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Coal Combustion Residue Impoundment

Round 12 - Dam Assessment Report

Conemaugh Generating Station

Filter Ash Ponds & CT Desilting Basin

GenOn Energy

New Florence, PA

Prepared for:

United States Environmental Protection Agency
Office of Resource Conservation and Recovery

Prepared by:

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Fairfax, Virginia

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INTRODUCTION, SUMMARY CONCLUSIONS AND RECOMMENDATIONS

The release of over five million cubic yards from the Tennessee Valley Authority's Kingston, Tennessee facility in December 2008, which flooded more than 300 acres of land, damaging homes and property, is a wake-up call for diligence on coal combustion residue disposal units. We must marshal our best efforts to prevent such catastrophic failure and damage. A first step toward this goal is to assess the stability and functionality of the ash impoundments and other units, then quickly take any needed corrective measures.

This assessment of the stability and functionality of the CCR management units, Ash Filter Ponds and the Cooling Tower Desilting Basin at the Conemaugh Generating Station, is based on a review of available documents and on the site assessment conducted by Dewberry personnel on September 14, 2012. We found the supporting technical documentation to be generally inadequate, although the furnished project data, together with simple calculations by Dewberry, was adequate for making preliminary assessments. The maintenance and operating procedures appear to be adequate. The surveillance program was found to be generally adequate, although inspections at both management units should be formalized (Subsections 1.1.7 and 1.2.7).

In summary, both of the CCR management units at the Conemaugh Generating Station are **POOR** for continued safe and reliable operation, with no recognized existing or potential management unit safety deficiencies. Assuming the dikes are constructed of native soils and appropriately constructed, there is no immediate concern for dike failure. The rating is influenced by the lack of documentation of engineering analyses.

PURPOSE AND SCOPE

The U.S. Environmental Protection Agency (EPA) is embarking on an initiative to investigate the potential for catastrophic failure of Coal Combustion Surface Impoundments (i.e., management unit) from occurring at electric utilities in an effort to protect lives and property from the consequences of a dam failure or the improper release of impounded slurry. The EPA initiative is intended to identify conditions that may adversely affect the structural stability and functionality of a management unit and its appurtenant structures (if present); to note the extent of deterioration (if present), status of maintenance and/or a need for immediate repair; to evaluate conformity with current design and construction practices; and to determine the hazard potential classification for units not currently classified by the management unit owner or by a state or federal agency. The initiative will address management units that are classified as having a Less-than-Low, Low, Significant or High Hazard Potential ranking. (For Classification, see pp. 3-8 of the 2004 Federal Guidelines for Dam Safety)

In February 2009, the EPA sent letters to coal-fired electric utilities seeking information on the safety of surface impoundments and similar facilities that receive liquid-borne material that store or dispose of coal combustion residue. This letter was issued under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 104(e), to assist the Agency in assessing the structural stability and functionality of such management units, including which facilities should be visited to perform a safety assessment of the berms, dikes, and dams used in the construction of these impoundments.

EPA requested that utility companies identify all management units including surface impoundments or similar diked or bermed management units or management units designated as landfills that receive liquid-borne material used for the storage or disposal of residuals or by-products from the combustion of coal, including, but not limited to, fly ash, bottom ash, boiler slag, or flue gas emission control residuals. Utility companies provided information on the size, design, age and the amount of material placed in the units. The EPA used the information received from the utilities to determine preliminarily which management units had or potentially could have High Hazard Potential ranking.

The purpose of this report is **to evaluate the condition and potential of residue release from management units and to determine the hazard potential classification**. This evaluation included a site visit. Prior to conducting the site visit, a two-person team reviewed the information submitted to EPA, reviewed any relevant publicly available information from state or federal agencies regarding the unit hazard potential classification (if any) and accepted information provided via telephone communication with the management unit owner. Also, after the field visit, additional information was received by Dewberry & Davis LLC about the facility that were reviewed and used in preparation of this report.

Factors considered in determining the hazard potential classification of the management units(s) included the age and size of the impoundment, the quantity of coal combustion residuals or by-products that were stored or disposed of in these impoundments, its past operating history, and its geographic location relative to down gradient population centers and/or sensitive environmental systems.

This report presents the opinion of the assessment team as to the potential of catastrophic failure and reports on the condition of the management unit(s).

LIMITATIONS

The assessment of dam safety reported herein is based on field observations and review of readily available information provided by the owner/operator of the subject coal combustion residue management unit(s). Qualified Dewberry engineering personnel performed the field observations and review and made the assessment in conformance with the required scope of work and in accordance with reasonable and acceptable engineering practices. No other warranty, either written or implied, is made with regard to our assessment of dam safety.

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1.0 CONCLUSIONS AND RECOMMENDATIONS

1.1 CONCLUSIONS

Conclusions are based on visual observations from a one-day site visit September 14, 2012, and review of technical documentation provided by GenOn Energy.

1.1.1 Conclusions Regarding the Structural Soundness of the Management Unit(s)

The Ash Filter Ponds dike, Desilting Basin dikes, and the associated outlet structures appear to be structurally sound. This conclusion is based on a review of the project data provided by GenOn's technical staff and Dewberry engineers' observations during the site visit, as well as conservative simple calculations to check stability of the dikes. This assessment is considered preliminary until GenOn provides formal documentation of slope stability (see discussion in Section 7.2 and recommendation in Subsection 1.2.3).

1.1.2 Conclusions Regarding the Hydrologic/Hydraulic Safety of the Management Unit(s)

The Ash Filter Ponds and the Desilting Basin, which do not receive off-site runoff, appear to have adequate hydrologic/hydraulic safety against design rainfall events. This conclusion is based on review of furnished project information and Dewberry engineers' simple calculations to check capacity of the Ash Filter Ponds and Desilting Basin to safely contain design rainfall.

1.1.3 Conclusions Regarding the Adequacy of Supporting Technical Documentation

The furnished supporting technical documentation for the Ash Filter Ponds and the Desilting Basin is generally inadequate. However, the furnished project documentation, together with Dewberry engineers' simple calculations described in this report, allows preliminary assessments of hydrologic/hydraulic safety and structural stability of the Ash Filter Ponds and Desilting Basin dikes. Formal documentation of hydrologic/hydraulic safety and structural stability of the Ash Filter Ponds should be prepared and maintained on file for record purposes (see recommendation in Subsection 1.2.3).

1.1.4 Conclusions Regarding the Description of the Management Unit(s)

The descriptions of the subject management units provided by GenOn are generally accurate representations of what Dewberry observed in the field.

1.1.5 Conclusions Regarding the Field Observations

Dewberry staff was provided access to all areas in the vicinity of the subject management units required to conduct a thorough field observation. The visible parts of the impounding embankments and outlet structures were observed to have no signs of overstress, significant settlement, shear failure, or other signs of instability. The embankments appeared structurally sound. No animal burrows were observed. There were no apparent indications of unsafe conditions or conditions needing emergency remedial action.

1.1.6 Conclusions Regarding the Adequacy of Maintenance and Methods of Operation

The current maintenance and methods of operation for both the Ash Filter Ponds and the Desilting Basin appear to be adequate. There was no evidence of significant embankment repairs or prior releases observed during the field inspection.

1.1.7 Conclusions Regarding the Adequacy of the Surveillance and Monitoring Program

The surveillance program for the Ash Filter Ponds and Desilting Basin is not formal but apparently has been sufficient. Nevertheless, it would be prudent to formalize the inspection program to include documented quarterly inspections performed by station personnel (see Subsection 1.2.7).

There is no dam performance monitoring instrumentation in place at either the Ash Filter Ponds or the Desilting Basin. No problem or suspect condition, such as excessive settlement, significant flowing seepage, shear failure, or displacement was observed in the field that might be reason for installation of instrumentation for long-term performance monitoring. Therefore, there is no need for performance monitoring instrumentation at this time.

1.1.8 Classification Regarding Suitability for Continued Safe and Reliable Operation

Both the Ash Filter Ponds and the Desilting Basin are rated POOR for continued safe and reliable operation; however no existing or potential management unit safety deficiencies are recognized. Based on preliminary assessments by Dewberry, acceptable performance is expected under all applicable loading conditions (static, hydrologic, seismic) in accordance with the applicable criteria. The rating is influenced by the lack of any formal documentation of hydrologic/hydraulic safety and slope stability for the Ash Filter Ponds and Desilting Basin dikes. Implementation of recommendations as presented below would help improve the rating.

1.2 RECOMMENDATIONS

1.2.1 Recommendations Regarding the Structural Stability

No recommendations for remedial work to ensure structural stability appear warranted at this time (see recommendation in Subsection 1.2.3 concerning slope stability analyses and determination of Factors of Safety (FS)).

1.2.2 Recommendations Regarding the Hydrologic/Hydraulic Safety

No recommendations for remedial work to ensure hydrologic/hydraulic safety appear warranted at this time (see recommendation in Subsection 1.2.3 concerning performance of hydrologic/hydraulic analyses).

1.2.3 Recommendations Regarding the Supporting Technical Documentation

For both the Ash Filter Ponds and Desilting Basin:

1) Prepare and maintain on file formal documentation of slope stability analyses and safety factors.

2) Prepare and maintain on file formal documentation of hydrologic/hydraulic safety showing the impoundments ability to hold design floods and precipitation.

1.2.4 Recommendations Regarding the Surveillance and Monitoring Program

For both the Ash Filter Ponds and Desilting Basin:

1) Formalize the inspection program by implementing documented quarterly inspections performed by station personnel using a checklist form.

1.2.5 Recommendations Regarding Continued Safe and Reliable Operation

No additional recommendations appear warranted at this time. Implementation of the above recommendations will help ensure continued safe and reliable operation of the Conemaugh CCR management units and will help in upgrading the rating.

1.3 PARTICIPANTS AND ACKNOWLEDGEMENT

1.3.1 List of Participants

Stephen M. Frank, GenOn
Sr. Environmental Specialist
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Sr. Engineer
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Solid Waste Specialist
Fred Tucker, P.E. Dewberry
Senior Engineer/Project Manager
Edward Farquhar, Dewberry
Senior Project Manager

1.3.2 Acknowledgement and Signature

We acknowledge that the management unit referenced herein has been assessed on September 14, 2012.

________________________ ________________________

Fred C. Tucker, P.E. Edward A. Farquhar

2.0 DESCRIPTION OF THE COAL COMBUSTION RESIDUE MANAGEMENT UNIT(S)

2.1 LOCATION AND GENERAL DESCRIPTION

The Conemaugh Generating Station is located in the southeast section of Indiana County at 1442 Power Plant Road, New Florence PA on 2,838 acres. Conemaugh River borders the facility to the south. See Figure 2.1-1 for the location of the Conemaugh Generating Plant on a USGS topographic map. Conemaugh Generating Station is a coal-fired electric generating station featuring two pulverized coal, supercritical boilers that total 1,700 megawatts and four diesel units with a total generating capacity of 12 megawatts.

The two units were originally commissioned in 1967 and 1968. Conemaugh Generating Station is jointly owned by a group of eight co-owners. GenOn owns a 16.45 percent undivided interest in the Conemaugh station and operates the station on behalf of the owners through its wholly owned subsidiary, GenOn Northeast Management Company.

The generating facility maintains a relatively small CCR management complex called the Ash Filter Ponds, that has four individual cells (Ponds A, B, C and D) that receive water produced from dewatering of bottom ash. See Figure 2.1-2 for an aerial view of the Ash Filter Ponds. The water originates at the Bottom Ash Dewatering Bins located north of the Ash Filter Ponds. During bottom ash sluicing, water is drained from the ash water storage ponds via an overflow weir into the ash water recycle sump and pumped to the bottom ash hoppers. Bottom ash is transferred from the hoppers to the dewatering bins. In the bins, ash settles and water overflows to two of the four cells at the Ash Filter Ponds. Each individual cell is nominally 350 ft by 75 ft in surface area. The individual cells receive the sluiced ash at the east end of the cells. The discharged water exits the cells on the west end via saw tooth weir to a 36-inch diameter Steel Pipe (SPE) to manhole No. 4 which contains a weir. The over flow weir discharges to the ash recycle water sump.

During normal operations, two ponds are valved to settle ash particles carried over from the dewatering bins; one cell is valved for storage of ash water that is drained from the dewatering bin during ash truck loading; and the remaining cell is valved out of service for cleaning or maintenance. The ash water recycle sump contains three ash recycle pumps, one per Unit and one spare. These sump pumps provide water to both Units' bottom ash sluice pumps as described above and to both Units' bottom ash hopper refractory cooling water supply headers. The ash water recycle sump also contains two level control pumps, one operating and one spare. These pumps are used to transfer excess water to the Cooling Tower Desilting Basin (aka C.T. Desilting Basin or Desilting Basin) for temporary storage and use as makeup water to the Flue Gas Desulfurization (FGD) system.

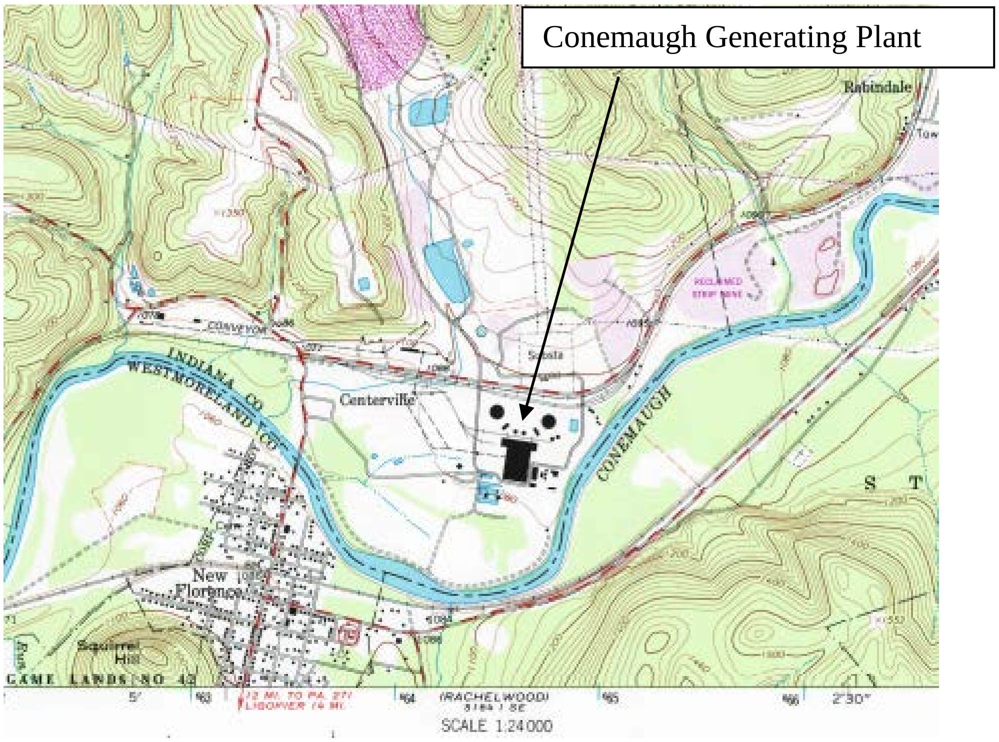

Figure 2.1-1: Conemaugh Generating Plant Location Plan

Table 2.1 shows a summary of the size and dimensions of the Ash Filter Ponds perimeter dike and Desilting Basin.

