electric generating units, or is the plant currently constructing/installing or planning to construct/install one or more FGD systems to service fossil-fueled steam electric generating units by December 31, 2020?

○ Ye (Continue)
○ No (Skip to next Questionnaire Part)

CBI? ☐ Ye

B1-2. Complete Table B-1 for each FGD system that the plant operates that services fossil-fueled electric generating units, or is currently constructing/installing or planning to construct/install to service fossil-fueled electric generating units by December 31, 2020. Assign an FGD system ID to each FGD system using the drop down menu provided. Assign the FGD systems sequentially using the numbered IDs (e.g., FGD-1, FGD-2) for the systems currently operating. Assign the FGD systems sequentially using the lettered IDs (e.g., FGD-A, FGD-B) for the systems that are planned to operate. Enter the date the system initially began operation or is planned to begin operation. Identify each steam electric unit (currently operating or planned units) that is serviced by each FGD system using the codes EPA assigned to steam electric units in Table A-8 and/or Table A-9. Identify the type of oxidation performed in the FGD system for all wet FGD systems (Note: mark "Not Applicable" for dry FGD systems). Also provide the design sulfur dioxide removal efficiency for each FGD system.

Wet FGD systems capture sulfur dioxide from the flue gas using a wet slurry that generates a *process wastewater* that exits the scrubber absorber, shown as *FGD slurry blowdown* in Figure B-1 for recirculation scrubbers, or as FGD *slurry discharge* in Figure B-2 for single pass scrubbers. Indicate for each FGD system if FGD slurry blowdown (or FGD slurry discharge) is generated.

Use the drop down boxes to identify the type of FGD system and to specify the type(s) of sorbents used in the system. If a sorbent used is not provided in the drop down, identify "other" and provide the type(s) of sorbent in the yellow highlighted box to the right.

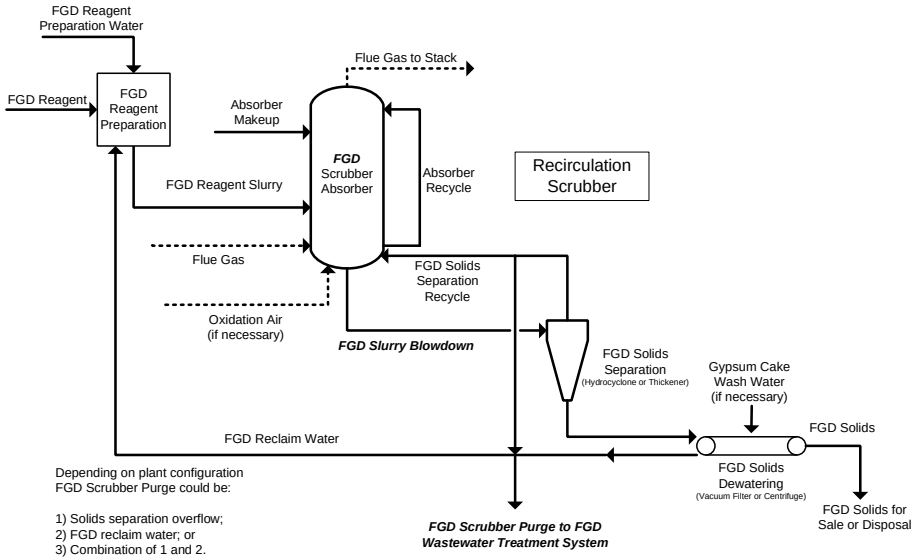

Figure B-1. Example Recirculation Wet FGD Scrubber System Diagram

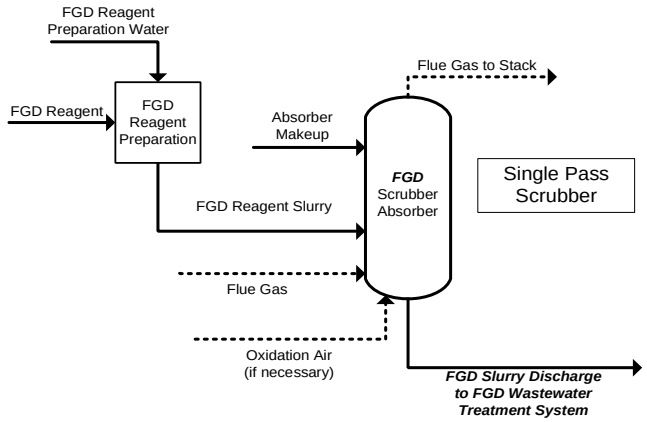

Figure B-2. Example Single Pass Wet FGD Scrubber System Diagram

Table B-1. FGD Systems in Operation or Planning to be Operated by December 31, 2020

FGD System ID	Date System Initially Brought On Line, or Planned to be Brought On Line (month/year)	Steam Electric Units from Table A-8 and/or A-9 Serviced by This FGD System [check all boxes that apply]	Does (or Will) the System Generate a FGD Slurry Blowdown (or Slurry Discharge) Stream (i.e., is it a wet system)?	Type of Oxidation (Forced, Natural, or Inhibited)	Type of FGD System	Type of Sorbent	Sulfur Dioxide Removal Efficiency (%)
Example: FGD-1	01/1995	☒ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur	◉ Yes ○ No	○ Forc ◉ Inhib ○ Nat ○ Not Apr	Spray	Primary: Limesto Secondary: Soda As Tertiary: Not Appl Quaternary: Not Appl	97.5
Select		☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur	○ Yes ○ No	○ Forc ○ Inhit ○ Nat ○ Not Apr	Select	Primary: Select Secondary: Select Tertiary: Select Quaternary: Select	
Select		☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur	○ Yes ○ No	○ Forc ○ Inhib ○ Nat ○ Not Apr	Select	Primary: Select Secondary: Select Tertiary: Select Quaternary: Select	
Select		☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur	○ Yes ○ No	○ Forc ○ Inhil ○ Nat ○ Not Apr	Select	Primary: Select Secondary: Select Tertiary: Select Quaternary: Select	
Select		☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur	○ Yes ○ No	○ Forc ○ Inhibi ○ Nat ○ Not Apr	Select	Primary: Select Secondary: Select Tertiary: Select Quaternary: Select	
Select		☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur	○ Yes ○ No	○ Forc ○ Inhibi ○ Nat ○ Not Apr	Select	Primary: Select Secondary: Select Tertiary: Select Quaternary: Select	
Select		☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur	○ Yes ○ No	○ Forc ○ Inhit ○ Nat ○ Not Apr	Select	Primary: Select Secondary: Select Tertiary: Select Quaternary: Select	
Select		☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur	○ Yes ○ No	○ Forc ○ Inhil ○ Nat ○ Not Apr	Select	Primary: Select Secondary: Select Tertiary: Select Quaternary: Select	
Select		☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur ☐ SE Ur	○ Yes ○ No	○ Forc ○ Inhil ○ Nat ○ Not Apr	Select	Primary: Select Secondary: Select Tertiary: Select Quaternary: Select	

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

Part: B
Section Title: 2. Planned FGD System Information

Instructions: Throughout this section, provide information for all *FGD systems* under construction/installation or planned to be constructed/installed by December 31, 2020 that are reported in Table B-1 and are expected to generate *FGD slurry blowdown*. Please provide all free response answers in the highlighted yellow areas.

CBI?
☐ Yes

B2-1. Complete Table B-2 for each FGD system under construction/installation or planned to be constructed/installed by December 31, 2020 that is reported in Table B-1 and is expected to generate FGD slurry blowdown. Enter the planned method for handling solids generated, whether *FGD scrubber purge* (or *slurry discharge*) will be generated, the type of *wastewater treatment system*, the design maximum and 24-hour daily average flow rate for the treatment system, and the date the treatment system will be brought on line. Use codes from the Code Tables tab, as appropriate, and separate multiple entries with commas. If you do not know the type of wastewater treatment system that will be installed or the flow rate of the treatment system, enter "Unknown" into the appropriate columns in the table.

Table B-2. FGD Systems Planned or Under Construction/Installation

FGD System ID	Planned Solids Handling for the FGD Slurry Blowdown (See Solids Handling Table in Code Tables Tab) [a]	Will System Generate FGD Scrubber Purge (or Slurry Discharge)?	Will FGD Scrubber Purge (or Slurry Discharge) be Treated by New or Existing Treatment System	Type of Wastewater Treatment System Planned to Treat FGD Scrubber Purge(or Slurry Discharge) (See Wastewater Treatment Units Table in Code Tables Tab)	Design Flow Rate for FGD Treatment System		Estimated Date the New FGD Treatment System Will be Brought On Line (or Date FGD Scrubber Purge (or Slurry Discharge) Will be Transferred to Existing System) (month/year)
					Maximum (gpm)	24-Hour Daily Average (gpm)	
Example FGD-A	***HYC-1, VFB-1***	Yes	New	***EQ-P, CP-1-1, CL-P-1, PH-1, FLT-S-1***	***1,200***	***1,000***	***06/2012***
Select		Select	Select				
Select		Select	Select				
Select		Select	Select				
Select		Select	Select				
Select		Select	Select				
Select		Select	Select				

a – This question refers to the blowdown solids handling, *not* the treatment system solids handling.