Table 2.1: Summary of Dam Dimensions and Size		
	Ash Filter Ponds (4 Cells)	**Desilting Basin**
Dam Height (ft)	Varies 0 to 11 ft	Varies 0 to 8 ft
Crest Width (ft)	25 ft	15 ft
Length (ft)	1,420 ft	115 ft
Side Slopes (upstream) H:V	2:1	Varies 0 to 5:1
Side Slopes (downstream) H:V	2:1	5:1

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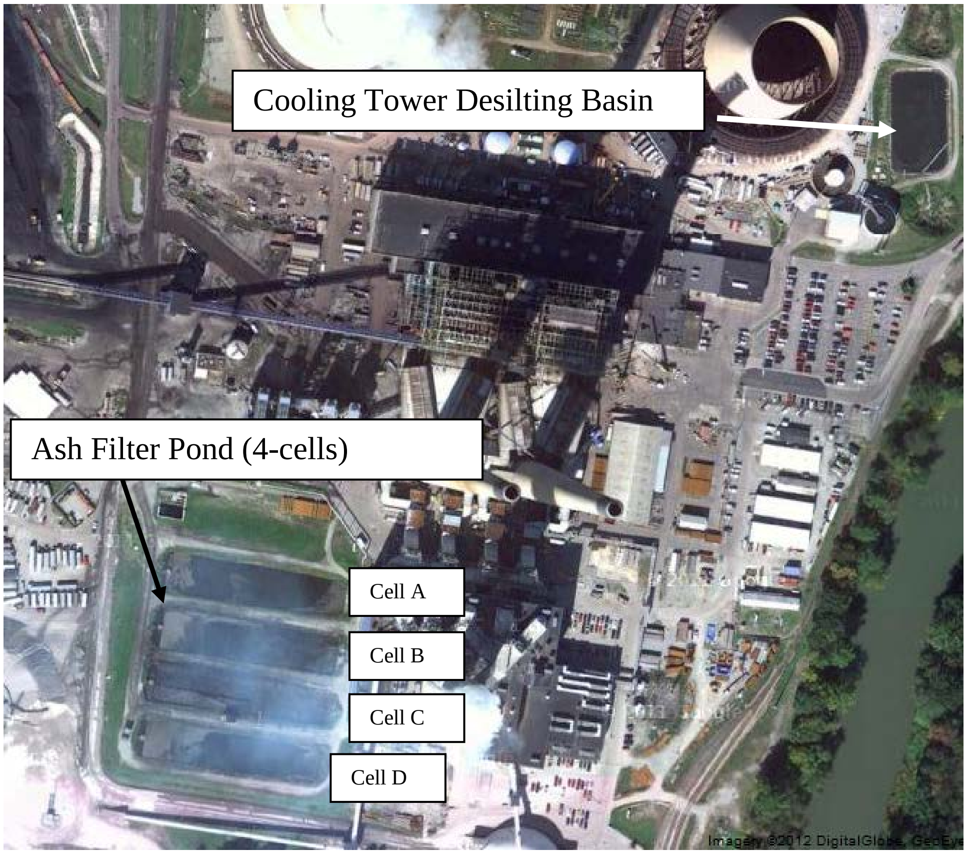

Figure 2.1-2: CCR Impoundment Ash Filter Ponds and Desilting Basin at Conemaugh Generating Plant.

2.2 COAL COMBUSTION RESIDUE HANDLING

2.2.1 Fly Ash

Fly ash generated through the coal combustion process is collected at the precipitator hoppers and pneumatically conveyed in the dry state to storage/load-out bins. After conditioning with some moisture to control dust and to facilitate handling, the fly ash is loaded onto trucks and taken to a landfill on site.

2.2.2 Bottom Ash

The bottom ash is sluiced from ash hoppers in each of Units 1 and 2 to dewatering bins. In the bins, ash settles and water overflows to two of the four ash storage ponds. Four cells are within the Ash Filter Ponds. Normal operation is two ponds in service at all times, with the third pond being drained, cleaned, and prepared for return to service. The fourth pond is used to store the decant water for later use.

2.2.3 Boiler Slag

Boiler slag is not handled separately but included in the bottom ash and therefore treated as bottom ash.

2.2.4 Flue Gas Desulfurization Sludge

Gypsum produced from the flue gas desulfurization system, which uses wet scrubbers, is dewatered and transported through an enclosed tubular gallery conveyor to a dome covered storage pad. Depending on market conditions and quality, the gypsum is sold to an off-site third party for beneficial reuse or transported and disposed in the on-site landfill.

2.3 SIZE AND HAZARD CLASSIFICATION

Size classification per U.S. Army Corps of Engineers (USACE) criteria (ER 1110-2106) is based on maximum potential storage capacity (of water) or maximum dam height, as shown in Table 2.2a. Either dam height or storage capacity may determine the size classification, whichever gives the larger size. See Tables 2.1 and 2.3 for embankment height and estimated pond storage capacity.

According to the information GenOn provided and the field inspection, the Ash Filter Ponds, complex has a maximum capacity of 24.8 acre-ft total for the four cells with a maximum height of 13 ft. The Desilting Basin has a maximum capacity of 4.2 acre-ft with a maximum height of 8 ft. In accordance with the USACE ER 1110-2-106 criteria (Table 2.21), the Ash Filter Ponds, complex and the Desilting Basin has a Small Size classification considering either dam height or storage capacity. The Ash Filter Ponds, embankments are not regulated for dam safety by a federal or state agency. Therefore the Ash Filter Ponds complex does not have federal or state hazard classifications.

Table 2.2a: USACE ER 1110-2-106
Size Classification

Category	Impoundment Storage (Ac-ft)	Impoundment Height (ft)
Small	50 and < 1,000	25 and < 40
Intermediate	1,000 and < 50,000	40 and < 100
Large	> 50,000	> 100

For both the Ash Filter Ponds and the Desilting Basin loss of human life is not expected and economic and environmental losses are expected to be minimal or low. If failure occurred, ash residuals would remain on GenOn property.

Therefore, in accordance with the Federal Guidelines (Table 2.2b), a Low hazard potential classification is given for both the Ash Filter Ponds and the Desilting Basin.

Table 2.2b: Hazard Potential Classification (FEMA Federal Guidelines for Dam Safety)		
Hazard Potential Classification	**Loss of Human Life**	**Economic, Environmental, Lifeline Losses**
Low	None Expected	Low and generally limited to owner
Significant	None Expected	Yes
High	Probable. One or more expected	Yes (but not necessary for classification)

2.4 AMOUNT AND TYPE OF RESIDUALS CURRENTLY CONTAINED IN THE UNIT(S) AND MAXIMUM CAPACITY

Each cell of the Ash Filter Ponds is cleaned out when the ash residuals (sediment) accumulates up to near the normal water level. The clean out is done once or twice a year on a rotating basis, with two cells remaining in operation while the third is cleaned out. Thus, the maximum amount of residuals in the Ash Filter Ponds never reaches the value shown for current storage capacity (18.6 acre-ft or 20,796 cubic yards) or for maximum storage capacity (the total volume of all three cells from original bottoms to the top of the perimeter dike embankment) in Table 2.3 below.

The Desilting Basin receives no ash residuals, except as an emergency overflow from the Ash Filter Ponds.

Table 2.3: Maximum Capacity of Unit		
	Ash Filter Ponds	**Desilting Basin**
Surface Area (acre)[1]	3.4	0.53
Current Storage Capacity (cubic yards) [1]	30,000	6,727
Current Storage Capacity (acre-feet)	18.6	4.2
Max Storage Capacity (cubic yards) [1, 2]	40,000	6,727
Max Storage Capacity (acre-feet)	24.8	4.2
Crest Elevation (feet) [1, 3]	1092	1081
Normal Pond Level (feet) [1, 3]	1090	1079

1) Doc 3 – Part D – Pond/Impoundment Systems and other wastewater treatment operations
2) One cell at the Ash Filter Ponds was drained and in the process of being cleaned
3) Doc 09 - Drawing number D-739-5009, Cooling Tower Desilting Basin

2.5 PRINCIPAL PROJECT STRUCTURES

2.5.1 Earth Embankment

Ash Filter Ponds

The Ash Filter Ponds consist of four contiguous cells surrounded by a perimeter dike and separated by divider dikes. Each cell is approximately 350 ft by 75 ft at top of dike embankment elevation, with the long dimension of the cells oriented generally east to west. The top of embankment elevation (inside edge) varies from 1092.5 (west side) to 1095.8 (east side). Normal water level elevation in the cells is 1090 ft. The interior side slopes are 2 horizontal (H) to 1 vertical (V). The perimeter dike embankment is highest at 13.5 ft above the outside toe on the south side and has an exterior slope that is typically 2:1. The height of the perimeter dike embankment on the north and west sides varies from 3 ft to 13 ft (southwest corner). The crest width of the perimeter dikes around the pond is approximately 25 ft wide and the typical crest width of the divider dikes is 25 ft.

Drawings indicate that the dikes are constructed with random fill. On the bottom the liner is indicated to consist of the following, in descending order:

1. 2.5 ft bottom ash;
2. 1.5 ft #8 coarse aggregate;
3. 8 inch impervious fill treated with bentonite;
4. 1 ft 4 in impervious fill; and
5. Compacted subgrade.

On the side slopes the liner is indicated to consist of:
1. 1.5 ft R-3 Rock lining; and
2. 2 ft impervious fill and impervious fill treated with bentonite.

Desilting Basin

The configuration of the Desilting Basin is classified as “Cross Valley”. The top of embankment elevation is 1081 ft. The normal water elevation is 1079 ft. The interior side slopes of the basin is 2 horizontal (H) to 1 vertical (V). The perimeter dike embankment is highest at 8 ft above the outside toe on the south side and has an exterior slope that has a 5:1 slope.

On the bottom the liner is indicated to consist of the following, in descending order:

1. 6 inch #ID-2 bituminous concrete;
2. 6 inches of sand fill;
3. Composite liner (calymax plus 50 mil HDPE);
4. Non-woven Geotextile fabric;
5. 6 inch thick No. 8 stone (leak detection zone); and
6. Non-woven Geotextile fabric and 50 mil textured HDPE liner.

On the side slopes the liner is indicated to consist of:

1. 6 inch #ID-2 bituminous concrete;
2. 6 inches of sand fill;
3. Composite liner (calymax plus 50 mil HDPE);
4. Non-woven Geotextile fabric; and
5. HDPE Drainage net over 50 mil textured HDPE liner

The underdrain system is indicated to consist of a central 4-inch diameter perforated polyethylene (CPE) pipe (running north-south) with 4 inch diameter CPE lateral pipes (5 each) connected to the center pipe. The perforated pipes are indicated to be within the 6-inch No. 8 stone layer on the bottom of the basin.

2.5.2 Outlet Structures

The principal spillway at the Ash Filter Ponds from each cell is through "saw tooth" weirs into a weir trough to concrete riser with bottom discharge through 36" diameter SPE pipe to ash water recycle sump during normal operation.

The outlet structure at the Desilting Basin is via an overflow 24-inch diameter Standard Dimension Ratio (SDR)-26 pipe (elevation 1079.0 ft). The pipe discharges to a 60-inch Reinforce Concrete Pipe (RCP) then to a 22-inch diameter SDR-26 pipe.

2.6 CRITICAL INFRASTRUCTURE WITHIN FIVE MILES DOWN GRADIENT

"Critical" infrastructure includes facilities such as schools, hospitals, fire stations, police stations, etc. There appears that such facilities may be considered critical or potentially critical infrastructure located within a 5-mile radius of the plant (down gradient). The facilities are noted on the 5-mile radius map. (See Figure 2.6-1).

Critical infrastructures consist of schools and fire departments. It does not appear that the facilities would be threatened or directly impacted by failure of the dikes at the Conemaugh plant. In general the land use around Conemaugh is rural. The town of New Florence is located just southwest of the plant (1,000 ft). Flood water and CCR released from a postulated failure of the Ash Ponds perimeter dike and the Desilting Basin would primarily impact GenOn property and not impact the Conemaugh River or the surrounding area.

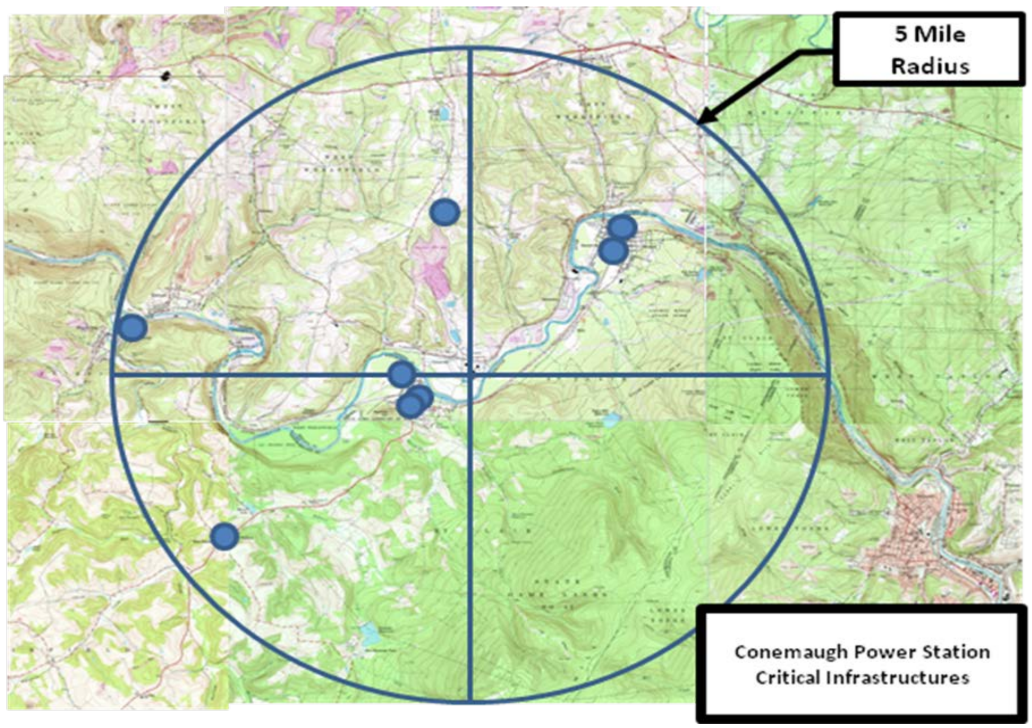

Figure 2.6-1: Critical Infrastructures within a 5 mile radius of the facility.

3.0 SUMMARY OF RELEVANT REPORTS, PERMITS, AND INCIDENTS

3.1 SUMMARY OF REPORTS ON THE SAFETY OF THE MANAGEMENT UNIT

No safety reports were provided.

3.2 SUMMARY OF LOCAL, STATE, AND FEDERAL ENVIRONMENTAL PERMITS

Discharge from the impoundment is regulated by the Pennsylvania Department of Environmental Protection Bureau of Waste Management and the impoundment has been issued a National Pollutant Discharge Elimination System Permit. Permit No. PA0005011 was issued December 2001 (See Appendix A – Doc 01).

3.3 SUMMARY OF SPILL/RELEASE INCIDENTS

Data reviewed by Dewberry did not indicate any spills, unpermitted releases, or other performance related problems with the dam over the last 10 years.

4.0 SUMMARY OF HISTORY OF CONSTRUCTION AND OPERATION

4.1 SUMMARY OF CONSTRUCTION HISTORY

4.1.1 Original Construction

The Conemaugh Generation Plant began commercial operation in 1967 and 1968.