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

Part: B
Section Title: 3. FGD Additive Information

Instructions: Throughout this section, provide information for all *FGD Systems* listed in Table B-1. Please provide all free response answers in the highlighted yellow areas.

CBI?
☐ Yes

B3-1. In Table B-3, indicate the additive(s) used or planned to be used in each FGD system listed in Table B-1, and provide a description of its purpose. [Check all boxes that apply.]

Table B-3. FGD Additive Information

Additive	FGD System(s) in which Additive is Used or is Planned to be Used			Purpose of Additive
Adipic acid	☐ FGD 1 ☐ FGD 2 ☐ FGD 3	☐ FGD 4 ☐ FGD 5 ☐ FGD 6	☐ FGD A ☐ FGD B ☐ FGD C	☐ Increase sulfur dioxide r ☐ Increase mercury rei ☐ Defoaming ag ☐ Inhibit oxidation of FGL ☐ Scale inhibit ☐ Other (specify below):
Dibasic acid (DBA)	☐ FGD 1 ☐ FGD 2 ☐ FGD 3	☐ FGD 4 ☐ FGD 5 ☐ FGD 6	☐ FGD A ☐ FGD B ☐ FGD C	☐ Increase sulfur dioxide r ☐ Increase mercury rei ☐ Defoaming ag ☐ Inhibit oxidation of FGL ☐ Scale inhibit ☐ Other (specify below):
Elemental sulfur	☐ FGD 1 ☐ FGD 2 ☐ FGD 3	☐ FGD 4 ☐ FGD 5 ☐ FGD 6	☐ FGD A ☐ FGD B ☐ FGD C	☐ Increase sulfur dioxide r ☐ Increase mercury rei ☐ Defoaming ag ☐ Inhibit oxidation of FGL ☐ Scale inhibit ☐ Other (specify below):
Formic acid	☐ FGD 1 ☐ FGD 2 ☐ FGD 3	☐ FGD 4 ☐ FGD 5 ☐ FGD 6	☐ FGD A ☐ FGD B ☐ FGD C	☐ Increase sulfur dioxide r ☐ Increase mercury rei ☐ Defoaming ag ☐ Inhibit oxidation of FGL ☐ Scale inhibit ☐ Other (specify below):
Organosulfide	☐ FGD 1 ☐ FGD 2 ☐ FGD 3	☐ FGD 4 ☐ FGD 5 ☐ FGD 6	☐ FGD A ☐ FGD B ☐ FGD C	☐ Increase sulfur dioxide r ☐ Increase mercury rei ☐ Defoaming ag ☐ Inhibit oxidation of FGL ☐ Scale inhibit ☐ Other (specify below):
Sodium thiosulfate	☐ FGD 1 ☐ FGD 2 ☐ FGD 3	☐ FGD 4 ☐ FGD 5 ☐ FGD 6	☐ FGD A ☐ FGD B ☐ FGD C	☐ Increase sulfur dioxide r ☐ Increase mercury rei ☐ Defoaming ag ☐ Inhibit oxidation of FGL ☐ Scale inhibit ☐ Other (specify below):

Other (specify below):	☐ FGD 1 ☐ FGD 4 ☐ FGD A ☐ FGD 2 ☐ FGD 5 ☐ FGD B ☐ FGD 3 ☐ FGD 6 ☐ FGD C	☐ Increase sulfur dioxide r ☐ Increase mercury rei ☐ Defoaming ag ☐ Inhibit oxidation of FGL ☐ Scale inhibit ☐ Other (specify below):
Other (specify below):	☐ FGD 1 ☐ FGD 4 ☐ FGD A ☐ FGD 2 ☐ FGD 5 ☐ FGD B ☐ FGD 3 ☐ FGD 6 ☐ FGD C	☐ Increase sulfur dioxide r ☐ Increase mercury rei ☐ Defoaming ag ☐ Inhibit oxidation of FGL ☐ Scale inhibit ☐ Other (specify below):
None	☐ FGD 1 ☐ FGD 4 ☐ FGD A ☐ FGD 2 ☐ FGD 5 ☐ FGD B ☐ FGD 3 ☐ FGD 6 ☐ FGD C	

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name
FGD System ID: Insert System ID

Part: B
Section Title: 4. Wet FGD System Information

Instructions: Throughout this section, you will be required to provide information for each *wet FGD system* that the plant operates, reported in Table B-1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighted yellow areas.

Make copies of Section 4 and the Section 4 tables for each wet FGD system previously defined in Table B-1 using the "Copy Section 4 and Section 4 Tables" button below. Please note that you will create two new tabs for these sections. You may delete unneeded tabs, if accidently created. Enter the FGD system ID in the space provided above (use FGD system IDs assigned in Table B-1).

CBI? ☐ Yes

B4-1. Did you report use of a FGD system that generates *FGD slurry blowdown* (i.e., wet system) in Table B-1?

○ Yes (Continue)
○ No (Skip to Section 8)

Copy Section 4 and Section 4 Tables

CBI? ☐ Yes

B4-2. Provide the operating concentration range of chlorides within the *FGD scrubber absorber*.

Minimum operating concentration: _____ ppm
Maximum operating concentration: _____ ppm

CBI? ☐ Yes

B4-3. Provide the maximum design chlorides concentration for the FGD system and indicate which specific equipment unit(s) of the FGD system determine this concentration (e.g., FGD scrubber absorber, piping). Also provide the materials of construction for the specific FGD equipment that determine the maximum design chlorides concentration. If multiple materials are used in the construction of the FGD equipment that determines the maximum design chlorides concentration, identify the component that is the most vulnerable to corrosion due to chlorides concentrations. If the material of construction is not provided in the drop down menu, select "other" and provide the name in the yellow box provided.

FGD system maximum design chlorides concentration: _____ ppm

FGD equipment that determines maximum design concentration: _____ Select _____

FGD equipment that determines maximum design concentration: _____ Select _____

FGD equipment that determines maximum design concentration: _____ Select _____

FGD equipment that determines maximum design concentration: _____ Select _____

CBI? ☐ Yes

B4-4. Indicate the FGD system parameter(s) that are used to determine when the FGD slurry is blown down from the FGD system. [Check all boxes that apply.]

☐ Chlorides concentration, maintaine _____ ppm

☐ Solids percentage, maintaine _____ and _____ %

☐ Other, expla _____

CBI? ☐ Yes

B4-5. For water sources that may be used as a source of FGD reagent preparation water or absorber make-up water (e.g., fresh intake, recycled process water), indicate the maximum chlorides concentration and maximum solids percentage that is acceptable for the water to be used for those purposes. Identify any other criteria that the source water must meet.

☐ Chlorides concentra _____ ppm

☐ Solids percenta _____ %

☐ Other, expla _____

CBI? ☐ Yes

B4-6. Provide the typical flow rate, duration, and frequency of the mist eliminator wash water for the FGD system for calendar year 2009. Provide 2010 data for systems that were not operating in 2009.

_____ gpm

_____ hpd

_____ dpy

CBI? ☐ Yes

B4-7. Provide the typical flow rate, duration, and frequency of the FGD reagent preparation water for the FGD system for calendar year 2009. Provide 2010 data for systems that were not operating in 2009.

_____ gpm
_____ hpd
_____ dpy

CBI? ☐ Yes

B4-8. Provide the typical flow rate, duration, and frequency of the FGD reagent slurry for the FGD system for calendar year 2009. Provide 2010 data for systems that were not operating in 2009.

_____ gpm
_____ hpd
_____ dpy

CBI? ☐ Yes

B4-9. Provide the typical flow rate, duration, and frequency of the absorber make-up water for the FGD system for calendar year 2009. Provide 2010 data for systems that were not operating in 2009.

_____ gpm
_____ hpd
_____ dpy

CBI? ☐ Yes

B4-10. Provide the source of the mist eliminator wash water used. [Check all boxes that apply.] If the source is a *process wastewater* not provided in the dropdown box, select other and provide in the yellow box the name of the process wastewater and a short description.

☐ Raw intake water
☐ Intake water that has been treated on sit
☐ Process wastewat Select _____
☐ Other, expl _____

CBI? ☐ Yes

B4-11. Provide the source of the FGD reagent preparation water used. [Check all boxes that apply.] If the source is a *process wastewater* not provided in the dropdown box, select other and provide in the yellow box the name of the process wastewater and a short description.

☐ Raw intake water
☐ Intake water that has been treated on sit
☐ Process wastewat Select
☐ Other, expl

CBI? ☐ Yes

B4-12. Provide the source of the absorber make-up water used. [Check all boxes that apply.] If the source is a *process wastewater* not provided in the dropdown box, select other and provide in the yellow box the name of the process wastewater and a short description.

☐ Raw intake water
☐ Intake water that has been treated on sit
☐ Process wastewa Select
☐ Other, explain

CBI? ☐ Yes

B4-13. Indicate the type of solids that are generated within the FGD scrubber system. Also provide the approximate percent of the total FGD solids generated within the FGD system for each type (e.g., 85% calcium sulfate, 15% calcium sulfite).

☐ Calcium sulfate (gypsum) % FGD solids generated
☐ Calcium sulfit % FGD solids generated
☐ Other, explai % FGD solids generated
☐ Other, expla % FGD solids generated

CBI? ☐ Yes

B4-14. Are the *FGD solids* combined with *fly ash*, *bottom ash*, or other material?

○ Yes (Continue)
○ No (Skip to Question B4-16)

CBI?
☐ Yes

B4-15. Is a cementitious/pozzolanic material produced with the FGD solids at the plant?

○ Yes
○ No

CBI?
☐ Yes

B4-16. Indicate the methods of *FGD solids separation* used by the plant for FGD slurry blowdown (or slurry discharge). Refer to Figure B-1 for an example of a FGD solids separation system. Note that FGD solids separation and FGD *solids dewatering* are separate processes. [Check all boxes that apply.]

☐ Hydrocyclones
☐ Centrifuge
☐ Thickener
☐ Other, expl
☐ Blowdown sent directly to a pond system reported in Table D-1 (no FGD so
☐ Blowdown sent directly to wastewater treatment system reported in Table D-2 (no FG

CBI?
☐ Yes

B4-17. Indicate the method of FGD *solids dewatering* used by the plant for the FGD solids. [Check all boxes that apply.]

☐ Vacuum drum filter
☐ Vacuum belt filter
☐ Gypsum stacking
☐ Other, expl

CBI?
☐ Yes

B4-18. Provide the typical, maximum, and minimum chlorides concentration of the FGD solids produced by the FGD system in calendar year 2009. The chlorides concentration should be given on a wet basis (i.e., analysis of the FGD with the moisture content included); however, if the chlorides concentration is not known on a wet basis, provide the dry-basis concentration and note that it is a dry-basis concentration in the comments.

Typical concentration: _____ ppm
Minimum concentration: _____ ppm
Maximum concentration: _____ ppm

CBI?
☐ Yes

B4-19. What parameters affect the ability of the FGD solids to be marketed, sold and/or given away? [Check all boxes that apply.]

☐ Chlorides conte _____ ppm
☐ Moisture conte _____ ppm
☐ Other, spec _____ _____ ppm
☐ None – Industry(ies) to which the FGD solids are marketed has not specified standarc
☐ N/A – FGD solids are not marketed, sold, or gi\

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name
FGD System ID: Insert System ID

Part: B
Section Title: 4. FGD Solids Disposition and Marketing for Wet FGD Systems

Instructions: Throughout this section, you will be required to provide information on *FGD solids* disposition for each *wet FGD system* that the plant operates, reported in Table B-1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighted yellow areas.

CBI?
☐ Yes

B4-20. In Table B-4, indicate the ultimate destination of FGD solids from the FGD system and provide the tonnage for each type of storage/handling technique for calendar years 2005, 2007, and 2009. If the FGD solids are stored in an on-site *landfill* or *pond/impoundment*, including those located on non-adjoining property, provide the amount of FGD solids stored permanently and/or temporarily.

For example, a plant may operate a *gypsum stacking* operation using a pond/impoundment, and some amount of FGD solids that are transferred to the pond/impoundment are dewatered and sold for use in wallboard manufacturing. In this case, the amount of FGD solids sold for wallboard manufacturing should be identified in BOTH the "Sent to Pond/Impoundment reported in Table A-4: Stored temporarily" category AND the "Marketed and Sold" category. In this same example, all the FGD solids that are transferred to the pond/impoundment and either left settling at the bottom of the pond/impoundment or used in increase the banks of the pond/impoundment should be identified as "Sent to Pond/Impoundment reported in Table A-4: Stored permanently."

Table B-4. FGD Solids Disposition for 2005, 2007, and 2009

Ultimate Destination of FGD Solids		Amount Disposed in 2005 (tons)	Amount Disposed in 2007 (tons)	Amount Disposed in 2009 (tons)
Sent to Landfills reported in Table A-6	Stored permanently			
	Stored temporarily (later hauled off-site/marketed)			
Sent to Pond/Impoundment reported in Table A-4	Stored permanently			
	Stored temporarily (later hauled off-site/marketed)			
Sent to Landfills not reported in Table A-6				
Sent to Pond/Impoundment not reported in Table A-4				
Marketed and sold				
Given away				
Other, explain:				
Other, explain:				

CBI?
☐ Yes

B4-21. Complete Table B-5 if the plant markets, sells, and/or gives away the FGD solids from this FGD system. For each destination, provide the tons of FGD solids for which the FGD solids are marketed, sold, and/or given away. Also provide the gross revenue generated from marketing/selling the FGD solids for each destination.

Table B-5. FGD Solids Marketed/Sold in 2005, 2007, and 2009

Destination	2005		2007		2009	
	Tons	Gross Revenue Generated ($)	Tons	Gross Revenue Generated ($)	Tons	Gross Revenue Generated ($)
Select						
Select						
Select						
Select						
Select						
Select						

CBI?
☐ Yes

B4-22. In Table B-6, provide the total cost incurred to remove or dispose of FGD solids from 2005 to 2009 including the cost for labor, materials, transportation, and energy. Also provide the cost by component. Include other components not provided in the list of processes in the yellow box provided.

Table B-6. Cost Incurred to Remove or Dispose of FGD Solids in 2005, 2007, and 2009

Process	2005	2007	2009
	Total Costs Incurred	Total Costs Incurred	Total Costs Incurred
Solids separation	$	$	$
Solids dewatering	$	$	$
Hauling FGD solids	$	$	$
Cost of on site disposal	$	$	$
Cost of off site disposal	$	$	$
Other:	$	$	$
Other:	$	$	$
Other:	$	$	$
Total	**$**	**$**	**$**

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

Part: B
Section Title: 5. FGD Wastewater Generation

Instructions: Throughout this section, you will be required to provide information for all *wet FGD systems* that the plant operates, reported in Table B-1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighted yellow areas.

CBI?
☐ Yes

B5-1. In Table B-7, provide information for each wet FGD system that the plant operates reported in Table B-1. This table does not need to be completed for planned systems. For the source of FGD reagent preparation water, absorber make-up water, and mist eliminator wash water, you may enter more than one source. Select a source from the dropdown menu. For the percent contribution of the flow rates, provide the percentage based on the total flow rate for all these sources entering the FGD system.

Table B-7. FGD System Water Sources and Flow Rates

FGD System ID	FGD Reagent Preparation Water, Absorber Make-Up Water, and Mist Eliminator Wash Water (Sources, Percent Contribution, and Flow Rate)		
	Source(s)	Percent	Flow Rate (gpd)
Example:	***FGDB***	***80%***	***48,000***
	CTB	***20%***	***12,000***
FGD-1	***Other***		
	Select		
	Select		
Select	Select		
	Other		
	Select		
	Select		
Select	Select		
	Other		
	Select		
	Select		
Select	Select		
	Other		
	Select		
	Select		
Select	Select		
	Other		
	Select		
	Select		
Select	Select		
	Other		
	Select		
	Select		
Select	Select		
	Other		
	Select		
	Select		
Select	Select		
	Other		

CBI? ☐ Yes

B5-2. In Table B-8, provide information for each wet FGD system that the plant operates reported in Table B-1. This table does not need to be completed for planned systems.

Table B-8. Water Generated from Wet FGD Systems

FGD System ID	Absorber Type	Typical FGD Slurry Blowdown (or Slurry Discharge) Flow Rate Exiting the Absorber (gpd)	Typical Range of Percent Solids of FGD Slurry Blowdown (or Slurry Discharge) Exiting the Absorber (%)	Typical Amount of Solids Separation Recycle Returned to Absorber (gpd)	Typical Amount of FGD Scrubber Purge (or Slurry Discharge) Sent to Wastewater Treatment or Discharge (gpm AND gpd)	Typical Duration AND Frequency of FGD Scrubber Purge (or Slurry Discharge) Generation (hpd AND dpy)
Example: FGD-1	Recirculation	240,000	12 to 16	180,000	200 gpm 120,000 gpd	10 hpd 365 dpy
Select	Select		to		gpm gpd	hpd dpy
Select	Select		to		gpm gpd	hpd dpy
Select	Select		to		gpm gpd	hpd dpy
Select	Select		to		gpm gpd	hpd dpy
Select	Select		to		gpm gpd	hpd dpy
Select	Select		to		gpm gpd	hpd dpy

CBI? ☐ Yes

B5-3. Provide the typical chlorides and solids concentrations of the untreated *FGD scrubber purge* (or *slurry discharge*) transferred to the *wastewater treatment system* (after the *FGD solids separation* process, but prior to commingling with other process wastewater).