The Pond cells were constructed in 1985-1986; the Desilting Basin was constructed in 1996.

4.1.2 Significant Changes/Modifications in Design since Original Construction

A fourth cell was added to the Ash Filter Ponds in 1983 (See Appendix A-Doc 12). No other information was provided on any significant changes to the original design.

4.1.3 Significant Repairs/Rehabilitation since Original Construction

No documentation was provided to indicate any significant repair/rehabilitation has taken place since the original construction.

4.2 SUMMARY OF OPERATIONAL PROCEDURES

4.2.1 Original Operational Procedures

The impoundment was designed and operated for bottom ash sedimentation and control. The pond receives plant process waste water, and coal combustion waste slurry. Treated (via sedimentation) process water is discharged through an overflow outlet structure and recycled.

4.2.2 Significant Changes in Operational Procedures and Original Startup

No documents were provided to indicate any operational procedures have changed.

4.2.3 Current Operational Procedures

The sluice ash originates from the Dewatering Bins located east of the Ash Filter Ponds to a distribution box. The individual cells in the Ash Filter Ponds receive the sluice ash at the east end of the cells. The discharged water exits the cells on the west end via saw tooth weir to a 36-in dia. SPE pipe to ash water recycle sump during normal operation. The Desilting

Basin is only used in an emergency and typically does not receive ash water.

4.2.4 Other Notable Events since Original Startup

No additional information was provided to Dewberry concerning notable events impacting the operation of ash disposal activities

5.0 FIELD OBSERVATIONS

5.1 PROJECT OVERVIEW AND SIGNIFICANT FINDINGS

Dewberry personnel Fred Tucker P.E. and Edward Farquhar performed a site visit on September 14, 2012 in company with the participants listed in Section 1.3.

The site visit began at 9:00 AM. The weather was sunny with the temperatures in the high 70's. Photographs were taken of conditions observed. Please refer to the Dam Inspection Checklist in Appendix B. Selected photographs are included here for ease of visual reference. All pictures were taken by Dewberry personnel during the site visit.

The overall assessment of the dam was that it was in satisfactory condition and no significant findings were noted.

5.2 EARTH EMBANKMENT 1 (ASH FILTER PONDS)

5.2.1 Crest

The crest of the embankment had no signs of significant depressions, tension cracks or other indications of settlement or shear failure. Figure 5.2.1-1 shows the typical crest conditions along the embankment.

Figure 5.2.1-1. North end of the crest

5.2.2 Upstream/Inside Slope

The inside slopes of all the cells within the Ash Filter Ponds are lined with a 2-ft thick layer of both impervious fill and impervious fill mixed with bentonite clay lined with R-3 rock covering. On the north end of the cell #3 an additional layer of an 8-inch aggregate layer with a filter fabric “B” is beneath the clay layer. The interior slopes appear stable and maintained. There were no observed scarps, sloughs, bulging, cracks, depressions or other indications of slope instability.

Figure 5.2.2-1 Inside slopes of the Ash Pond and interior dikes between the cells.

5.2.3 Downstream/Outside Slope and Toe

The outside slope of the embankment appeared to have a fairly well maintained cover of grasses/weeds. No scarps, sloughs, bulging, cracks, depressions or other indications of slope instability were observed along the slope. Figures 5.2.3-1 through 5.2.3-2 show representative sections of the embankment.

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Figure 5.2.3-1 Toe of the downstream dike (south side of Pond).

Figure 5.2.3-2 Toe of the east side dike of Ash Filter Ponds).

5.2.4 Abutments and Groin Areas

There were no observed scarps, sloughs, bulging, cracks, depressions or other indications of slope instability at dike abutments and groin areas of the Ash Filter Ponds.

Figure 5.2.4-1 Groin area of the Ash Filter Ponds (southeast corner)

Figure 5.2.4-2 Groin area of the Ash Filter Ponds (southwest corner)

5.3 EARTH EMBANKMENT 2 (DESILTING BASIN)

5.3.1 Crest

The crest of the embankment had no signs of significant depressions, tension cracks or other indications of settlement or shear failure.

Figure 5.3.1-1 Crest and embankments of the Desilting Basin.

5.3.2 Upstream/Inside Slope

Inside slope of the Desilting Basin is covered with a 6 inch #ID-2 bituminous concrete. The slopes appear stable and well maintained. The operating pool elevation was 1079 ft, consequently only 2 ft of the inside was visible during the site visit. There were no observed scarps, sloughs, bulging, cracks, depressions or other indications of slope instability.

5.3.3 Downstream/Outside Slope and Toe

The outside slope of the Desilting Basin embankment appeared to have a satisfactorily maintained cover of grasses/weeds. No scarps, sloughs, bulging, cracks, depressions or other indications of slope instability were observed along the slope. Figures 5.3.3-1 shows a section of the Desilting Basin outside slope.

Figure 5.3.3-1 Desilting Basin Outside slope.

5.3.4 Abutments and Groin Areas

There were no observed scarps, sloughs, bulging, cracks, depressions or other indications of slope instability at dike abutments and groin areas of the Desilting Basin.

5.4 OUTLET STRUCTURES

5.4.1 Overflow Structure

The outlet structures for the Ash Filter Ponds (via 4 cells) is through “saw tooth” weirs into a weir trough to a 36-inch diameter SPE to manhole No. 4 which contains a weir. The over flow weir discharges to the ash recycle water sump. A metal skimmer is located in front of the saw tooth weir (Figure 5.4.1-1). Water is forced to flow under the metal skimmer and over the top of the saw tooth weir to skim any floating material and prevent clogging. The over flow structure at the Desilting Basin is via an over flow 24-inch diameter SDR-26 pipe (Figure 5.4.1-2). The pipe discharges to a 60-inch RCP then to a 22-inch diameter SDR-26 pipe.

Figure 5.4.1-1 Typical outlet structure for Ash Filter Ponds.

Figure 5.4.1-2 Outlet structure for Desilting Basin.

5.4.2 Outlet Conduit

The Ash Filter Ponds complex recycles the water to a recycle sump structure that contains three ash recycle pumps, one per coal-fired Unit and one spare. These sump pumps provide water to both Units. The ash water recycle sump also contains two level control pumps, one operating and one spare (See Figure 5.4.2-3). These pumps are used to transfer excess water to the cooling tower Desilting Basin for temporary storage. Figure 5.4.2-1 shows the outlet pipe from the Ash Filter Ponds to the recycle sump structure (Figure 5.4.2-2).

Figure 5.4.2-1 Outlet structure from the Ash Filter Ponds to the recycling structure.

Figure 5.4.2-2 Recycling structure

Figure 5.4.2-3 Recycling Pumps.

5.4.3 Emergency Spillway

Not applicable; no emergency spillway exists at this facility.

5.4.4 Low Level Outlet

Not applicable; no low level outlet exists at this facility

6.0 HYDROLOGIC/HYDRAULIC SAFETY

6.1 SUPPORTING TECHNICAL DOCUMENTATION

6.1.1 Flood of Record

No documentation has been provided about the flood of record. However, neither the Ash Filter Ponds nor the Desilting Basin receives off-site drainage. The water levels in the ponds are controlled more by plant processes than by flood events. Thus, a flood of record for the ponds is not applicable.

In addition, there are no reported instances of plant operational problems that would have caused the pond water levels to significantly exceed the normal water levels.

6.1.2 Inflow Design Flood

The Ash Filter Ponds and the Desilting Basin at the Conemaugh Generating Station do not receive uncontrolled inflows from off-site. For such ponds that are totally contained within a perimeter dike system or otherwise isolated from off-site drainage, safe containment of water within the ponds is provided by maintaining sufficient freeboard to contain 100 percent of design precipitation over the pond areas. The design precipitation amounts may be determined as discussed below.

For the “small” size and “low” hazard potential classification assigned to both the Ash Filter Ponds and Desilting Basin dikes, the USACE hydrologic evaluation guidelines (ER-1110-2-106 26 Sept 1979 “Recommended Guidelines for the Safety Inspection of Dams”) recommend a spillway design flood (SDF) of 50-year to 100-year frequency, where the magnitude selected most closely relates to the involved risk. For comparison, the Pennsylvania Dam Safety Regulations (amended 2011) require the same SDF (50-year to 100-year frequency) for dams classified C-4, which is equivalent to the small size, low hazard potential classification. The precipitation depths for 24-hour duration at the Ash Filter Ponds coordinates are 5.08 inches and 5.77 inches for 50-year frequency and 100-year frequency, respectively, from the National Weather Service’s on-line Precipitation Frequency Data Server, which gives point precipitation frequency estimates from “Precipitation-Frequency Atlas of the United States” NOAA Atlas 14, Volume 2, Version 3.

6.1.3 Spillway Rating

No spillway rating was provided for the outlet structures at the Ash Filter Ponds and the Desilting Basin. However, no outfall is assumed in the assessment in Section 6.3

6.1.4 Downstream Flood Analysis

No downstream flood analysis has been provided for the Ash Filter Ponds or the Desilting Basin. Qualitative analysis for each management unit based on field observations and review of available data is given below.

Ash Filter Ponds – Failure of the low perimeter dike impounding the 3.4-acre Ash Filter Ponds would discharge coal combustion residue onto surrounding plant property. A failure would most likely be of only one cell, which contains only a fourth of the total volume of the Ash Filter Ponds complex or less than 4.65 acre-ft. The failure would not be expected to cause loss of life but would cause minor onsite environmental damage. In case of failure, the preferential direction of flow of water leaving the vicinity of the Ash Filter Ponds would be toward lowest ground to the south, toward the Conemaugh River approximately 0.2 mile away. Any ash sediment that is carried with the water would mostly be deposited in the immediately adjacent areas to the south and would remain well within the plant boundaries. Water released that reaches the plant railroad embankment to the south would be diminished and contained on the north side of the embankment before reaching the river. Some of the water would likely flow through any culvert(s) under the embankment but would be highly attenuated before reaching the floodplain and river on the south side. There would be no flood wave impact to the river.

Desilting Basin – The Desilting Basin was formed by isolating a section of a natural drainage feature with low dams (dikes) across the drainage feature at the north and south ends of the basin. The natural storm water flow in the drainage feature is diverted through a pipe to by-pass the basin and discharge into a low area on the south side of the basin. Thus, postulated failure of this 0.53-acre basin could be either through the north dike embankment or the south dike embankment. Failure in either direction would release only minor amounts of CCR, since this basin contains incidental amounts of ash carried in pump discharge from the ash recycle sump at the Ash Filter Ponds complex. Water released by failure through either dike would end up in the same low area on the south side of the basin. The low area is contained by an embankment with a crest elevation at or slightly above the basin rim elevation. The Conemaugh River is on the other side of the embankment approximately 290 ft southeast of the Desilting Basin. Normal discharge from the Desilting Basin to the river is through a pipe that passes through a larger pipe (sleeve) in the embankment. Water from a postulated failure would pool in the low area and would be gradually released to the river by flowing through the annular space between the outside of the discharge pipe and the inside of the pipe sleeve in the embankment. Thus, there would be no flood wave impact to the river.

6.2 ADEQUACY OF SUPPORTING TECHNICAL DOCUMENTATION

No rigorous or even simple hydrologic/hydraulic analyses have been provided for the Ash Filter Ponds or the Desilting Basin. Therefore, the supporting technical documentation for hydrologic safety is inadequate. However, for ponds that are totally contained within perimeter dike systems or otherwise isolated from uncontrolled off-site drainage, rigorous analyses of natural flooding events are not warranted. A simple hydrologic/hydraulic analysis, which examines the ability of the pond/basin to safely contain 100 percent of the design precipitation depth over the pond/basin area, was made for purposes of this assessment. This simple analysis is discussed in the following assessment. Formal documentation of the hydrologic/hydraulic safety of the Ash Filter Ponds should be developed and maintained on file for record purposes.

6.3 ASSESSMENT OF HYDROLOGIC/HYDRAULIC SAFETY

By inspection, both the Ash Filter Ponds and the Desilting Basin appear to have adequate hydrologic safety for the design precipitation depths given in Subsection 6.1.2, since there currently is more than sufficient flood storage volume available between the normal operating water level and the crest elevation of the impounding dikes. That is, the normal freeboard is maintained at 2 ft in both the Ash Filter Ponds and the Desilting Basin. The design precipitation depth at the high end of the design range (100-year frequency) is 5.77 inches or 0.48 ft, which is much less than the available freeboard, indicating there is ample available surcharge storage for safe containment of the design precipitation over the pond area, including runoff from the crest areas (which are graded to drain into the ponds) and conservatively assuming no outflow. The Ash Filter Ponds and the Desilting Basin should continue to have adequate hydrologic safety unless the average surface elevation of ash sediment is allowed to build up to approximately the design precipitation depth below the crest elevation; however, because of the periodic maintenance cleaning of the ash sediment in the ponds/basin, the sediment level should never reach such a high level (especially in the Desilting Basin, which receives only incidental amounts of ash) and most likely would never be allowed to build up above the normal operating level.

7.0 STRUCTURAL STABILITY

7.1 SUPPORTING TECHNICAL DOCUMENTATION

7.1.1 Stability Analyses and Load Cases Analyzed

No slope stability analyses were provided for very low dike embankments impounding the Ash Filter Ponds or Desilting Basin (see Sections 7.2 and 7.3).

7.1.2 Design Parameters and Dam Materials

No appreciable information on design parameter and dam materials was provided. A furnished drawing (D-782-018, Rev B, dated 4/6/1984) for the Ash Filter Ponds Addition (Pond 4, now designated Pond D) notes "Dike Material – Sandy Clayey Gravel and/or Sandy Clay" and "Existing Material – Silty Sand" apparently in the area of the addition before development.

7.1.3 Uplift and/or Phreatic Surface Assumptions

No data concerning phreatic surface assumptions was provided. However, since both the Ash Filter Ponds and the Desilting Basin are lined, no phreatic surface would be expected to develop in the dike embankments, if the liners function properly. Based on the Natural Resources Conservation Service (NRCS) Web Soil Survey, the groundwater level at the Ash Filter Ponds site likely is at shallow depth below the ponds and at comparatively greater depth below the Desilting Basin.

7.1.4 Factors of Safety and Base Stresses

No information concerning slope stability factors of safety for the dike embankment slopes was provided (see Sections 7.2 and 7.3).

7.1.5 Liquefaction Potential

No documentation concerning liquefaction potential was provided (see Section 7.3).

7.1.6 Critical Geological Conditions

Based on a map from "Map 61 – Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania," 1981, PA Geological Survey, New Florence Quadrangle, the Conemaugh Generating Station is shown to be underlain by the Glenshaw Formation (Pcg). The Glenshaw Formation is described as "Cyclic sequences of shale, sandstone, red beds, and then limestone and coal. It also includes four marine limestone or shale horizons. The red beds are involved in landslides and the base is at the top of Upper Freeport Coal." The source of this description is the Pennsylvania Bureau of Topographic and Geologic Survey, Department of Conservation and Natural Resources, 2001, Bedrock Geology of Pennsylvania, edition: 1.0, digital map. The primary rock type is shale and the secondary rock type is sandstone

From the NRCS Web Soil Survey, the areas of both the Ash Filter Ponds and the Desilting Basin are mapped primarily with soils identified as Monongahela Silt Loam (MoA2), 0 to 3 percent slopes. Pertinent information about this soil is listed below.

Landform: Terrace
Parent material: Old alluvium derived from sandstone and shale
Depth to restrictive layer (fragipan, uncemented): 25 to 35 inches
Depth to water table: 17 to 27 inches
Drainage Class: Moderately well drained
Frequency of flooding: None
Frequency of ponding: None
Typical profile:
- 0-9 inches: Silt Loam; Unif. Soil Classif. (USC) = CL-ML, ML, SC-SC, SM; Plasticity Index (PI) = 1-10
- 9-29 inches: Loam; USC = CL-ML, CL; PI = 5-15
- 29-63 inches: Loam; USC = SC, SM, CL, ML; pi = 3-15
- 63-80 inches: Cobbly Sandy Loam; USC = SM, CL, ML, SC: PI = 1-15

Allegheny Silt Loam (AhA) is mapped slightly within the areas of the ponds and basin but mostly outside immediately to the south. This soil is similar to the above but there is no restrictive layer and the water table is greater than 80 inches deep.

Hazards associated with the geology of the region include the potential presence of old mine tunnels in former coal seams or possibly solution voids in the limestone layers and risk of landslides in redbeds exposed in natural slopes or in manmade cut slopes.

Seismicity – The Conemaugh Generation Station is located in a region of relatively low seismic hazard, based on internet review of published information concerning seismicity in this part of Pennsylvania. From the USGS Interactive Deaggregation website, based on the USGS Seismic-Hazard Maps for Central and Eastern United States, dated 2008, the Ash Filter Ponds and the Desilting Basin are at locations anticipated to experience 0.050g peak (horizontal) ground acceleration (PGA) with a 2-percent probability of exceedance in 50 years (2,475-year exceedance return time), assuming uniform firm-rock site conditions, i.e., a site with average shear wave velocity of 2,500 feet per second (fps) in the upper 100 feet below the ground surface.

7.2 ADEQUACY OF SUPPORTING TECHNICAL DOCUMENTATION

No structural stability documentation has been provided for the Ash Filter Ponds and Desilting Basin dikes. Therefore, the supporting technical documentation for slope stability is inadequate. However, rigorous analyses of slope stability for the low (11 ft and 8 ft maximum height) dikes with low hazard potential are not warranted. Simple analysis of slope stability through conservative use of slope stability charts, as discussed below can be used to make an assessment of the structural stability of the containment dikes, although very limited information is available for making conservative estimates of soil properties and parameters for use in the simple stability analysis. Formal documentation of stability of the Ash Filter Ponds and Desilting Basin Dikes should be developed based on site-specific soil information and maintained on file for record purposes.

7.3 ASSESSMENT OF STRUCTURAL STABILITY

From the limited furnished information and the geology and soil survey information discussed in Subsection 7.1.6, to the analysis assumes that the dike embankment and foundation soils consist of fine-grained silty and clayey soils (ML, CL, ML-CL) and/or granular soils with a significant proportion of silt and clay "fines" (SM, SC, GC). Such soils would not normally be susceptible to liquefaction under the low to moderate earthquake shaking that would be expected in this region, as long as SM soils are not in a very loose state. Furthermore, if construction was carried out with a normal degree of care, it would be reasonable to expect that the embankment soils are compacted to at least medium stiff consistency for cohesive soils and medium relative density for the more granular soils. The undrained shear strength (Su) or cohesion (C) of a purely cohesive soil with medium stiff consistency typically is in the range of 500 to 1,000 psf. For medium dense granular soils with a significant silt or clay component, the angle of internal friction

(Ø) may typically be in the range 30 to 34 degrees with cohesion (C) in the range of 0 to 300 psf. For conservatism, the following simple stability analyses assume 2/3 of the average of the strength-parameter ranges given above, that is:

1) For purely cohesive soil: C = 2/3[(500 + 1,000)/2] = 500 psf; Ø = 0
2) For C-Ø soil: C = 2/3[(0 + 300)/2] = 100 psf; Ø = 2/3[(30 + 34)/2] = 21 degrees (rounded)

A reasonable assumption of unit weight (γ) is 125 pcf.

From a stability chart for cohesive soils in NAVFAC DM-7.1, Soil Mechanics Design Manual, Department of the Navy, Naval Facilities Engineering Command (1982), and assuming 11 ft high slope for the Ash Filter Ponds dike, 8 ft high slope for the Desilting Basin dike, 2H: 1V slope for both, and firm base 3 ft below the base of the slope for both, the following factors of safety (FS) were computed steady state for static conditions:

Ash Filter Ponds dike FS = 2.43

Desilting Basin dike FS = 3.22

A similar exercise using a stability chart for soils having both Ø & C in the original NAVFAC DM-7 (1971) yields the following:

Ash Filter Ponds dike FS = 1.53

Desilting Basin dike FS = 1.70

The above conservative simple analyses yield factors of safety that exceed the normally accepted minimum factor of safety criterion (FS =1.5) for steady state conditions. Thus, the Ash Filter Ponds and Desilting Basin dikes appear to have adequate static stability. Based on USACE ER 1110-2-106, dam projects located in areas of low to moderate seismicity (formerly designated as Seismic Zones 0, 1, and 2) "may be assumed to present no hazard from earthquake provided static stability conditions are satisfied and conventional safety margins exist." Thus, these low dikes should have adequate seismic stability.

The outflow structures at the Ash Filter Ponds and the Desilting Basin appeared to be in satisfactory condition and stable.

8.0 ADEQUACY OF MAINTENANCE AND METHODS OF OPERATION

8.1 OPERATING PROCEDURES

The Ash Filter Ponds and nominally the Desilting Basin are the only CCR surface impoundments at the Conemaugh Generating Station. Both are used for bottom ash management. Boiler slag is not distinguished from the bottom ash. As previously described in this report, fly ash is dry handled and disposed in an on-site landfill. FGD sludge (gypsum) is dewatered, temporarily stored on a dome-covered pad, and either sold for beneficial reuse or trucked to the on-site landfill. The water removed from the FGD sludge is sent to the wastewater treatment plant and reused after treatment.

Operation of the Ash Filter Ponds and the Desilting Basin has been previously described in this report (see Sections 2.1, 2.2, and 4.2). The primary source of operating information is the “System Description - Ash Water Recycle” (see Appendix A – Doc 04).

The Ash Filter Ponds complex is operated for treating water removed from the bottom ash at the dewatering bins by settling residual suspended ash particles in the water and temporarily storing the ash sediment until the sediment has built up to the highest allowed level; then the cell is dewatered and the ash sediment drained, so that the ash can be removed and disposed in the on-site landfill. When a cell is dewatered for removal of the ash sediment, valves for the two (per cell) underdrain pipes are opened to allow drainage of the ash sediment; the water in the sediment drains into the discharge structure, where the valves are located. The valves are closed before placing the cell back into service after removal of the ash sediment.

The treated (clarified) water normally flows to the ash recycle sump where it is recycled back to the bottom ash sluice system to transport ash from the bottom ash hoppers to the dewatering bins; overflow from the dewatering bins returns back to the Ash Filter Ponds. This is the basic cycle, although the Ash Filter Ponds receive inputs from a variety of other sources (e.g., treated effluent from landfill leachate clarifier, intake clarifier sludge pumps, etc.). When there is excess water in the system, the excess is pumped to the Desilting Basin from a dedicated pump (with backup) at the ash recycle sump. Water in the Desilting Basin can be pumped back to the Ash Filter Ponds, when there is a shortage in the system. A minimum flow must be maintained through the operating pumps to keep them from overheating. The minimum flow is maintained by continuous recirculation through Pond A, which is not used for ash settling but dedicated for recirculation.

8.2 MAINTENANCE OF THE DAM AND PROJECT FACILITIES

Station personnel are present daily at both the Ash Filter Ponds and the Desilting Basin to check proper functioning of structures, piping, and equipment. Maintenance is performed as required.

8.3 ASSESSMENT OF MAINTENANCE AND METHODS OF OPERATIONS

8.3.1 Adequacy of Operating Procedures

Based on field observations and review of operations pertaining to CCR containment at the Ash Filter Ponds and the Desilting Basin, operating procedures appear to be adequate.

8.3.2 Adequacy of Maintenance

Maintenance of the impounding embankments and outlet works of the Ash Filter Ponds and the Desilting Basin appears to be generally adequate. No significant maintenance issues were observed during the field walkover.

9.0 ADEQUACY OF SURVEILLANCE AND MONITORING PROGRAM

9.1 SURVEILLANCE PROCEDURES

Since the impounding dike embankments for the Ash Filter Ponds and the Desilting Basin are not regulated for dam safety, there is no formal inspection program for these small dikes. However, daily observations are made by station personnel, and appropriate maintenance and any needed corrective actions are performed as required.

9.2 INSTRUMENTATION MONITORING

There is no dam performance monitoring instrumentation in place in the impounding embankments of the Ash Filter Ponds or the Desilting Basin.

9.3 ASSESSMENT OF SURVEILLANCE AND MONITORING PROGRAM

9.3.1 Adequacy of Inspection Program

Although there is no formal inspection program for the Ash Filter Ponds or the Desilting Basin, the level of observations by station personnel, which are made daily, appears to have been generally sufficient, since the ponds have performed satisfactorily without significant problems. However, it would be prudent to formalize the inspection program to include documented quarterly inspections performed by station personnel, using an inspection checklist form.

9.3.2 Adequacy of Instrumentation Monitoring Program

There is no dam performance monitoring instrumentation in place at either the Ash Filter Ponds or the Desilting Basin. No problem or suspect condition, such as excessive settlement, significant flowing seepage, shear failure, or displacement was observed in the field that might be reason for installation of instrumentation for long-term performance monitoring. In the absence of stability problems or significant seepage issues, there is no need for performance monitoring instrumentation at this time.

APPENDIX A

Document 1

Part A – Steam Electric Power Plant Operations

OMB Control Number: 2040-0281
Approval Expires: 05/31/2013

Plant ID: 02268
Plant Name: Conemaugh

Steam Electric Questionnaire

PART A - STEAM ELECTRIC POWER PLANT OPERATIONS

Table of Contents

Plant ID: 02268
Plant Name: Conemaugh

Part: A
Section Title: 1.1. Plant Contact Information

Instructions: Throughout Section 1.1 (Questions A1-1 to A1-5), provide information requested on plant contacts. Please provide all free response answers in the highlighted yellow areas.

CBI? ☐ Yes

A1-1. Provide the physical plant address in the yellow spaces provided below.

Plant Name: Conemaugh
Street Address: 1442 Power Plant Rd
City: New Florence
State: PA   Zip Code: 15944

CBI? ☐ Yes

A1-2. Provide the name, title, telephone and fax numbers, and e-mail address of the primary contact for technical information supplied in this questionnaire.

Primary Technical Contact Name: Anthony Garaventa
Primary Technical Contact Title: Technical Manager
Email: agaraventa@rrienergy.com
Street Address: 1442 Power Plant Rd
City: New Florence
State: PA   Zip Code: 15944
Telephone Number: 724-235-4597
Fax Number: 724-235-4511
Convenient time to call between (Eastern Time): 7:00 AM am
to 4:00 PM pm

CBI? ☐ Yes

A1-3. Provide the name, title, telephone and fax numbers, and e-mail address of the secondary contact for technical information supplied in this questionnaire.

Secondary Technical Contact Name: Stephen Frank
Secondary Technical Contact Title: Senior Environmental Specialist
Email: sfrank@rrienergy.com
Street Address: 121 Champion Way, STE 200
City: Canonsburg
State: PA Zip Code: 15317
Telephone Number: 724-597-8310
Fax Number: 724-597-8870
Convenient time to call between (Eastern Time): 8:00 AM am
to 5:00 PM pm

CBI? ☐ Yes

A1-4. Provide the name, title, telephone and fax numbers, and e-mail address of the primary contact for economic/financial information supplied in this questionnaire.

Primary Economic/Financial Contact Name: Anthony Garaventa
Primary Economic/Financial Contact Title: Technical Manager
Email: agaraventa@rrienergy.com
Street Address: 1442 Power Plant Rd
City: New Florence
State: PA Zip Code: 15944
Telephone Number: 724-235-4597
Fax Number: 724-235-4511
Convenient time to call between (Eastern Time): 7:00 AM am
to 4:00 PM pm

CBI?
☐ Yes

A1-5. Provide the name, title, telephone and fax numbers, and e-mail address of the secondary contact for economic/financial information supplied in this questionnaire.

Secondary Economic/Financial Contact Name: Fran Macey

Secondary Economic/Financial Contact Title: Accounting Manager

Email: fmacey@rrienergy.com

Street Address: 121 Champion Way, STE 200

City: Canonsburg

State: PA　Zip Code: 15317

Telephone Number: 724-597-8909

Fax Number: 724-597-8877

Convenient time to call between (Eastern Time): 8:00 AM am

to 5:00 PM pm

Plant ID: 02268
Plant Name: Conemaugh

Part: A
Section Title: 1.2. General Plant Operating Characteristics

Instructions: Throughout Section 1.2 (Questions A1-6 to A1-14), provide information requested on general *plant* operating characteristics. Please provide all free response answers in the highlighted yellow areas.

CBI?
☐ Yes

A1-6. Is the plant permanently retired or will it be permanently retired by December 31, 2011?

○ Yes (Stop)
◉ No (Continue)

STOP

<u>STOP</u>! IF YOU ANSWERED YES TO QUESTION A1-6,
DO <u>NOT</u> COMPLETE THE REMAINDER OF THIS QUESTIONNAIRE.

CBI?
☐ Yes

A1-7. Does the plant generate or have the potential to generate electricity from a steam electric generating unit (i.e., a generating unit that utilizes a thermal cycle employing the steam/water system as the thermodynamic medium (steam turbine))? [NOTE: Combined cycle systems with at least one associated steam turbine are considered steam electric generating units.]

◉ Yes (Continue)
○ No, this plant does not generate or have the potential to generate electricity from a steam electric generating unit. (Stop)

STOP

<u>STOP</u>! IF YOU ANSWERED NO TO QUESTION A1-7,
DO <u>NOT</u> COMPLETE THE REMAINDER OF THIS QUESTIONNAIRE.

Approved: May 20, 2010

CBI?
☐ Yes

A1-8. Indicate all of the fossil or nuclear fuels that the plant used to generate electricity in 2009 (refer to Table A-17 for a further breakdown of fossil-type fuels in the "Type of Fuel" tab). [NOTE: Do **NOT** include fuels only used for start up or emergency generators when answering this question.]

- ☑ Coal
- ☐ Oil
- ☑ Gas
- ☐ Petroleum Coke
- ☐ Nuclear Fuel
- ☐ None (the plant did not use fossil or nuclear fuels other than for start up in 2009)

STOP

STOP! IF YOU ANSWERED NONE IN QUESTION A1-8, DO NOT COMPLETE THE REMAINDER OF THIS QUESTIONNAIRE.

CBI?
☐ Yes

A1-9. Identify how the plant uses/handles the electricity generated and indicate the percent of **electricity** by end use/handling. [Check all boxes that apply.]

- ☑ Used on site 5.60% %
- ☑ Distributed for sale 94.40% %
- ☐ Other ______ %

If "Other" was selected, use the yellow space below to provide a description of electricity end use/handling.

CBI?
☐ Yes

A1-10. Provide the primary, secondary, and tertiary six-digit North American Industry Classification System (NAICS) codes that best describe the plant's activities. Refer to the U.S. Census Bureau's website to identify appropriate NAICS codes (http://www.census.gov/eos/www/naics/).