☐ Chlorides c ppm

☐ Total suspended s ppm

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

Part: B
Section Title: 6. FGD Monitoring Data Instructions

Instructions: Throughout this section, you will be required to provide monitoring data for all *wet FGD systems* that the plant operates, reported in Table B-1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighted yellow areas.

CBI?
☐ Yes

B6-1. Has your plant collected monitoring data (for any reason) for untreated *FGD scrubber purge* (or *slurry discharge*) in the 12 months prior to recieving the ICR for any of the following analytes:

- Metals (including monitoring data for total recoverable or dissolved metals analyses, or trace metals analyses);
- Ammonia;
- Nitrate/nitrite; and
- Total Kjeldahl nitrogen (TKN).

Note: The untreated FGD scrubber purge (or slurry discharge) stream is the *FGD wastewater* stream leaving the solids separation process prior to commingling with other water streams (see Figures B-1 and B-2).

◯ Yes (Provide the monitoring data as instructed below)
◯ No (Skip to Section 7)

Note: You are not required to perform non-routine tests or measurements solely for the purpose of responding to this question.

Provide the monitoring data in Table B-9 in the tab labeled "Part B Section 6 Table" for each different FGD scrubber purge stream for which the plant collected monitoring data. Report all results. Identify results that are less than the method detection limit (MDL), and results that are between the detection and reporting limits. Copy Table B-9 as many times as needed using the "Copy Table B-9" button below.

Copy Table B-9

Note: If you operate mulitiple *FGD solids separation* processes (e.g., two sets of hydroclones), only provide monitoring data collected after the last solid separation process. If necessary, you may provide additional information regarding the sample collection techniques or analytical methods in the Comments section (e.g., sample collection followed EPA Method 1669 protocols, dynamic reaction cell was used in conjunction with analytical method).

The following information should be provided for each data point:

- Name of analyte and CAS Number;
- Measured value including units (if not detected, list the *detection limit* value preceded by a less than (<) symbol);
- Analytical method used;
- Sample-specific detection limit for the method used;
- Sample-specific nominal quantitation limit stipulated for the method used;
- Date the sample was collected;
- Location where the sample was collected (e.g., purge tank which collects secondary hydroclone overflow);
- Whether the sample was collected as a grab or as a composite (and note the compositing period used);
- Description of any qualifiers for the measurement;
- For metals, whether the sample was analyzed as total recoverable or dissolved;
- Identification of FGD system(s) and steam electric generating unit(s) that the sample represents (report FGD System IDs and associated steam electric generating units from Table B-1); and
- Flow rate (only if flow rate data were recorded at the sampling point during the sampling period).

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

Part: B
Section Title: 6. FGD Monitoring Data

Instructions: Throughout this section, you will be required to provide information on monitoring data for untreated *FGD scrubber purge* (or *slurry discharge*) for all *wet FGD systems* that the plant operates, reported in Table B-1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighted yellow areas.

CBI?
☐ Yes

B6-2. Complete Table B-9 for all monitoring data for untreated FGD scrubber purge (or slurry discharge) collected by the plant (for any reason) in the 12 months prior to receiving the ICR for any of the following analytes: metals (including monitoring data for total recoverable or dissolved metals analyses), ammonia, nitrate/nitrite, and total Kjeldahl nitrogen (TKN). Complete a separate table for each different FGD scrubber purge (or slurry discharge) stream for which the plant is providing monitoring data. Report all results. Identify results that are less than the method detection limit (MDL), and results that are between the detection and reporting limits. For Question B6-2, identify the FGD systems and steam electric generating units associated with the FGD scrubber purge data provided in the table. Refer to the instructions in Part B Section 6 if you need assistance completing Table B-9.

Identify the FGD systems and steam electric generating units associated with the FGD scrubber purge (or slurry discharge) monitoring data provided in the table below. Use the FGD system IDs identified in Table B-1 and the SE unit IDs identified in Table A-8. [Check all that apply.]

☐ FGD-1 ☐ FGD-4 ☐ SE Un ☐ SE Un ☐ SE Un ☐ SE Unit
☐ FGD-2 ☐ FGD-5 ☐ SE Un ☐ SE Un ☐ SE Un
☐ FGD-3 ☐ FGD-6 ☐ SE Un ☐ SE Un ☐ SE Un

Table B-9. Monitoring Data for Untreated FGD Scrubber Purge (or Slurry Discharge)

Analyte	CAS Number	Measured Value Including Units*		Analytical method	Method Detection Limit		Reporting Limit		Date Sample Collected	Location Collected	Collected as a Grab or Composite	Description of Qualifiers	Analyzed as Total Recoverable or Dissolved**	Flow Rate of FGD Scrubber Purge (or Slurry Discharge) at Time of Sampling (gpm)
		Value	Units		Value	Units	Value	Units						
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	

			Se▼			Se▼		Se▼			Select ▼		Select ▼	
			Se▼			Se▼		Se▼			Select ▼		Select ▼	
			Se▼			Se▼		Se▼			Select ▼		Select ▼	
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			Se▼			Se▼		Se▼			Select ▼		Select ▼	
			Se▼			Se▼		Se▼			Select ▼		Select ▼	
			Se▼			Se▼		Se▼			Select ▼		Select ▼	
			Se▼			Se▼		Se▼			Select ▼		Select ▼	

*If not detected, list the detection limit value preceded by a less than (<) symbol

**Only answer for metals

Plant ID: Insert Pla
Plant Name: Insert Pla

Part: B
Section Title: 7. FGD Wastewater Treatment

Instructions: Throughout this section, you will be required to provide information for all *wet FGD systems* that the plant operates, reported in 1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighte areas.

CBI? ☐ Yes

B7-1. Does the plant transfer the *FGD scrubber purge* (or *slurry discharge*) to a *settling pond*?

○ Yes (Continue)
○ No (Skip to Question B7-4)

CBI? ☐ Yes

B7-2. Indicate which *process wastewaters* are commingled with the FGD scrubber purge (or slurry discharge) in the settling pond. [C boxes that apply.]

☐ Fly ash sluice ☐ Bottom ash sluice
☐ Metal cleaning waste ☐ Boiler blowdown
☐ Mill reject sluice ☐ Other, explai
☐ None ☐ Other, explai

CBI? ☐ Yes

B7-3. If the FGD scrubber purge (or slurry discharge) is commingled with *bottom ash* or *fly ash sluice* water in the pond(s), select the below that best describes the configuration of the pond(s). If neither option applies, provide an explanation in the space provide

☐ "True" commingling: FGD scrubber purge (or slurry discharge) and bottom ash and/or fly ash sluice water are combined in one pond dedicat
☐ FGD scrubber purge (or slurry discharge) is treated in a FGD pond and subsequently commingled with ash wate
☐ FGD scrubber purge (or slurry discharge) is not commingled with oth
☐ FGD scrubber purge (or slurry discharge) wastewater is treated using a wastewater treatment system other than a settling pond and subseq
☐ Other, expla

nt ID
nt Name

Table B-
d yellow

heck all

option
ed:

ed t

quently comi

CBI?
☐ Yes

B7-4. Indicate wastewater treatment technologies used to treat the FGD scrubber purge (or slurry discharge). [Check all boxes that a

- ☐ Settling pond
- ☐ Chemical precipitation
- ☐ Biological reactor – aerobic
- ☐ Biological reactor – anoxic/anaer
- ☐ Mechanical vapor compression (brine concentrator
- ☐ Constructed wetlands
- ☐ Mechanical vapor compression (brine concentrator) with spray
- ☐ Mechanical vapor compression (brine concentrator) with cry
- ☐ Other, explai

CBI?
☐ Yes

B7-5. What is the destination(s) of the *treated* FGD scrubber purge (or slurry discharge)? If the plant *recycles* the FGD scrubber purg slurry discharge), indicate the plant process to which this water is recycled. [Check all that apply.]