Primary NAICS: 221112

Secondary NAICS: ______

Tertiary NAICS: ______

CBI?
☐ Yes

A1-11. Is the generation of electricity the *primary purpose* (i.e., the predominant source of revenue and principal reason for operation) of the plant?

◉ Yes

○ No, specify the primary purpose of the plant to the right: ____________

STOP

<u>STOP</u>! IF YOU ANSWERED NO IN QUESTION A1-11,
DO <u>NOT</u> COMPLETE THE REMAINDER OF THIS QUESTIONNAIRE.

CBI?
☐ Yes

A1-12. Identify how the plant uses steam generated at the plant and indicate the percent of <u>steam</u> by use. [Check all boxes that apply.]

☑ Electricity Generation	100.00%	%
☐ Heating and/or Cooling		%
☐ Other		%

If "Other" was selected, use the space below to provide a description of the use for steam.

CBI?
☐ Yes

A1-13. Provide the total plant nameplate electric generating capacity, as reported in U.S. DOE/EIA Form 860, schedule 3, line 1, and the total electric net summer and winter capacities.

Nameplate capacity	1883.2	MW
Net summer capacity	1712	MW
Net winter capacity	1712	MW

CBI?
☐ Yes

A1-14. In Table A-1, provide the total net and *gross electrical generation* for all electric generating units at the plant during calendar years 2007 through 2009.

Table A-1. Net and Gross Plant Electrical Generation for 2007-2009

Calendar Year	Net Electrical Generation (MW-hrs)	Gross Electrical Generation (MW-hrs)
2007	12956157 MW-hrs	13708771 MW-hrs
2008	11474941 MW-hrs	12171114 MW-hrs
2009	12155841 MW-hrs	12921194 MW-hrs

Plant ID: 02268
Plant Name: Conemaugh

Part: A
Section Title: 2.1. Plant Identification and Information on Permits and Studies

Instructions: Throughout Section 2.1 (Question A2-1 to A2-4), provide information requested on plant identity, permits, and studies. Please provide all free response answers in the highlighted yellow areas.

CBI? ☐ Yes

A2-1. Provide the identification code of this plant as reported on U.S. DOE/EIA Form-860, "Annual Electric Generator Report," schedule 2, line 1.

EIA Plant Identification Code: 3118 ☐ Check here if not applicable

CBI? ☐ Yes

A2-2. Provide the identification code of this plant as used when reporting to the Rural Utilities Service (RUS).

RUS Plant Identification Code: ______ ☑ Check here if not applicable

CBI? ☐ Yes

A2-3. Did the plant conduct any Environmental Assessment (EA) or Environmental Impact Statement (EIS) studies on receiving waters or pond/impoundments reported in Table A-4?

○ Yes (Continue)
◉ No (Skip to Question A2-4)

If yes, please attach results from the study(ies).

☐ I have attached the results from the study(ies)
☐ I did not attach the results from the study(ies). Explain why: ______

CBI? ☐ Yes

A2-4. In Table A-2, provide a list of the plant's most recently approved permits that are associated with industrial activities. If the plant has more than one ID for a permit type, list all IDs in the space provided. Also indicate if the plant has a new/pending permit under development.

Note: Do **NOT** include the following types of permits: permits required for construction of wastewater and/or sanitary sewage facilities, erosion and sediment control permits associated with construction activities, temporary and general permits for hydrostatic testing water, water obstruction and encroachment permits, and/or water allocation permits.

Table A-2. Permit Information

Permit Type	Permit ID(s)	Approval Date		Expiration Date		New/Pending Permit is Under Development
		Month	Year	Month	Year	
National Pollutant Discharge Elimination System (NPDES)		Select	Select	Select	Select	
	PA0005011	December	2001	December	2006	Yes
		Select	Select	Select	Select	
Resource Conservation and Recovery Act (RCRA)		Select	Select	Select	Select	
	PAD000621219	Select	Select	Select	Select	No
		Select	Select	Select	Select	
Stormwater		Select	Select	Select	Select	
		Select	Select	Select	Select	No
		Select	Select	Select	Select	
Air Pollution Operating		Select	Select	Select	Select	
	32-00059	March	2008	March	2013	No
		Select	Select	Select	Select	
Underground Injection Control (UIC)		Select	Select	Select	Select	
		Select	Select	Select	Select	No
		Select	Select	Select	Select	

If the plant does not have an individual *NPDES permit*, skip to Section 3.

Plant ID: 02268
Plant Name: Conemaugh
Outfall Number: 004

Part: A
Section Title: 2.2. Outfall Information

Instructions: Throughout Section 2.2 (Questions A2-5 to A2-10), provide information for all internal and final outfalls designated in the plant's NPDES permit. Note: This section does not require information on stormwater outfalls, other than those storm water outfalls that may be identified in the NPDES permit itself. Please provide all free response answers in the highlighted yellow areas.

Make copies of Section 2.2 for each outfall designated in the plant's NPDES permit using the "Copy Section 2.2" button below. Enter the outfall number in the space provided above.

CBI? ☐ Yes

A2-5. Provide the name, latitude/longitude, the typical volume of *discharge* in 2009 (either gpd and gpy OR gpm and hpd if flow is intermittent), and the number of days of discharge in 2009 for the outfall.

Outfall Name: Cooling Tower Desilting Basin

Coordinates	Degrees	Minutes	Seconds
Latitude	40	23	8
Longitude	79	3	28

Discharge Flow:

_____ gpy **and** _____ dpy	**OR**	300000 gpd **and** 220 dpy	**OR**	_____ gpm **and** _____ hpd **and** _____ dpy

CBI? ☐ Yes

A2-6. Identify if the outfall is an internal or final outfall.

○ Internal Outfall (Skip to Section 3)
◉ Final Outfall (Continue)

CBI?
☐ Yes

A2-7. Does the outfall release water to a discharge canal prior to discharging to surface water?

○ Yes
◉ No

CBI?
☐ Yes

A2-8. Provide the receiving surface water name and type of surface water. If the receiving surface water is unnamed, provide the name(s) of the next receiving water downstream with a designated name.

Receiving Surface Water Name: Conemaugh River

Type of Surface Water: River/Stream Other, specify: ______

If the receiving surface water is unnamed, provide the name(s) of the next receiving water downstream with a designated name. ______

CBI?
☐ Yes

A2-9. Has a mixing zone been applied to the outfall?

◉ Yes
○ No

CBI?
☐ Yes

A2-10. In Table A-3, provide the percent contribution that each wastewater listed has to the total outfall flow.

Table A-3. Wastewaters Discharged Through Outfall

Wastewater	Percent Contribution of Outfall Flow
Cooling Water	10.00%
Fly Ash Sluice	
Bottom Ash Sluice	
FGD Scrubber Wastewater (slurry blowdown or scrubber purge)	
Leachate from Coal Combustion Residue Landfills or Ponds/Impoundments	
Coal Pile Runoff	
Metal Cleaning Waste	
Storm Water	10.00%
Other	80.00%
Total	100%

☐ Outfall is used for emergency discharges only. (Respondent still required to answer Table A-3.)

Plant ID: 02268
Plant Name: Conemaugh
Outfall Number: 707

Part: A
Section Title: 2.2. Outfall Information

Instructions: Throughout Section 2.2 (Questions A2-5 to A2-10), provide information for all internal and final outfalls designated in the plant's NPDES permit. Note: This section does not require information on stormwater outfalls, other than those storm water outfalls that may be identified in the NPDES permit itself. Please provide all free response answers in the highlighted yellow areas.

Make copies of Section 2.2 for each outfall designated in the plant's NPDES permit using the "Copy Section 2.2" button below. Enter the outfall number in the space provided above.

CBI?
☐ Yes

A2-5. Provide the name, latitude/longitude, the typical volume of *discharge* in 2009 (either gpd and gpy OR gpm and hpd if flow is intermittent), and the number of days of discharge in 2009 for the outfall.

Outfall Name: Emergency Overflow Bottom Ash

Coordinates	Degrees	Minutes	Seconds
Latitude	40	23	5
Longitude	79	3	52

Discharge Flow:

______ gpy **and** ______ dpy	**OR**	0 gpd **and** 0 dpy	**OR**	______ gpm **and** ______ hpd **and** ______ dpy

CBI?
☐ Yes

A2-6. Identify if the outfall is an internal or final outfall.

◉ Internal Outfall (Skip to Section 3)
○ Final Outfall (Continue)

CBI?
☐ Yes

A2-7. Does the outfall release water to a discharge canal prior to discharging to surface water?

○ Yes
◉ No

CBI?
☐ Yes

A2-8. Provide the receiving surface water name and type of surface water. If the receiving surface water is unnamed, provide the name(s) of the next receiving water downstream with a designated name.

Receiving Surface Water Name: ____________________

Type of Surface Water: Select ▼ Other, specify: ________

If the receiving surface water is unnamed, provide the name(s) of the next receiving water downstream with a designated name. ____________________

CBI?
☐ Yes

A2-9. Has a mixing zone been applied to the outfall?

○ Yes
◉ No

CBI?
☐ Yes

A2-10. In Table A-3, provide the percent contribution that each wastewater listed has to the total outfall flow.

Table A-3. Wastewaters Discharged Through Outfall

Wastewater	Percent Contribution of Outfall Flow
Cooling Water	
Fly Ash Sluice	
Bottom Ash Sluice	
FGD Scrubber Wastewater (slurry blowdown or scrubber purge)	
Leachate from Coal Combustion Residue Landfills or Ponds/Impoundments	
Coal Pile Runoff	
Metal Cleaning Waste	
Storm Water	
Other	
Total	100%

☑ Outfall is used for emergency discharges only. (Respondent still required to answer Table A-3.)

Plant ID: 02268
Plant Name: Conemaugh
Outfall Number: 007

Part: A
Section Title: 2.2. Outfall Information

Instructions: Throughout Section 2.2 (Questions A2-5 to A2-10), provide information for all internal and final outfalls designated in the plant's NPDES permit. Note: This section does not require information on stormwater outfalls, other than those storm water outfalls that may be identified in the NPDES permit itself. Please provide all free response answers in the highlighted yellow areas.

Make copies of Section 2.2 for each outfall designated in the plant's NPDES permit using the "Copy Section 2.2" button below. Enter the outfall number in the space provided above.

CBI? ☐ Yes

A2-5. Provide the name, latitude/longitude, the typical volume of *discharge* in 2009 (either gpd and gpy OR gpm and hpd if flow is intermittent), and the number of days of discharge in 2009 for the outfall.

Outfall Name: Outfall 007 - IMP 107, 207, 307, 507,

Coordinates	Degrees	Minutes	Seconds
Latitude	40	23	5
Longitude	79	4	12

Discharge Flow:

____	gpy **and**		350000	gpd **and**		____	gpm **and**
____	dpy	**OR**	365	dpy	**OR**	____	hpd **and**
						____	dpy

CBI? ☐ Yes

A2-6. Identify if the outfall is an internal or final outfall.

○ Internal Outfall (Skip to Section 3)
◉ Final Outfall (Continue)

CBI?
☐ Yes

A2-7. Does the outfall release water to a discharge canal prior to discharging to surface water?

○ Yes
◉ No

CBI?
☐ Yes

A2-8. Provide the receiving surface water name and type of surface water. If the receiving surface water is unnamed, provide the name(s) of the next receiving water downstream with a designated name.

Receiving Surface Water Name: Unnamed tributary

Type of Surface Water: River/Stream Other, specify:

If the receiving surface water is unnamed, provide the name(s) of the next receiving water downstream with a designated name. Conemaugh River

CBI?
☐ Yes

A2-9. Has a mixing zone been applied to the outfall?

◉ Yes
○ No

CBI?
☐ Yes

A2-10. In Table A-3, provide the percent contribution that each wastewater listed has to the total outfall flow.

Table A-3. Wastewaters Discharged Through Outfall

Wastewater	Percent Contribution of Outfall Flow
Cooling Water	
Fly Ash Sluice	
Bottom Ash Sluice	
FGD Scrubber Wastewater (slurry blowdown or scrubber purge)	78.00%
Leachate from Coal Combustion Residue Landfills or Ponds/Impoundments	
Coal Pile Runoff	
Metal Cleaning Waste	
Storm Water	17.00%
Other	5.00%
Total	100%

☐ Outfall is used for emergency discharges only. (Respondent still required to answer Table A-3.)

Plant ID: 02268
Plant Name: Conemaugh

Part: A
Section Title: 3. Ponds/Impoundments

Instructions: Throughout Section 3 (Questions A3-1 to A3-3), provide information for all *ponds/impoundments* the plant has or is currently constructing/installing or planning to construct/install by December 31, 2020.

CBI?
☐ Yes

A3-1. Does the plant have or is the plant currently constructing/installing or planning to construct/install by December 31, 2020 any ponds/impoundments used for the storage, treatment, and/or disposal of *process wastewater*, *residues*, or by-products (including *sludge* or water streams containing residues or by-products)?

Note: This includes ponds/impoundments located on non-adjoining property that are under the operational control of the plant.

● Yes (Continue)
○ No (Skip to Section 4)

CBI?
☐ Yes

A3-2. In Table A-4 below list all pond/impoundment units located at the plant, or pond/impoundments the plant is currently constructing/installing or planning to construct/install by December 31, 2020, including those located on non-adjoining property, used for storage, treatment, and/or disposal of process wastewater, residues, or by-products (including sludge or water streams containing residues or by-products). For each pond/impoundment unit, EPA assigned an ID number (e.g., SPD-1, SPD-2) in Table A-4, which will be used throughout the remainder of the survey. In the "Plant Designation" column, provide the plant's name for each pond/impoundment unit.

Additionally, provide the latitude and longitude at the pond outlet (see glossary), the closest distance from the pond/impoundment unit to the nearest surface water, the year the pond/impoundment unit was brought online (or is planned to be brought online), and indicate whether the pond/impoundment is lined or unlined and whether leachate (see glossary) is collected from the pond/impoundment (e.g., the pond/impoundment has a leachate collection system or other means for collecting leaks or seepage, etc.). Note: If the pond/impoundment does not have a pond outlet, provide the latitude and longitude corresponding to the emergency outlet for the pond/impoundment.