- ☐ Immediately recycled back to plant process. Please describe how the treated FGD scrubber purge (or slur
- ☐ Discharged to surface water. Provide NPDES permitted outfall number (from Par
- ☐ Indirect discharge to a publicly or privately owned treatment works
- ☐ Deep well injectio
- ☐ Other, explair

CBI?
☐ Yes

B7-6. Plants that produce gypsum from wet FGD systems may generate water from the storage and handling of gypsum. Examples c gypsum-related waters are *gypsum wash water* and *gypsum pile runoff*. Are gypsum-related waters generated at the plant? No gypsum-related water does not include *FGD slurry blowdown* or FGD scrubber purge (or slurry discharge).

- ○ Yes (Continue)
- ○ No (Skip to Section 8)

If yes, provide the typical volume of gypsum-related waters generated per day (gpd) and the frequency of water generation (dp calendar year 2009.

gpd dpy

.pply.]

ıe (or

ɔf
ıte:

y) for

CBI?

☐ Yes

B7-7. Indicate how the gypsum-related waters are handled. [Check all boxes that apply.]

☐ Reused in FGD process

☐ Reused in other process operations. Please describe how the gypsum-related w

☐ Transferred to treatment system reported in Tables D-1 or D-2. Identify the type of treatment system be

- ☐ Settling pond
- ☐ Biological reactor – aerobic
- ☐ Mechanical vapor compression (brine concentrator)
- ☐ Mechanical vapor compression (brine concentrator) with spray
- ☐ Mechanical vapor compression (brine concentrator) with cry
- ☐ Other, explai
- ☐ Chemical precipitation
- ☐ Biological reactor – anoxic/anaer
- ☐ Constructed wetlands

☐ Discharged to surface water. Provide NPDES permitted outfall number (from Part

☐ Indirect discharge to a publicly or privately owned treatme

☐ Other, expla

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name
FGD System ID: Insert System ID

Part: B
Section Title: 8. Dry FGD System Information

Instructions: Throughout this section, you will be required to provide information for each *dry FGD system* that the plant operates, reported in Table B-1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighted yellow areas.

Make copies of Section 8 and Section 8 tables for each dry FGD system previously defined in Table B-1 using the Copy Section 8 and Section 8 Tables button below. Please note that you will create two new tabs for these sections. You may delete unneeded tabs, if accidently created. Enter the FGD system ID in the space provided above (use FGD system IDs assigned in Table B-1).

CBI? ☐ Yes

B8-1. Did you report use of a dry FGD system in Table B-1?

- ○ Yes (Continue)
- ○ No (Skip to next Questionnaire Part)

Copy Section 8 and Section 8 Tables

CBI? ☐ Yes

B8-2. Indicate how the *FGD solid* is removed from the flue gas.

- ○ ESP
- ○ Fabric filter
- ○ Other, specify _____

CBI? ☐ Yes

B8-3. Is the FGD system located upstream or downstream of the *fly ash* collection system?

- ○ Upstream of fly ash collection
- ○ Downstream of fly ash collection

CBI? ☐ Yes

B8-4. For water sources that may be used as a source of FGD reagent preparation water (e.g., fresh intake, recycled process water), indicate the maximum chlorides concentration and maximum solids percentage that is acceptable for the water to be used for those purposes. Identify any other criteria that the source water must meet.

- ☐ Chlorides concentrati _____ ppm
- ☐ Solids percentage _____ %
- ☐ Other, explain: _____

CBI? ☐ Yes

B8-5. Provide the flow rate, duration, and frequency of the FGD reagent preparation water for the FGD system for calendar year 2009.

_____ gpm
_____ hpd
_____ dpy

CBI? ☐ Yes

B8-6. Provide the source of the FGD reagent preparation water used. [Check all boxes that apply.]

- ☐ Raw intake water
- ☐ Intake water that has been treated on site pri
- ☐ Process wastewater, speci Select _____
- ☐ Other, explai _____

CBI? ☐ Yes

B8-7. Is any *FGD wastewater* generated from the operation of the dry FGD scrubber?

- ○ Yes (Continue)
- ○ No (Skip to Question B8-9)

CBI?
☐ Yes

B8-8. Indicate the destination(s) of the FGD wastewater. If the plant *recycles* the FGD wastewater, indicate the plant process to which this water is recycled. [Check all that apply.]

☐ Immediately recycled back to plant process. Please describe how the FGD wastewater is reused:

☐ Transferred to treatment system reported in Tables D-1 or D-2. Identify the type of treatment system below. [Ch

- ☐ Settling pond
- ☐ Chemical precipitation
- ☐ Biological reactor – aerobic
- ☐ Biological reactor – anoxic/anaer
- ☐ Mechanical vapor compression (brine concentrator)
- ☐ Constructed wetlands
- ☐ Mechanical vapor compression (brine concentrator) with spray
- ☐ Mechanical vapor compression (brine concentrator) with crys
- ☐ Other, explair

☐ Discharged to surface water. Provide NPDES permitted outfall number (from Par

☐ Indirect discharge to a publicly or privately owned treatment works

☐ Deep well injectio

☐ Other, explain

CBI?
☐ Yes

B8-9. Is any FGD wastewater generated from cleaning the dry FGD scrubber (e.g., power washing during *scheduled generating unit outages*)?

○ Yes (Continue)
○ No (Skip to Question B8-11)

CBI?

☐ Yes

B8-10. Indicate the destination(s) of the FGD wastewater from cleaning. If the plant *recycles* the FGD wastewater, indicate the plant process to which this water is recycled. [Check all that apply.]

☐ Immediately recycled back to plant process. Please describe how the FGD wastewater is reused:

☐ Transferred to treatment system reported in Tables D-1 or D-2. Identify the type of treatment system below. [Che

- ☐ Settling pond
- ☐ Chemical precipitation
- ☐ Biological reactor – aerobic
- ☐ Biological reactor – anoxic/anaer
- ☐ Mechanical vapor compression (brine concentrator)
- ☐ Constructed wetlands
- ☐ Mechanical vapor compression (brine concentrator) with spray
- ☐ Mechanical vapor compression (brine concentrator) with crys
- ☐ Other, explair

☐ Discharged to surface water. Provide NPDES permitted outfall number (from Part

☐ Indirect discharge to a publicly or privately owned treatment works

☐ Deep well injectio

☐ Other, explain

CBI?

☐ Yes

B8-11. What parameters affect the ability of the FGD solids to be marketed, sold and/or given away? [Check all boxes that apply.]

- ☐ Chlorides content ppm
- ☐ Moisture conter ppm
- ☐ Other, specify: ppm
- ☐ None – Industry(ies) to which the FGD solids are marketed has not specified standarc
- ☐ N/A – FGD solids are not marketed, sold, or giver

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name
FGD System ID: Insert System ID

Part: B
Section Title: 8. FGD Solids Disposition and Marketing for Dry FGD Systems

Instructions: Throughout this section, you will be required to provide information on *FGD solids* disposition for all *dry FGD systems* that the plant operates reported in Table B-1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighted yellow areas.

CBI?
☐ Yes

B8-12. In Table B-10, indicate the ultimate destination of FGD solids from the FGD system and provide the tonnage for each type of storage/handling technique for calendar years 2005, 2007, and 2009. If the FGD solids are stored in a *landfill* or *pond/impoundment*, provide the amount of FGD solids stored permanently and/or temporarily.

For example, a plant may operate a gypsum landfill, and some amount of FGD solids that are transferred to the landfill may later be removed from the landfill and sold for use in wallboard manufacturing. In this case, the amount of FGD solids sold for wallboard manufacturing should be identified in BOTH the "Landfills reported in Table A-6: Stored temporarily" category AND the "Marketed and Sold" category. In this same example, all the FGD solids that are transferred to the landfill and left in the landfill should be identified as "Landfills reported in Table A-6: Stored permanently."

Table B-10. FGD Solids Disposition for 2005, 2007, and 2009

Ultimate Destination of FGD Solids		Amount Disposed in 2005 (tons)	Amount Disposed in 2007 (tons)	Amount Disposed in 2009 (tons)
Sent to Landfills reported in Table A-6	Stored permanently			
	Stored temporarily (later hauled off-site/marketed)			
Sent to Pond/Impoundment reported in Table A-4	Stored permanently			
	Stored temporarily (later hauled off-site/marketed)			
Sent to Landfills not reported in Table A-6				
Sent to Pond/Impoundment not reported in Table A-4				
Marketed and sold				
Given away				
Other, explain:				
Other, explain:				

CBI?
☐ Yes

B8-13. Complete Table B-11 if the plant markets, sells, and/or gives away the FGD solids from this FGD system. For each destination, provide the tons of FGD solids for which the FGD solids are marketed, sold, and/or given away. Also provide the gross revenue generated from marketing/selling the FGD solids for each destination.