Table A-4. Identification of Plant Pond/Impoundment Units

Pond/ Impoundment Unit ID	Plant Designation	Latitude and Longitude at Pond Outlet	deg	min	sec	Is the Pond Lined?	Is Leachate (Including Leaks or Seepage) Collected?	Closest Distance to Nearest Surface Water (ft)	Year Initially Brought Online Or Planned to be Brought Online	Is the Pond/ Impoundment Inactive?
Active/Inactive/Open Pond/Impoundment Units										
SPD-1	Cooling Tower Desilting Basin	Lat:	40	23	8	Yes	No	8	1970	No
		Long:	79	3	28					
SPD-2	Yard Drainage Pond	Lat:	40	23	6	Yes	Yes	300	2004	No
		Long:	79	4	10					
SPD-3	Bottom Ash Sluice Recycle Pond - A	Lat:	40	23	2	Yes	No	730	1970	No
		Long:	79	3	48					
SPD-4	Bottom Ash Final Settling Pond - B	Lat:	40	23	1	Yes	No	600	1970	No
		Long:	79	3	48					
SPD-5	Bottom Ash Final Settling Pond - C	Lat:	40	22	59	Yes	No	500	1970	No
		Long:	79	3	48					
SPD-6	Bottom Ash Final Settling Pond - D	Lat:	40	22	58	Yes	No	360	1986	No
		Long:	79	3	48					
SPD-7	Coal Pile Runoff Pond	Lat:	40	23	5	Yes	Yes	150	1973	No
		Long:	79	4	12					

SPD-8	Storage Impoundment	Lat:	40	23	31	Yes	Yes	75	1986	No
		Long:	79	3	53					
SPD-9	Limestone Area Pond	Lat:	40	22	58	Yes	No	350	1995	No
		Long:	79	3	55					
SPD-10	Gypsum Dome Area Pond	Lat:	40	22	55	No	No	75	1993	No
		Long:	79	3	35					
SPD-11	Haul Road Sediment Trap 1	Lat:	40	23	24	No	No	75	2007	No
		Long:	79	3	50					
SPD-12	Haul Road Sediment Trap 2	Lat:	40	23	22	No	No	75	2009	No
		Long:	79	3	50					
SPD-13		Lat:				Select	Select			Select
		Long:								
SPD-14		Lat:				Select	Select			Select
		Long:								
Retired/Closed Pond/Impoundment Units										
RET-SPD-1	Ash Silo Drainage Pond	Lat:	40	23	4	No	No	890	1970	
		Long:	79	3	46					
RET-SPD-2	Final Settling Pond 1	Lat:	40	23	5	No	No	340	1970	
		Long:	79	4	5					
RET-SPD-3	Final Settling Pond 2	Lat:	40	23	6	No	No	300	1970	
		Long:	79	4	6					
RET-SPD-4		Lat:				Select	Select			
		Long:								
Planned Pond/Impoundment Units										
SPD-A		Lat:				Select	Select			
		Long:								
SPD-B		Lat:				Select	Select			
		Long:								
SPD-C		Lat:				Select	Select			
		Long:								
SPD-D		Lat:				Select	Select			
		Long:								
SPD-E		Lat:				Select	Select			
		Long:								

CBI?
☐ Yes

A3-3. In Table A-5 below, indicate all process wastewater, residues, or by-products (or sludges or water streams containing the wastes, residues or by-products) that are stored, treated, and/ or disposed of in each pond/impoundment unit identified in Table A-4. [Check all boxes that apply.] For solid waste and process wastewater not listed in the checkboxes or the drop down menu provide the name and description in the yellow box provided. Do not include treatment chemicals that are added to the pond/impoundment.

Table A-5. Wastes Stored or Disposed of in Plant Pond/Impoundment Units

Pond/ Impoundment Unit ID	Solid Waste	Process Wastewater
SPD-1	☐ Boiler Slag ☐ Bottom Ash ☐ Fly Ash ☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD Other, specify: Cooling Tower Sediment Other, specify: Storm Water Sediment Other, specify: Ash Residuals Other, specify:	General runoff / Other Other / Select Other / Select Other, specify: Effluent from SPD-3, 4, 5, 6 (BAS Recycle Pond - A and BAS Pond B, C & D) Other, specify: Cooling Tower Drains Other, specify: Intake Clarifier Drains Other, specify:
SPD-2	☐ Boiler Slag ☐ Bottom Ash ☐ Fly Ash ☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD Other, specify: Coal and ash handling area residuals Other, specify: Other, specify: Other, specify:	General runoff / Other Other / Select Other / Select Other, specify: Storm water runoff from coal conveyor and ash handling areas Other, specify: Equipment wash water Other, specify: Air pre heat drains (cooling tower water) during maintenance Other, specify:
SPD-3	☐ Boiler Slag ☑ Bottom Ash ☐ Fly Ash ☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD Other, specify: Fly Ash Residuals Other, specify: Other, specify: Other, specify:	Other / Select Other / Select Cooling tower blowdown / Select Other, specify: Effluent from Ponds SPD-4, SPD-5, and SPD-6 Other, specify: Other, specify: Other, specify:
SPD-4	☐ Boiler Slag ☑ Bottom Ash ☐ Fly Ash ☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD Other, specify: Intake Clarifier Sludge Other, specify: Fly Ash Residuals Other, specify: Other, specify:	Bottom ash sluice / Limestone pile runoff Cooling tower blowdown / Other Floor drain wastewater / Other Other, specify: Treated Effluent from HDS Wastewater Treatment System Other, specify: Intake Clarifier Sludge Other, specify: Other, specify:

SPD-5	☐ Boiler Slag ☑ Bottom Ash ☐ Fly Ash Other, specify: Intake Clarifier Sludge Other, specify: Fly Ash Residuals Other, specify: Other, specify:	☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD	Bottom ash sluice Cooling tower blowdown Floor drain wastewater Other, specify: Treated Effluent from HDS Wastewater Treatment System Other, specify: Intake Clarifier Sludge Other, specify: Other, specify:	Limestone pile runoff Other Other
SPD-6	☐ Boiler Slag ☑ Bottom Ash ☐ Fly Ash Other, specify: Intake Clarifier Sludge Other, specify: Fly Ash Residuals Other, specify: Other, specify:	☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD	Bottom ash sluice Cooling tower blowdown Floor drain wastewater Other, specify: Treated Effluent from HDS Wastewater Treatment System Other, specify: Intake Clarifier Sludge Other, specify: Other, specify:	Limestone pile runoff Other Other
SPD-7	☐ Boiler Slag ☐ Bottom Ash ☐ Fly Ash Other, specify: Coal Fines Other, specify: Precipitated metals Other, specify: Other, specify:	☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD	Coal pile runoff Air heater cleaning water General runoff Other, specify: Coal pile underdrain wastewater Other, specify: Other, specify: Other, specify:	Select Other Select
SPD-8	☐ Boiler Slag ☐ Bottom Ash ☐ Fly Ash Other, specify: Sediment Other, specify: Precipitated metals Other, specify: Other, specify:	☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD	Landfill runoff - uncapped landfill Leachate Other Other, specify: Effluent from SPD-2 (Yard Drainage Pond) Other, specify: Effluent from SPD-7 (Coal Pile Runoff Pond) Other, specify: Sludge from the Landfill Leachate WWTP Other, specify:	Other Other Select
SPD-9	☐ Boiler Slag ☐ Bottom Ash ☐ Fly Ash Other, specify: Limestone fines Other, specify: Other, specify: Other, specify:	☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD	Limestone pile runoff Select Select Other, specify: Other, specify: Other, specify: Other, specify:	Select Select Select
SPD-10	☐ Boiler Slag ☐ Bottom Ash ☐ Fly Ash Other, specify: FGD calcium sulfate residuals from haul Other, specify: Sediment Other, specify: Other, specify:	☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD	General runoff Other Select Other, specify: Storm water runoff containing FGD calcium sulfate residuals from haul roads and gypsum Other, specify: Other, specify: Other, specify:	Select Select Select

SPD-11	☐ Boiler Slag ☐ Bottom Ash ☐ Fly Ash Other, specify: Other, specify: Other, specify: Other, specify:	☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD Landfill haul road residuals	General runoff Other Select Other, specify: Other, specify: Other, specify: Other, specify:	Select Select Select Storm water runoff containing landfill haul road residuals
SPD-12	☐ Boiler Slag ☐ Bottom Ash ☐ Fly Ash Other, specify: Other, specify: Other, specify: Other, specify:	☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD Landfill haul road residuals	General runoff Other Select Other, specify: Other, specify: Other, specify: Other, specify:	Select Select Select Storm water runoff containing landfill haul road residuals
RET-SPD-1	☐ Boiler Slag ☐ Bottom Ash ☐ Fly Ash Other, specify: Other, specify: Other, specify: Other, specify:	☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD Ash handling area residuals	General runoff Select Select Other, specify: Other, specify: Other, specify: Other, specify:	Select Select Select Storm water runoff containing ash handling area residuals
RET-SPD-2	☐ Boiler Slag ☐ Bottom Ash ☐ Fly Ash Other, specify: Other, specify: Other, specify: Other, specify:	☐ FGD Calcium Sulfate (Gypsum) ☐ FGD Calcium Sulfite – Not Pozzolanic ☐ FGD Pozzolanic Material ☐ Solids from Dry FGD Coal and ash handling area residuals	General runoff Select Select Other, specify: Other, specify: Other, specify: Other, specify:	Select Select Select Storm water runoff containing coal and ash handling area residuals

CBI?
☐ Yes

A5-3. Attach a water balance diagram for the plant that shows all sources of water, plant *process operations* , process wastewaters generated and how they are handled/*treated* , flow rates of all water streams, and all outfalls at the plant. Specific instructions for the diagram are provided in the checklist 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. You may also use a diagram from previous years as long as the diagram is still representative of current operations.

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 WB-1, the second WB-2, etc. Include the plant name and plant ID in the upper right hand corner of the diagram.

☑ Diagram is attached.

Block Diagram Checklist

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

☑ Include the water balance diagram number, plant name, and plant ID on the diagram.

☑ Show and label all water sources (e.g., lakes and rivers), *process wastewater* generated by each steam electric generating unit and process operation, and outfalls. Use the codes provided in the Codes Tables tab. Effluent streams may include process wastewater and *sludges* .

- [x] Identify all *wastewater treatment systems* used to treat the process wastewaters generated by the steam electric generating units. Represent the wastewater treatment systems as a block or other shape. Use EPA-assigned numbers from other parts of the questionnaire if applicable. If the wastewater treatment system does not have an EPA-assigned number, use the plant-designated name for the wastewater treatment system.
- [x] Identify the final destination of the *treated* wastewater and process wastewater (e.g., treated wastewater effluent to *POTW* or surface waters; solid wastes to on- or off-site destinations). Use codes provided in the Codes Table tab.
- [x] Indicate, as appropriate, where treated wastewater is *reused* or *recycled* within the plant (e.g., reuse of settling pond/impoundment water as fly ash sluice).
- [x] Identify all outfall locations. Include *NPDES permit* outfall numbers, if applicable.
- [x] Provide the typical flow rates for all streams on the diagram (in gpm or gpd). If the wastewater stream is intermittent, provide amount and frequency; for example "100 gal, twice/day, 100 dpy" or "1000 gpm, 4 hpd, 365 dpy". For sludges, provide amount in tpd.

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.

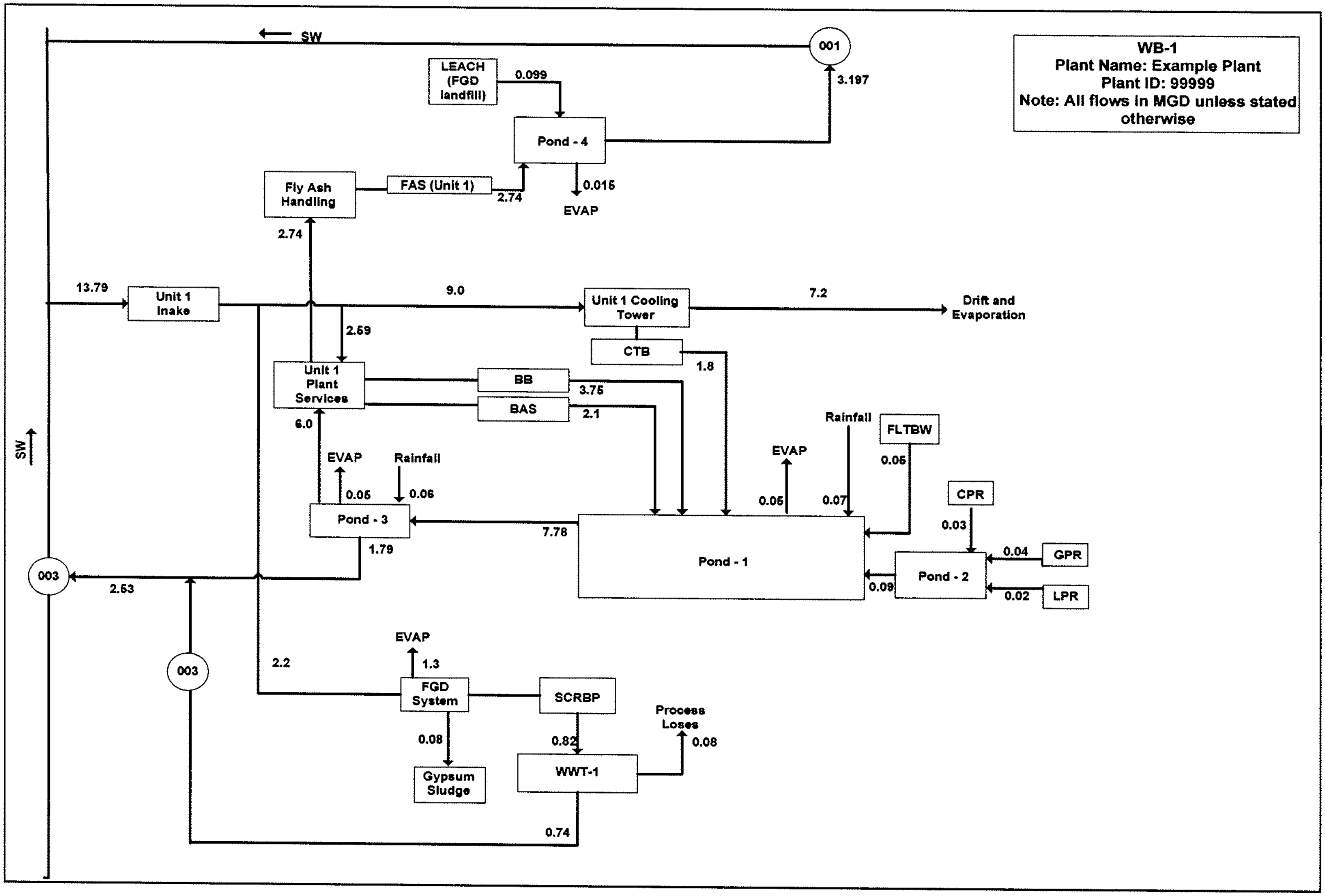


Figure A-1: Example Water Balance Diagram

Plant ID: 02268
Plant Name: Conemaugh

Part: A
Section Title: 6. Steam Electric Generating Unit Information

Instructions: Throughout Section 6 (Questions A6-1 to A6-2), provide information requested on each steam electric generating unit that the plant has operated or any steam electric generating units the plant is currently constructing/installing or planning to construct/install by December 31, 2015. Plants do NOT need to include information on units retired before January 1, 2009. Please provide all free response answers in the highlighted yellow areas.

CBI?
☐ Yes

A6-1. In Table A-8, provide information for each steam electric generating unit that commenced operating prior to January 1, 2010. Plants do NOT need to include information on units retired before January 1, 2009. For combined cycle systems, provide EIA Generator IDs for all steam and combustion turbines associated with the combined cycle system. Provide the electric generation for the entire combined cycle system in 2009. In the "Type of Unit" column, if you indicate "Other", provide an explanation in the Comments page. See the glossary for definitions of *base load, peaking*, *cycling*, and *intermediate*.