Table B-11. FGD Solids Marketed/Sold in 2005, 2007, and 2009

Destination	2005		2007		2009	
	Tons	Gross Revenue Generated ($)	Tons	Gross Revenue Generated ($)	Tons	Gross Revenue Generated ($)
Select						
Select						
Select						
Select						
Select						
Select						

CBI?
☐ Yes

B8-14. In Table B-12, provide the total cost incurred to remove or dispose of FGD solids from 2005 to 2009 including the cost for labor, materials, transportation, and energy. Also provide the cost by component. Include other components not provided in the list of processes in the yellow box provided.

Table B-12. Cost Incurred to Remove or Dispose of FGD Solids

Process	2005	2007	2009
	Total Costs Incurred	Total Costs Incurred	Total Costs Incurred
Solids separation	$	$	$
Solids dewatering	$	$	$
Hauling FGD solids	$	$	$
Cost of on site disposal	$	$	$
Cost of off site disposal	$	$	$
Other:	$	$	$
Other:	$	$	$
Other:	$	$	$
Total	**$**	**$**	**$**

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

Part: B
Section Title: Part B 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).

CBI?	Question Number	Comment
☐ Yes		
☐ Yes		
☐ Yes		
☐ Yes		
☐ Yes		
☐ Yes		
☐ Yes		
☐ Yes		

CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		
CBI? ☐ Yes		

CBI?		
☐ Yes		

Steam Electric Questionnaire Code Tables

Process Wastewaters	
For Use in Tables and Questions throughout Parts A, B, C, D, and F.	
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	
For Use as Effluents from Pond/Impoundment Systems and/or Wastewater Treatment Systems in Part D, Table D-4.	
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
For Use as Influents to Pond/Impoundment Systems and/or Wastewater Treatment Systems in Part D, Table D-3, AND Recycled Waters Throughout Questionnaire.	
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	
For Use in Tables and Questions throughout Parts A, B, C, D, and F.	
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	
For Use as Influents to Pond/Impoundment Systems and/or Wastewater Treatment Systems in Part D, Table D-3, AND Recycled Waters Throughout Questionnaire.	
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	
For Use in Tables and Questions Throughout Parts D and F.	
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

Destinations	
For Use in Tables and Questions Throughout Parts A, C, D, and F.	
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

Steam Electric Questionnaire Code Tables

Filter, Microfiltration - 1	FLT-M-1
Filter, Microfiltration - 2	FLT-M-2

WWT-1	WWT-1
WWT-2	WWT-2

Steam Electric Questionnaire Code Tables

Wastewater Treatment Units	
For Use in Tables and Questions Throughout Parts D and F.	
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	
For Use in Tables and Questions Throughout Parts A, C, D, and F.	
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	
For Use in Tables and Questions Throughout Parts D and F.	
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	
For Use as Planned Solids Handling for the FGD Slurry Blowdown in Part B Table B-2.	
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

Yes/No
Select
No
Yes

Materials of Construction
Select
2205 stainless steel
255 stainless steel
316L stainless steel
317LM stainless steel
317LMN stainless steel
625 stainless steel
Carbon Steel
Ceramic
Duplex Stainless Steel
Fiberglass
Masonry Tile Lined Carbon Steel
Masonry Tile Lined Concrete
Mild Stainless Steel
Nickel Alloy Steel
Nickel Alloy Steel Lined Carbon Steel
Plastic
Plastic Lined Carbon Steel
Rubber Lined Carbon Steel
Rubber Lined Concrete
Super Austenitic Stainless Steel
Other (specify to the right)

Grab/Composite
Select
Composite
Grab

Recirculation/Single Pass
Select
Recirculation
Single Pass

Steam Electric Generating Units
Select
SEUnit-1
SEUnit-2
SEUnit-3
SEUnit-4
SEUnit-5
SEUnit-6
SEUnit-7
SEUnit-8
SEUnit-9
SEUnit-10

Type of FGD System
Select
Circulating dry scrubber
Jet bubbling reactor
Mechanically aided
Packed
Spray
Spray/Tray
Spray Dryer
Tray
Venturi
Other (specify below)

New/Existing
Select
Existing
New

FGD System ID
Select
FGD-1
FGD-2
FGD-3
FGD-4
FGD-5
FGD-6
FGD-A
FGD-B
FGD-C

FGD System ID (no planned)
Select
FGD-1
FGD-2
FGD-3
FGD-4
FGD-5
FGD-6

Type of Sorbent
Select
Lime
Limestone
Magnesium Lime
Magnesium Oxide
Soda Ash
Sodium Hydroxide
Other (specify)
Not Applicable

FGD System ID (Planned)
Select
FGD-A
FGD-B
FGD-C

FGD System Water Source
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
Cooling tower blowdown
FGD scrubber purge (or slurry discharge)
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
Raw intake water
Raw intake water as makeup
Reverse osmosis reject water
SCR catalyst regeneration wastewater
SCR catalyst washing wastewater
Soot blowing wash water
Steam turbine cleaning water
Treated intake water
Treated intake water as makeup
Yard drain wastewater

Process Wastewater
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
Cooling tower blowdown
FGD scrubber purge (or slurry discharge)
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 (specify to the right)

FGD Solids Marketing
Select
Agriculture
Blended cement/raw feed for clinker
Concrete/concrete products
Flowable fill
Gypsum panel products (not wallboard)
Mining applications
Soil modification/stabilization
Structural fills/embankments
Wallboard manufacturing
Waste stabilization/solidification
Other (specify):

Total Recoverable/Dissolved
Select
Dissolved
Total Recoverable
N/A

Units
Select
mg/L
ug/L
ng/L

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name
FGD System ID: Insert System ID

Part: B
Section Title: 4. Wet FGD System Information

Instructions: Throughout this section, you will be required to provide information for each *wet FGD system* that the plant operates, reported in Table B-1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighted yellow areas.

Make copies of Section 4 and the Section 4 tables for each wet FGD system previously defined in Table B-1 using the "Copy Section 4 and Section 4 Tables" button below. Please note that you will create two new tabs for these sections. You may delete unneeded tabs, if accidently created. Enter the FGD system ID in the space provided above (use FGD system IDs assigned in Table B-1).

CBI? ☐ Yes

B4-1. Did you report use of a FGD system that generates *FGD slurry blowdown* (i.e., wet system) in Table B-1?

○ Yes (Continue)
○ No (Skip to Section 8)

CBI? ☐ Yes

B4-2. Provide the operating concentration range of chlorides within the *FGD scrubber absorber*.

Minimum operating concentration: _____ ppm
Maximum operating concentration: _____ ppm

CBI? ☐ Yes

B4-3. Provide the maximum design chlorides concentration for the FGD system and indicate which specific equipment unit(s) of the FGD system determine this concentration (e.g., FGD scrubber absorber, piping). Also provide the materials of construction for the specific FGD equipment that determine the maximum design chlorides concentration. If multiple materials are used in the construction of the FGD equipment that determines the maximum design chlorides concentration, identify the component that is the most vulnerable to corrosion due to chlorides concentrations. If the material of construction is not provided in the drop down menu, select "other" and provide the name in the yellow box provided.

FGD system maximum design chlorides concentration: _____ ppm

FGD equipment that determines maximum design concentration: _____ Select _____

FGD equipment that determines maximum design concentration: _____ Select _____

FGD equipment that determines maximum design concentration: _____ Select _____

FGD equipment that determines maximum design concentration: _____ Select _____

CBI? ☐ Yes

B4-4. Indicate the FGD system parameter(s) that are used to determine when the FGD slurry is blown down from the FGD system. [Check all boxes that apply.]

☐ Chlorides concentration, maintaine _____ ppm

☐ Solids percentage, maintainec _____ and _____ %

☐ Other, expla _____

CBI? ☐ Yes

B4-5. For water sources that may be used as a source of FGD reagent preparation water or absorber make-up water (e.g., fresh intake, recycled process water), indicate the maximum chlorides concentration and maximum solids percentage that is acceptable for the water to be used for those purposes. Identify any other criteria that the source water must meet.

☐ Chlorides concentra _____ ppm

☐ Solids percenta _____ %

☐ Other, expla _____

CBI? ☐ Yes

B4-6. Provide the typical flow rate, duration, and frequency of the mist eliminator wash water for the FGD system for calendar year 2009. Provide 2010 data for systems that were not operating in 2009.

_____ gpm

_____ hpd

_____ dpy

CBI? ☐ Yes

B4-7. Provide the typical flow rate, duration, and frequency of the FGD reagent preparation water for the FGD system for calendar year 2009. Provide 2010 data for systems that were not operating in 2009.

_____ gpm
_____ hpd
_____ dpy

CBI? ☐ Yes

B4-8. Provide the typical flow rate, duration, and frequency of the FGD reagent slurry for the FGD system for calendar year 2009. Provide 2010 data for systems that were not operating in 2009.

_____ gpm
_____ hpd
_____ dpy

CBI? ☐ Yes

B4-9. Provide the typical flow rate, duration, and frequency of the absorber make-up water for the FGD system for calendar year 2009. Provide 2010 data for systems that were not operating in 2009.

_____ gpm
_____ hpd
_____ dpy

CBI? ☐ Yes

B4-10. Provide the source of the mist eliminator wash water used. [Check all boxes that apply.] If the source is a *process wastewater* not provided in the dropdown box, select other and provide in the yellow box the name of the process wastewater and a short description.

☐ Raw intake water
☐ Intake water that has been treated on sit
☐ Process wastewat Select _____
☐ Other, expl _____

CBI? ☐ Yes

B4-11. Provide the source of the FGD reagent preparation water used. [Check all boxes that apply.] If the source is a *process wastewater* not provided in the dropdown box, select other and provide in the yellow box the name of the process wastewater and a short description.

☐ Raw intake water
☐ Intake water that has been treated on sit
☐ Process wastewat Select
☐ Other, expl

CBI? ☐ Yes

B4-12. Provide the source of the absorber make-up water used. [Check all boxes that apply.] If the source is a *process wastewater* not provided in the dropdown box, select other and provide in the yellow box the name of the process wastewater and a short description.

☐ Raw intake water
☐ Intake water that has been treated on sit
☐ Process wastewa Select
☐ Other, explain

CBI? ☐ Yes

B4-13. Indicate the type of solids that are generated within the FGD scrubber system. Also provide the approximate percent of the total FGD solids generated within the FGD system for each type (e.g., 85% calcium sulfate, 15% calcium sulfite).

☐ Calcium sulfate (gypsum) % FGD solids generated
☐ Calcium sulfit % FGD solids generated
☐ Other, explai % FGD solids generated
☐ Other, expla % FGD solids generated

CBI? ☐ Yes

B4-14. Are the *FGD solids* combined with *fly ash*, *bottom ash*, or other material?

○ Yes (Continue)
○ No (Skip to Question B4-16)

CBI?
☐ Yes

B4-15. Is a cementitious/pozzolanic material produced with the FGD solids at the plant?

○ Yes
○ No

CBI?
☐ Yes

B4-16. Indicate the methods of *FGD solids separation* used by the plant for FGD slurry blowdown (or slurry discharge). Refer to Figure B-1 for an example of a FGD solids separation system. Note that FGD solids separation and FGD *solids dewatering* are separate processes. [Check all boxes that apply.]

☐ Hydrocyclones
☐ Centrifuge
☐ Thickener
☐ Other, expl
☐ Blowdown sent directly to a pond system reported in Table D-1 (no FGD so
☐ Blowdown sent directly to wastewater treatment system reported in Table D-2 (no FG

CBI?
☐ Yes

B4-17. Indicate the method of FGD *solids dewatering* used by the plant for the FGD solids. [Check all boxes that apply.]

☐ Vacuum drum filter
☐ Vacuum belt filter
☐ Gypsum stacking
☐ Other, expl

CBI?
☐ Yes

B4-18. Provide the typical, maximum, and minimum chlorides concentration of the FGD solids produced by the FGD system in calendar year 2009. The chlorides concentration should be given on a wet basis (i.e., analysis of the FGD with the moisture content included); however, if the chlorides concentration is not known on a wet basis, provide the dry-basis concentration and note that it is a dry-basis concentration in the comments.

Typical concentration: _____ ppm
Minimum concentration: _____ ppm
Maximum concentration: _____ ppm

CBI?
☐ Yes

B4-19. What parameters affect the ability of the FGD solids to be marketed, sold and/or given away? [Check all boxes that apply.]

☐ Chlorides conte _____ ppm
☐ Moisture cont _____ ppm
☐ Other, spec _____ _____ ppm
☐ None – Industry(ies) to which the FGD solids are marketed has not specified standarc
☐ N/A – FGD solids are not marketed, sold, or gi

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name
FGD System ID: Insert System ID

Part: B
Section Title: 4. FGD Solids Disposition and Marketing for Wet FGD Systems

Instructions: Throughout this section, you will be required to provide information on *FGD solids* disposition for each *wet FGD system* that the plant operates, reported in Table B-1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighted yellow areas.

CBI?
☐ Yes

B4-20. In Table B-4, indicate the ultimate destination of FGD solids from the FGD system and provide the tonnage for each type of storage/handling technique for calendar years 2005, 2007, and 2009. If the FGD solids are stored in an on-site *landfill* or *pond/impoundment*, including those located on non-adjoining property, provide the amount of FGD solids stored permanently and/or temporarily.

For example, a plant may operate a *gypsum stacking* operation using a pond/impoundment, and some amount of FGD solids that are transferred to the pond/impoundment are dewatered and sold for use in wallboard manufacturing. In this case, the amount of FGD solids sold for wallboard manufacturing should be identified in BOTH the "Sent to Pond/Impoundment reported in Table A-4: Stored temporarily" category AND the "Marketed and Sold" category. In this same example, all the FGD solids that are transferred to the pond/impoundment and either left settling at the bottom of the pond/impoundment or used in increase the banks of the pond/impoundment should be identified as "Sent to Pond/Impoundment reported in Table A-4: Stored permanently."

Table B-4. FGD Solids Disposition for 2005, 2007, and 2009

Ultimate Destination of FGD Solids		Amount Disposed in 2005 (tons)	Amount Disposed in 2007 (tons)	Amount Disposed in 2009 (tons)
Sent to Landfills reported in Table A-6	Stored permanently			
	Stored temporarily (later hauled off-site/marketed)			
Sent to Pond/Impoundment reported in Table A-4	Stored permanently			
	Stored temporarily (later hauled off-site/marketed)			
Sent to Landfills not reported in Table A-6				
Sent to Pond/Impoundment not reported in Table A-4				
Marketed and sold				
Given away				
Other, explain:				
Other, explain:				

CBI?
☐ Yes

B4-21. Complete Table B-5 if the plant markets, sells, and/or gives away the FGD solids from this FGD system. For each destination, provide the tons of FGD solids for which the FGD solids are marketed, sold, and/or given away. Also provide the gross revenue generated from marketing/selling the FGD solids for each destination.

Table B-5. FGD Solids Marketed/Sold in 2005, 2007, and 2009

Destination	2005		2007		2009	
	Tons	Gross Revenue Generated ($)	Tons	Gross Revenue Generated ($)	Tons	Gross Revenue Generated ($)
Select						
Select						
Select						
Select						
Select						
Select						

CBI?
☐ Yes

B4-22. In Table B-6, provide the total cost incurred to remove or dispose of FGD solids from 2005 to 2009 including the cost for labor, materials, transportation, and energy. Also provide the cost by component. Include other components not provided in the list of processes in the yellow box provided.

Table B-6. Cost Incurred to Remove or Dispose of FGD Solids in 2005, 2007, and 2009

Process	2005	2007	2009
	Total Costs Incurred	Total Costs Incurred	Total Costs Incurred
Solids separation	$	$	$
Solids dewatering	$	$	$
Hauling FGD solids	$	$	$
Cost of on site disposal	$	$	$
Cost of off site disposal	$	$	$
Other:	$	$	$
Other:	$	$	$
Other:	$	$	$
Total	**$**	**$**	**$**

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

Part: B
Section Title: 6. FGD Monitoring Data

Instructions: Throughout this section, you will be required to provide information on monitoring data for untreated *FGD scrubber purge* (or *slurry discharge*) for all *wet FGD systems* that the plant operates, reported in Table B-1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighted yellow areas.

CBI?
☐ Yes

B6-2. Complete Table B-9 for all monitoring data for untreated FGD scrubber purge (or slurry discharge) collected by the plant (for any reason) in the 12 months prior to receiving the ICR for any of the following analytes: metals (including monitoring data for total recoverable or dissolved metals analyses), ammonia, nitrate/nitrite, and total Kjeldahl nitrogen (TKN). Complete a separate table for each different FGD scrubber purge (or slurry discharge) stream for which the plant is providing monitoring data. Report all results. Identify results that are less than the method detection limit (MDL), and results that are between the detection and reporting limits. For Question B6-2, identify the FGD systems and steam electric generating units associated with the FGD scrubber purge data provided in the table. Refer to the instructions in Part B Section 6 if you need assistance completing Table B-9.

Identify the FGD systems and steam electric generating units associated with the FGD scrubber purge (or slurry discharge) monitoring data provided in the table below. Use the FGD system IDs identified in Table B-1 and the SE unit IDs identified in Table A-8. [Check all that apply.]