Table A-8. Steam Electric Units Operated Prior to January 1, 2010

Steam Electric Unit	EIA Generator ID	Operated in 2009	Type of Steam Electric Prime Mover (or Turbine)	Total Unit Electric Generation in 2009 (MW-hrs)	Total Unit Nameplate Capacity: Steam Turbine Capacity (MW)	Total Unit Nameplate Capacity: Combustion Turbine Capacity (MW)	Type of Unit	Is this Unit Now Retired?
SE Unit-1	1	● Yes Calendar days of operation: 350 ○ No Was operated in previous years	Stand-Alone Steam Turbine	6186589	850		● Base load ○ Peaking ○ Cycling ○ Intermediate ○ Other, specify:	○ Yes ● No
SE Unit-2	2	● Yes Calendar days of operation: 335 ○ No Was operated in previous years	Stand-Alone Steam Turbine	5969098	850		● Base load ○ Peaking ○ Cycling ○ Intermediate ○ Other, specify:	○ Yes ● No
SE Unit-3		○ Yes Calendar days of operation: ○ No Was operated in previous years	Select				○ Base load ○ Peaking ○ Cycling ○ Intermediate ○ Other, specify:	○ Yes ○ No

Plant ID: 02268
Plant Name: Conemaugh
SE Unit ID: 1

Part: A
Section Title: 8. Fuel Usage by Steam Electric Generating Unit

Instructions: In Section 8 (Questions A8-1 through A8-3), provide information for all steam electric generating units that were operated in 2009, including units that operated for only part of 2009 (i.e., those units for which you responded "Yes" in Question A6-1, Table A-8, "Operated in 2009" column). Please provide all free response answers in the highlighted yellow areas.

Make copies of Section 8 for each steam electric generating unit ID operated in 2009 using the "Copy Section 8" button below. Enter the steam electric generating unit ID (use unit IDs assigned in Table A-8) in the space above titled "SE Unit ID".

Copy Section 8

CBI?
☐ Yes

A8-1. In Table A-11, provide the types and amounts of fuels used in 2009. [Check all boxes that apply.] Include fuels used for start up. Also provide the BTU generated by each general fuel type reported for the year 2009.

Note: EPA is requesting the BTUs actually generated by the fuel. Additionally, for reporting barrels of oil, use a conversion of one barrel is equal to 42 U.S. gallons, if needed.

Table A-11. Fuel Usage for Steam Electric Power Generation in 2009

Fossil/Nuclear Fuels

Coal and Petroleum Coke: Type	Amount (tons)	Gas: Type	Amount (Million ft^3)	Oil: Type	Amount (barrels)	Nuclear: Type	Amount	Units (Specify)
BTU Generated by Coal and/or Petroleum Coke	5.97E+13	BTU Generated by Gas	17304308000	BTU Generated by Oil		BTU Generated by Nuclear Fuels		
☐ Anthracite		☑ Natural Gas	27.1	☐ No. 1 Fuel Oil		☐ Nuclear		
☑ Bituminous	2342188	☐ Blast Furnace Gas		☐ No. 2 Fuel Oil		☑ None		
☐ Lignite		☐ Gaseous Propane		☐ No. 4 Fuel Oil				
☐ Subbituminous		☐ Other Gases (Provide Below)		☐ No. 5 Fuel Oil				
☐ Waste Coal				☐ No. 6 Fuel Oil				
☐ Coal Synfuel		☐ None		☐ Diesel Fuel				
☐ Other Coal (Provide below)				☐ Jet Fuel				
				☐ Kerosene				
☐ Petroleum Coke				☐ Waste Oil				
☐ None				☐ Other Oil (Provide below)				
				☑ None				
							Total BTU Generated by Fossil/Nuclear Fuels	5.97E+13

Other Fuels (i.e., Fuels other than Fossil or Nuclear)

Type	Amount	Units (Specify)	Type	Amount	Units (Specify)	Type	Amount	Units (Specify)
☐ Municipal Solid Waste			☐ Landfill Gas			☑ None		
☐ Wood			☐ Other Biomass			☐ Other (Provide below)		
							Total BTU Generated by Other Fuels	0
							Total BTU Generated by All Fuels	5.97E+13

CBI?
☐ Yes

A8-2. Do the total BTUs generated by the fossil/nuclear fuels comprise 50 percent or more of the total BTUs generated by all fuels for the steam electric generating unit in 2009?

● Yes
○ No

CBI?
☐ Yes

A8-3. Did the plant report a fossil or nuclear fuel as the predominant or second most predominant energy source for this generating unit on Form EIA-860 for reporting year 2009? NOTE: This information is reported in Schedule 3, Part B, lines 9 and 11.

● Yes
○ No

If the plant responded "Yes" to either Question A8-2 or A8-3, then this steam electric generating unit is classified as a "fossil/nuclear electric generating unit" for the purposes of this questionnaire. If the plant responded "No" to both Questions A8-2 and A8-3, then this electric generating unit is classified as an "other electric generating unit" for the purposes of this questionnaire.

NOTE: IF <u>ALL</u> STEAM ELECTRIC GENERATING UNITS IDENTIFIED IN TABLE A-8 ARE CLASSIFIED AS "OTHER ELECTRIC GENERATING UNITS" (BASED ON THE CLASSIFICATION DETERMINED FROM QUESTIONS A8-2 AND A8-3), DO <u>NOT</u> COMPLETE THE REMAINDER OF THIS QUESTIONNAIRE.

Plant ID: 02268
Plant Name: Conemaugh
SE Unit ID: 2

Part: A

Section Title: 8. Fuel Usage by Steam Electric Generating Unit

Instructions: In Section 8 (Questions A8-1 through A8-3), provide information for all steam electric generating units that were operated in 2009, including units that operated for only part of 2009 (i.e., those units for which you responded "Yes" in Question A6-1, Table A-8, "Operated in 2009" column). Please provide all free response answers in the highlighted yellow areas.

Make copies of Section 8 for each steam electric generating unit ID operated in 2009 using the "Copy Section 8" button below. Enter the steam electric generating unit ID (use unit IDs assigned in Table A-8) in the space above titled "SE Unit ID".

CBI?
☐ Yes

A8-1. In Table A-11, provide the types and amounts of fuels used in 2009. [Check all boxes that apply.] Include fuels used for start up. Also provide the BTU generated by each general fuel type reported for the year 2009.

Note: EPA is requesting the BTUs actually generated by the fuel. Additionally, for reporting barrels of oil, use a conversion of one barrel is equal to 42 U.S. gallons, if needed.

Table A-11. Fuel Usage for Steam Electric Power Generation in 2009

Fossil/Nuclear Fuels								
Coal and Petroleum Coke		Gas		Oil		Nuclear		
BTU Generated by Coal and/or Petroleum Coke	5.61E+13	BTU Generated by Gas	18342380000	BTU Generated by Oil		BTU Generated by Nuclear Fuels		
Type	Amount (tons)	Type	Amount (Million ft^3)	Type	Amount (barrels)	Type	Amount	Units (Specify)
☐ Anthracite		☑ Natural Gas	47.5	☐ No. 1 Fuel Oil		☐ Nuclear		
☑ Bituminous	2203955	☐ Blast Furnace Gas		☐ No. 2 Fuel Oil		☑ None		
☐ Lignite		☐ Gaseous Propane		☐ No. 4 Fuel Oil				
☐ Subbituminous		☐ Other Gases (Provide Below)		☐ No. 5 Fuel Oil				
☐ Waste Coal				☐ No. 6 Fuel Oil				
☐ Coal Synfuel		☐ None		☐ Diesel Fuel				
☐ Other Coal (Provide below)				☐ Jet Fuel				
				☐ Kerosene				
☐ Petroleum Coke				☐ Waste Oil				
☐ None				☐ Other Oil (Provide below)				
				☑ None				
							Total BTU Generated by Fossil/Nuclear Fuels	5.61E+13

Other Fuels (i.e., Fuels other than Fossil or Nuclear)								
Type	Amount	Units (Specify)	Type	Amount	Units (Specify)	Type	Amount	Units (Specify)
☐ Municipal Solid Waste			☐ Landfill Gas			☑ None		
☐ Wood			☐ Other Biomass			☐ Other (Provide below)		
							Total BTU Generated by Other Fuels	0
							Total BTU Generated by All Fuels	5.61E+13

CBI? ☐ Yes

A8-2. Do the total BTUs generated by the fossil/nuclear fuels comprise 50 percent or more of the total BTUs generated by all fuels for the steam electric generating unit in 2009?

● Yes
○ No

CBI? ☐ Yes

A8-3. Did the plant report a fossil or nuclear fuel as the predominant or second most predominant energy source for this generating unit on Form EIA-860 for reporting year 2009? NOTE: This information is reported in Schedule 3, Part B, lines 9 and 11.

● Yes
○ No

If the plant responded "Yes" to either Question A8-2 or A8-3, then this steam electric generating unit is classified as a "fossil/nuclear electric generating unit" for the purposes of this questionnaire. If the plant responded "No" to both Questions A8-2 and A8-3, then this electric generating unit is classified as an "other electric generating unit" for the purposes of this questionnaire.

NOTE: IF ALL STEAM ELECTRIC GENERATING UNITS IDENTIFIED IN TABLE A-8 ARE CLASSIFIED AS "OTHER ELECTRIC GENERATING UNITS" (BASED ON THE CLASSIFICATION DETERMINED FROM QUESTIONS A8-2 AND A8-3), DO NOT COMPLETE THE REMAINDER OF THIS QUESTIONNAIRE.

Plant ID: 02268
Plant Name: Conemaugh

Part: A
Section Title: 9. NOx Control Systems

Instructions: Throughout Section 9 (Questions A9-1 to A9-11), provide information for all *NOx control systems* operated on fossil-fueled electric generating units on or after January 1, 2009 and all NOx control systems the plant is currently constructing/installing or planning to construct/install on fossil-fueled electric generating units by December 31, 2020. See Part A Section 8 for unit classifications. You will need to indicate the steam electric generating units that are serviced by these air pollution control systems. Use codes from Table A-8 or Table A-9 to designate the SE Unit ID.

CBI?
☐ Yes

A9-1. Did the plant operate any NOx control systems on fossil-fueled electric generating units after January 1, 2009 or is the plant currently constructing/installing or planning to construct/install any NOx control system on fossil-fueled electric generating units by December 31, 2020? See Part A Section 8 for unit classifications.

◉ Yes (Complete Table A-12)
○ No (Skip to Section 10)

In Table A-12, provide information for NOx control systems that the plant operated after January 1, 2009, is currently constructing/installing, or planning to construct/install by December 31, 2020 on each operating or planned fossil-fueled electric generating unit (identified in Table A-8 or Table A-9). Provide the steam electric generating unit ID (use codes from Table A-8 or Table A-9), the type of NOx control system(s) operating or planned for the steam electric generating unit, whether the NOx control system(s) are operating or planned, and the date the NOx control was/will be installed. In addition, for the steam electric generating units serviced by a SCR system, identify the date and location (i.e., on- or off-site) of the last and next SCR catalyst replacement/regeneration.

Table A-12. NOx Control Systems

SE Unit ID	Type of NOx Control System	Status of NOx Control System	Date of Installation, Previous or Planned: Month	Date of Installation, Previous or Planned: Year	For Steam Electric Generating Units Serviced by a SCR System — Date of Last SCR Catalyst Replacement or Regeneration: Month	Date of Last SCR Catalyst Replacement or Regeneration: Year	Where Last SCR Catalyst Regeneration Occurred	Date of Next Planned SCR Catalyst Replacement or Regeneration: Month	Date of Next Planned SCR Catalyst Replacement or Regeneration: Year	Where Next SCR Catalyst Regeneration is Planned to Occur
	☑ SCR	Planned	Select							
	☐ SNCR	Select	Select		Select	Select		Select	Select	
SE Unit-1	☑ Overfire Air	Operating	January	1997			Select			Select
	☑ Low NOx burners	Operating	January	1997	Select			Select		
	☐ Other:	Select	Select							
	☑ SCR	Planned	Select							
	☐ SNCR	Select	Select		Select	Select		Select	Select	
SE Unit-2	☑ Overfire Air	Operating	January	1997			Select			Select
	☑ Low NOx burners	Operating	January	1997	Select			Select		
	☐ Other:	Select	Select							

	☐ SCR	Select	Select					
	☐ SNCR	Select	Select		Select Select		Select Select	
Select	☐ Overfire Air	Select	Select			Select		Select
	☐ Low NOx burners	Select	Select		Select		Select	
	☐ Other:	Select	Select					
	☐ SCR	Select	Select					
	☐ SNCR	Select	Select		Select Select		Select Select	
Select	☐ Overfire Air	Select	Select			Select		Select
	☐ Low NOx burners	Select	Select		Select		Select	
	☐ Other:	Select	Select					
	☐ SCR	Select	Select					
	☐ SNCR	Select	Select		Select Select		Select Select	
Select	☐ Overfire Air	Select	Select			Select		Select
	☐ Low Nox burners	Select	Select		Select		Select	
	☐ Other:	Select	Select					
	☐ SCR	Select	Select					
	☐ SNCR	Select	Select		Select Select		Select Select	
Select	☐ Overfire Air	Select	Select			Select		Select
	☐ Low NOx burners	Select	Select		Select		Select	
	☐ Other:	Select	Select					
	☐ SCR	Select	Select					
	☐ SNCR	Select	Select		Select Select		Select Select	
Select	☐ Overfire Air	Select	Select			Select		Select
	☐ Low NOx burners	Select	Select		Select		Select	
	☐ Other:	Select	Select					
	☐ SCR	Select	Select					
	☐ SNCR	Select	Select		Select Select		Select Select	
Select	☐ Overfire Air	Select	Select			Select		Select
	☐ Low NOx burners	Select	Select		Select		Select	
	☐ Other:	Select	Select					

CBI?
☐ Yes

A9-2. If the plant has sent an SCR catalyst off site for regeneration, provide the company name, location, and phone number for the company(ies) that performed the last two *SCR catalyst regenerations*.

☑ Plant did not send SCR catalyst offsite for regeneration.

Table A-13. Companies that performed the last two SCR catalyst regenerations

Company Name	City	State	Telephone Number
		Select	
		Select	

APPENDIX A

Document 2

Part C – Ash Handling

OMB Control Number: 2040-0281
Approval Expires: 05/31/2013

Plant ID: 02268
Plant Name: Conemaugh

Steam Electric Questionnaire

PART C - ASH HANDLING

Table of Contents

Plant ID: 02268
Plant Name: Conemaugh

Part: C
Section Title: 1. Ash Generation

CBI?
☐ Yes

C1-1. Is ash generated in any fossil-fueled steam electric generating units at the plant? See Part A Section 8 for steam electric generating unit fuel classifications.

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

CBI?
☐ Yes

C1-2. In Table C-1, indicate the total acreage of the *plant* for each of the following categories, including all contiguous and non-adjoining property within 20 miles under the operational control of the plant or operated by the same ultimate parent, and receiving the plant's waste.

Table C-1. Plant Acreage Breakdown

Category	Acreage
Total Plant Area	2838
Parking lots	10.2
Buildings and Other Developed Areas	217
Active/Inactive/Open ash ponds	4.3
Active/Inactive/Open landfills	348
Closed ponds/impoundments and landfills	161
Unusable land (e.g., wetlands, cooling reservoir) Specify type(s): wetlands & floodway	83.1
Other:	
Other:	

CBI?
☐ Yes

C1-3. Is fly ash generated in any fossil-fueled steam electric generating units at the plant? See Part A Section 8 for steam electric generating unit fuel classifications.