☐ FGD-1 ☐ FGD-4 ☐ SE Un ☐ SE Un ☐ SE Un ☐ SE Unit
☐ FGD-2 ☐ FGD-5 ☐ SE Un ☐ SE Un ☐ SE Un
☐ FGD-3 ☐ FGD-6 ☐ SE Un ☐ SE Un ☐ SE Un

Table B-9. Monitoring Data for Untreated FGD Scrubber Purge (or Slurry Discharge)

Analyte	CAS Number	Measured Value Including Units*		Analytical method	Method Detection Limit		Reporting Limit		Date Sample Collected	Location Collected	Collected as a Grab or Composite	Description of Qualifiers	Analyzed as Total Recoverable or Dissolved**	Flow Rate of FGD Scrubber Purge (or Slurry Discharge) at Time of Sampling (gpm)
		Value	Units		Value	Units	Value	Units						
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	

			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	
			Se			Se		Se			Select		Select	

*If not detected, list the detection limit value preceded by a less than (<) symbol

**Only answer for metals

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name
FGD System ID: Insert System ID

Part: B
Section Title: 8. Dry FGD System Information

Instructions: Throughout this section, you will be required to provide information for each *dry FGD system* that the plant operates, reported in Table B-1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighted yellow areas.

Make copies of Section 8 and Section 8 tables for each dry FGD system previously defined in Table B-1 using the Copy Section 8 and Section 8 Tables button below. Please note that you will create two new tabs for these sections. You may delete unneeded tabs, if accidently created. Enter the FGD system ID in the space provided above (use FGD system IDs assigned in Table B-1).

CBI? ☐ Yes

B8-1. Did you report use of a dry FGD system in Table B-1?

- ○ Yes (Continue)
- ○ No (Skip to next Questionnaire Part)

CBI? ☐ Yes

B8-2. Indicate how the *FGD solid* is removed from the flue gas.

- ○ ESP
- ○ Fabric filter
- ○ Other, specify _____

CBI? ☐ Yes

B8-3. Is the FGD system located upstream or downstream of the *fly ash* collection system?

- ○ Upstream of fly ash collection
- ○ Downstream of fly ash collection

CBI? ☐ Yes

B8-4. For water sources that may be used as a source of FGD reagent preparation water (e.g., fresh intake, recycled process water), indicate the maximum chlorides concentration and maximum solids percentage that is acceptable for the water to be used for those purposes. Identify any other criteria that the source water must meet.

- ☐ Chlorides concentrati _____ ppm
- ☐ Solids percentage _____ %
- ☐ Other, explain: _____

CBI? ☐ Yes

B8-5. Provide the flow rate, duration, and frequency of the FGD reagent preparation water for the FGD system for calendar year 2009.

_____ gpm
_____ hpd
_____ dpy

CBI? ☐ Yes

B8-6. Provide the source of the FGD reagent preparation water used. [Check all boxes that apply.]

- ☐ Raw intake water
- ☐ Intake water that has been treated on site pri
- ☐ Process wastewater, speci Select _____
- ☐ Other, explai _____

CBI? ☐ Yes

B8-7. Is any *FGD wastewater* generated from the operation of the dry FGD scrubber?

- ○ Yes (Continue)
- ○ No (Skip to Question B8-9)

CBI?
☐ Yes

B8-8. Indicate the destination(s) of the FGD wastewater. If the plant *recycles* the FGD wastewater, indicate the plant process to which this water is recycled. [Check all that apply.]

☐ Immediately recycled back to plant process. Please describe how the FGD wastewater is reused:

☐ Transferred to treatment system reported in Tables D-1 or D-2. Identify the type of treatment system below. [Ch

- ☐ Settling pond
- ☐ Chemical precipitation
- ☐ Biological reactor – aerobic
- ☐ Biological reactor – anoxic/anaer
- ☐ Mechanical vapor compression (brine concentrator)
- ☐ Constructed wetlands
- ☐ Mechanical vapor compression (brine concentrator) with spray
- ☐ Mechanical vapor compression (brine concentrator) with crys
- ☐ Other, explair

☐ Discharged to surface water. Provide NPDES permitted outfall number (from Par

☐ Indirect discharge to a publicly or privately owned treatment works

☐ Deep well injectio

☐ Other, explain

CBI?
☐ Yes

B8-9. Is any FGD wastewater generated from cleaning the dry FGD scrubber (e.g., power washing during *scheduled generating unit outages*)?

○ Yes (Continue)
○ No (Skip to Question B8-11)

CBI?

☐ Yes

B8-10. Indicate the destination(s) of the FGD wastewater from cleaning. If the plant *recycles* the FGD wastewater, indicate the plant process to which this water is recycled. [Check all that apply.]

☐ Immediately recycled back to plant process. Please describe how the FGD wastewater is reused:

☐ Transferred to treatment system reported in Tables D-1 or D-2. Identify the type of treatment system below. [Che

- ☐ Settling pond
- ☐ Chemical precipitation
- ☐ Biological reactor – aerobic
- ☐ Biological reactor – anoxic/anaer
- ☐ Mechanical vapor compression (brine concentrator)
- ☐ Constructed wetlands
- ☐ Mechanical vapor compression (brine concentrator) with spray
- ☐ Mechanical vapor compression (brine concentrator) with crys
- ☐ Other, explair

☐ Discharged to surface water. Provide NPDES permitted outfall number (from Part

☐ Indirect discharge to a publicly or privately owned treatment works

☐ Deep well injectio

☐ Other, explain

CBI?

☐ Yes

B8-11. What parameters affect the ability of the FGD solids to be marketed, sold and/or given away? [Check all boxes that apply.]

- ☐ Chlorides content ppm
- ☐ Moisture conter ppm
- ☐ Other, specify: ppm
- ☐ None – Industry(ies) to which the FGD solids are marketed has not specified standarc
- ☐ N/A – FGD solids are not marketed, sold, or giver

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name
FGD System ID: Insert System ID

Part: B
Section Title: 8. FGD Solids Disposition and Marketing for Dry FGD Systems

Instructions: Throughout this section, you will be required to provide information on *FGD solids* disposition for all *dry FGD systems* that the plant operates reported in Table B-1. This section does not need to be completed for planned systems. Please provide all free response answers in the highlighted yellow areas.

CBI?
☐ Yes

B8-12. In Table B-10, indicate the ultimate destination of FGD solids from the FGD system and provide the tonnage for each type of storage/handling technique for calendar years 2005, 2007, and 2009. If the FGD solids are stored in a *landfill* or *pond/impoundment*, provide the amount of FGD solids stored permanently and/or temporarily.

For example, a plant may operate a gypsum landfill, and some amount of FGD solids that are transferred to the landfill may later be removed from the landfill and sold for use in wallboard manufacturing. In this case, the amount of FGD solids sold for wallboard manufacturing should be identified in BOTH the "Landfills reported in Table A-6: Stored temporarily" category AND the "Marketed and Sold" category. In this same example, all the FGD solids that are transferred to the landfill and left in the landfill should be identified as "Landfills reported in Table A-6: Stored permanently."

Table B-10. FGD Solids Disposition for 2005, 2007, and 2009

Ultimate Destination of FGD Solids		Amount Disposed in 2005 (tons)	Amount Disposed in 2007 (tons)	Amount Disposed in 2009 (tons)
Sent to Landfills reported in Table A-6	Stored permanently			
	Stored temporarily (later hauled off-site/marketed)			
Sent to Pond/Impoundment reported in Table A-4	Stored permanently			
	Stored temporarily (later hauled off-site/marketed)			
Sent to Landfills not reported in Table A-6				
Sent to Pond/Impoundment not reported in Table A-4				
Marketed and sold				
Given away				
Other, explain:				
Other, explain:				

CBI?
☐ Yes

B8-13. Complete Table B-11 if the plant markets, sells, and/or gives away the FGD solids from this FGD system. For each destination, provide the tons of FGD solids for which the FGD solids are marketed, sold, and/or given away. Also provide the gross revenue generated from marketing/selling the FGD solids for each destination.

Table B-11. FGD Solids Marketed/Sold in 2005, 2007, and 2009

Destination	2005		2007		2009	
	Tons	Gross Revenue Generated ($)	Tons	Gross Revenue Generated ($)	Tons	Gross Revenue Generated ($)
Select						
Select						
Select						
Select						
Select						
Select						

CBI?
☐ Yes

B8-14. In Table B-12, provide the total cost incurred to remove or dispose of FGD solids from 2005 to 2009 including the cost for labor, materials, transportation, and energy. Also provide the cost by component. Include other components not provided in the list of processes in the yellow box provided.

Table B-12. Cost Incurred to Remove or Dispose of FGD Solids

Process	2005	2007	2009
	Total Costs Incurred	Total Costs Incurred	Total Costs Incurred
Solids separation	$	$	$
Solids dewatering	$	$	$
Hauling FGD solids	$	$	$
Cost of on site disposal	$	$	$
Cost of off site disposal	$	$	$
Other:	$	$	$
Other:	$	$	$
Other:	$	$	$
Total	**$**	**$**	**$**