◉ Yes (Continue)
○ No (Skip to Section 3.1)

Plant ID: 02268
Plant Name: Conemaugh
SE Unit ID: 1

Part: C
Section Title: 3.1. Bottom Ash Handling - Generating Unit Level Information

Instructions: Throughout Section 3.1 (Questions C3-1 through C3-31), provide ash handling information for each steam electric generating unit operated at any time in 2009, including units that may have been idle for an extended period of time. Make copies of Section 3.1 for each steam electric generating unit using the "Copy Section 3.1" button below. Enter the steam electric generating Unit ID (use Unit IDs assigned in Table A-8) in the space above titled "SE Unit ID".

CBI? ☐ Yes

C3-1. Is bottom ash generated in any fossil-fueled steam electric generating units at the plant? See Part A Section 8 for steam electric generating unit fuel classifications.

● Yes (Continue)
○ No (Skip to Section 4)

CBI? ☐ Yes

C3-2. Provide bottom ash handling information in Table C-18, for each steam electric generating unit reported in Table A-8, following these instructions:

- Provide bottom ash handling information at the steam electric generating unit level. For the purpose of this questionnaire, more than one type of bottom ash handling (e.g., wet sluicing, SCC) may be selected for one generating unit. Check all types of bottom ash handling that apply to this steam electric generating unit.
- Refer to the glossary and the "Part C Instructions" tab for definitions related to wet and dry bottom ash handling systems.

Table C-18. Bottom Ash Handling Systems Operated in 2009 by Generating Unit

Type of Boiler	Type of Bottom Ash Handling System	Typical Amount of Bottom Ash Produced in 2009 (Dry weight basis)		Typical Percent Moisture of Bottom Ash in 2009		Design Ash Handling Rate (Dry weight basis)		Number of Days Ash was Handled by the Bottom Ash Handling System in 2009		Loss on Ignition of Bottom Ash Produced (Provide typical range for 2009)	
		Wet Conveyed	Dry Conveyed	Wet Conveyed	Dry Conveyed	Wet Conveyed	Dry Conveyed	Wet Conveyed	Dry Conveyed	Wet Conveyed	Dry Conveyed
Example: Dry-bottom Other:	☑ Wet sluicing ☐ Mechanical drag system ☐ Dry vacuum ☐ Dry pressure ☐ Other:	1,500 tpd 365 dpy	0 tpd 0 dpy	30 % ☐ NA	% ☑ NA	5 tpd 5 dpy	0 tpd 0 dpy	365 days	0 days	1 to 2 % ☐ Not monitored ☐ NA	to % ☐ Not monitored ☑ NA
Dry-bottom Other:	☑ Wet sluicing ☐ Mechanical drag system ☐ Dry vacuum ☐ Dry pressure ☐ Other:	122.5 tpd 365 dpy	tpd dpy	24.00% % ☐ NA	% ☐ NA	855 tpd 365 dpy	tpd dpy	365 days	days	0.00% to 1.00% % ☐ Not monitored ☐ NA	to % ☐ Not monitored ☐ NA

CBI? ☐ Yes

C3-3. Is wet sluicing used to collect bottom ash for this steam electric generating unit?

● Yes (Continue)

○ No (Skip to Question C3-11)

Provide information for the wet bottom ash handling system in Table C-19. For the source of sluice water, you may enter more than one source from the following options:

- "IN" if *raw intake water* is used;
- "IN-Makeup" if raw intake water is only used as makeup;
- "TR" for use of *intake water* that has been *treated* on site prior to use;
- "TR-Makeup" if treated intake water is used only as makeup; and/or
- Process wastewater and/or treated wastewater described the code tables on the "Code Tables" tab provided at the end of this workbook.

An example is provided in Table C-19 for a plant that uses the effluent from its ash pond (WWT-1, as would be defined in Part A) for bottom ash sluicing and also makes up for losses with untreated river water (which is code IN-Makeup as shown above).

Table C-19. Process Wastewater Generated from Wet Bottom Ash Handling in 2009

Average Sluice Water Flow Rate (gpd)	Typical Duration AND Frequency of Sluicing (hpd AND dpy)	Source(s) of Sluice Water	Percent Contribution of Source to Sluice Water Flow
EXAMPLE:		WWT-2 Effluent	*90* %
14,400,000 gpd	*24* hpd	TR	*10* %
	365 dpy	Select	%
		Other:	%
5000000 gpd	24 hpd	POND-1 Effluent	100.00% %
	365 dpy	Select	%
		Select	%
		Other:	%

CBI? ☐ Yes

C3-4. For water sources that may be used as a source of *bottom ash sluice* water (e.g., fresh intake, recycled process water), indicate the maximum chlorides concentration and the maximum solids percentage that is acceptable for the water to be used for those purposes. [Check all boxes that apply.]

☐ Chlorides concentration, less than: ______ ppm

☐ Solids percentage, less than: ______ %

☑ Other: Not ______ ppm

CBI? ☐ Yes

C3-5. Is any of the wet *bottom ash sluice* water immediately recycled (e.g., without treatment such as a pond) back to plant process?

○ Yes (Continue)

● No (Skip to Question C3-6)

Describe how the wet *bottom ash sluice* is reused:

CBI? ☐ Yes

C3-6. Is any of the wet *bottom ash sluice* indirectly discharged to a publicly or privately owned treatment works?

○ Yes
● No

CBI? ☐ Yes

C3-7. Does solids removal (other than in pond(s)/impoundment(s)) occur at the plant?

● Yes (Continue)
○ No (Skip to Question C3-11)

CBI? ☐ Yes

C3-8. In Table C-20 provide solids removal information, on a dry ton basis, for the wet ash sluice system. For the purpose of Table C-20, solids removal does NOT include ash ponds.

Table C-20. Wet Ash Sluice Systems Operated in 2009

Solids Removal [Check all boxes that apply]	Bottom Ash Disposal [Check all boxes that apply]	Amount (tons) of Solids Disposed (Dry weight basis)	Typical Percent Moisture of Bottom Ash Disposed
☑ Dewatering bin	☐ Sold or given away without further treatment	tons	%
☐ Hydrocyclones	☐ Sold or given away after further treatment	tons	%
☐ Centrifuges	☐ Stored in/transferred to a pond/impoundment reported in Table A-4	tons	%
☐ Filters	☑ Stored in landfills reported in Table A-6	35490 tons	24.00% %
☐ Other:	☐ Stored in landfills NOT reported in Table A-6	tons	%
	☐ Other:	tons	%

CBI? ☐ Yes

C3-9. Provide the amount of wastewater overflow from solids removal (e.g., dewatering bins) for the wet ash sluice system.

1260000 gpd

CBI? ☐ Yes

C3-10. What is the destination(s) of the wastewater overflow from solids removal? If the plant recycles the wastewater, indicate the amount and the plant process to which this waste is recycled. [Check all boxes that apply.]

☐ Immediately recycled back to plant process.

Provide the amount of wastewater overflow that is recycled.

gpd

Describe how the wastewater overflow is reused:

☑ Transferred to on-site treatment system. Identify the type of treatment system below. [Check all boxes that apply.]

☑ Settling pond ☐ Constructed wetlands

☑ pH adjustment ☐ Other, specify:

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

☐ Indirect discharge to a publicly or privately owned treatment works

☑ Other, explain: Stored in SPD-3 our recycle basin for reuse in ash sluice system or transferred to SPD-1 for reuse

CBI? ☐ Yes

C3-11. Does the plant use a mechanical drag system (e.g., submerged chain conveyor (SCC)) to remove bottom ash from this generating unit boiler?

○ Yes (Continue)

● No (Skip to Question C3-15)

Name the type and describe the process of removing bottom ash from the generating unit boiler(s).

____

CBI? ☐ Yes

C3-12. Is any process wastewater generated from overflow, or other means, from the mechanical drag system?

○ Yes (Continue)

○ No (Skip to Question C3-15)

CBI? ☐ Yes

C3-13. Provide the amount of wastewater overflow from the mechanical drag system.

__________ gpd

CBI? ☐ Yes

C3-14. What is the destination(s) of the wastewater overflow from the mechanical drag system? If the plant recycles the wastewater, indicate the amount and the plant process to which this waste is recycled. [Check all boxes that apply.]

☐ Immediately recycled back to plant process.

Provide the amount of wastewater overflow that is recycled.

__________ gpd

Describe how the wastewater overflow is reused:

____

☐ Transferred to on-site treatment system. Identify the type of treatment system below. [Check all boxes that apply.]

☐ Settling pond ☐ Constructed wetlands

☐ pH adjustment ☐ Other, specify: __________

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

☐ Indirect discharge to a publicly or privately owned treatment works

☐ Other, explain: ______________________________

CBI? ☐ Yes

C3-15. In Table C-21, identify the destination(s) for wet and dry bottom ash transferred from the hopper(s) of this steam electric generating unit. Provide the distribution of the wet and dry ash by destination and whether the storage indentified is an intermediate or final destination.

Note: The sum of the percentage of ash distribution should equal 100% for the dry and wet bottom ash, separately.

Table C-21. Storage Destinations that Receive Bottom Ash

Dry Conveyed Bottom Ash			Wet Conveyed Bottom Ash		
Storage Destination(s)	Percent of Dry Conveyed Bottom Ash to this Destination	Destination Type	Storage Destination(s)	Percent of Wet Conveyed Bottom Ash to this Destination	Destination Type
Select If other, explain:	%	○ Intermediate ● Final	LANDFILL-1 If other, explain:	100.00% %	○ Intermediate ● Final
Select If other, explain:	%	○ Intermediate ● Final	Select If other, explain:	%	○ Intermediate ○ Final
Select If other, explain:	%	○ Intermediate ○ Final	Select If other, explain:	%	○ Intermediate ○ Final
Select If other, explain:	%	○ Intermediate ○ Final	Select If other, explain:	%	○ Intermediate ○ Final
Select If other, explain:	%	○ Intermediate ○ Final	Select If other, explain:	%	○ Intermediate ○ Final
Total Dry	100 %		Total Wet	100 %	

CBI? ☐ Yes

C3-16. Was the bottom ash from this steam electric generating unit conveyed both *wet and dry* in 2009?

○ Yes (Continue)

● No (Skip to Question C3-19)

CBI? ☐ Yes

C3-17. Indicate why bottom ash from the steam electric generating unit was conveyed both wet and dry in 2009. [Check all boxes that apply.] For each selection, identify the number of days in 2009 the wet system was operated for this reason.

- ☐ Wet bottom ash handling system operated during times in which the dry collected bottom ash was not marketable. ________ days
- ☐ Wet bottom ash handling system operated when the dry bottom ash collection system was not operational due to maintenance issues. ________ days
- ☐ Wet bottom ash handling system operated in order to maintain its function as a backup to the dry system (i.e., wet system operated to ensure that it is still functional.) ________ days
- ☐ Wet bottom ash handling system operated because the dry bottom ash handling system does not have the capacity to handle all of the bottom ash. ________ days
- ☐ Other, explain: ____________ ________ days

CBI? ☐ Yes

C3-18. What modifications would be required to handle all the bottom ash with a dry bottom ash handling system? [Check all boxes that apply.]

- ☐ No system modifications necessary. Procedural changes would be sufficient.
- ☐ Increase the capacity of the silo(s).
- ☐ Increase the number of silos.
- ☐ Modify the loading silos to have the ability to moisture condition the ash.
- ☐ Install/increase the capacity of landfills.
- ☐ Increase the capacity of the dry bottom ash conveying equipment.
- ☐ Design/develop new infrastructure to dispose of dry ash. Specify the new infrastructure needed: ____________
- ☐ Other, explain: ____________

CBI? ☐ Yes

C3-19. If the current bottom ash handling operations for the steam electric generating unit are expected to significantly change by December 31, 2020, indicate how (i.e., convert to or add dry handling capability). [Check all boxes that apply.]

- ☐ Expand capacity (handling and/or storage).
- ☐ Decreased use of wet bottom ash handling system. ________ (expected operating days per year for wet system)
- ☐ End use of wet bottom ash handling system. ________ (expected end date)
- ☑ No change expected in bottom ash handling operations.
- ☐ Other, explain: ________

CBI? ☐ Yes

C3-20. Was the dry bottom ash handling installed as a retrofit to the steam electric generating unit?

- ○ NA, this unit does not use dry bottom ash handling (Skip to Question C3-24)
- ● No (Skip to Question C3-24)
- ○ Yes (Continue)

Year Built: ________

Shutdown time (days) required to bring dry bottom ash handling system on line: ________

Was a generating unit outage(s), outside of regularly scheduled outages, required to bring the dry bottom ash handling system on line?

- ○ Yes
- ○ No

CBI? ☐ Yes

C3-21. What type of retrofit was the dry bottom ash handling system?

- ○ The retrofit was made to an existing dry system. (Skip to Question 3-29)
- ○ A dry bottom ash handling system was installed (for operation in addition to the wet fly ash handling system). (Continue)
- ○ The retrofit was a complete conversion from a wet to dry bottom ash handling system. (Continue)

CBI? ☐ Yes

C3-22. Describe the changes that were required to retrofit (for a retrofit to an existing dry system, an installation of a dry system, or a complete conversion from wet to dry). [Check all boxes that apply.]

- ☐ Physical changes to facility
  - ☐ Installation of pressure/vacuum system and piping
  - ☐ Boiler alteration to accommodate the mechanical drag system
  - ☐ Expansion of pressure/vacuum system and piping
  - ☐ Installation of storage silos
  - ☐ Modification of the silos to moisture-condition the ash
  - ☐ Modification of the silos for ash transfer to rail cars
  - ☐ Modification of the silos for marketable ash
  - ☐ Construction of haul roads
  - ☐ Construction of rail track
  - ☐ Construction of landfill. Provide the landfill ID(s) from Table A-6: ________
  - ☐ Increasing landfill capacity. Provide the landfill ID(s) from Table A-6: ________
  - ☐ Changes to air permit
  - ☐ Other, explain: ________
- ☐ Changes in personnel/training, explain: ________
- ☐ Changes in ash disposal practices
  - ☐ Storage of ash in landfills. Provide the landfill ID(s) from Table A-6: ________
  - ☐ Marketing of ash
  - ☐ Hauling ash to off-site storage
  - ☐ Dust suppression activities
  - ☐ Other, explain: ________

CBI? ☐ Yes

C3-23. Attach an engineering process diagram(s) for the dry bottom ash handling system retrofit that depicts (with dimensions) the conveyance portion of the system (e.g., a diagram(s) that depicts how the dry bottom ash system is configured within the building to convey bottom ash from the boiler(s) to the building exit).

☐ Diagram attached.

CBI? ☐ Yes

C3-24. Is the plant in the process of installing a dry bottom ash handling system to handle some or all of the ash currently handled by the wet bottom ash handling system?

○ Yes — Estimated shutdown time (days) required to bring dry bottom ash handling system online: ________ (Skip to Question C3-26)

● No — (Continue to Question C3-25)

CBI? ☐ Yes

C3-25. Is the plant planning to install a dry bottom ash handling system to handle some or all of the ash currently handled by the wet bottom ash handling system?

○ Yes — Estimated shutdown time (days) required to bring dry bottom ash handling system online: ________ (Continue to Question C3-26)

● No — (Skip to Question C3-29)

CBI? ☐ Yes

C3-26. If the plant is in the process of installing, or planning to install, a dry bottom ash handing system by December 31, 2020, provide the cost estimates that have been developed for such a conversion/installation.

○ Yes — (Provide documentation/costs, for example, bid proposals or internal plant engineering estimates.)

● No — (Skip to Question C3-29)

Note: All bid proposals and/or other documentation/costs originally submitted to the plant as CBI, should be marked CBI for the purpose of this collection request.

○ I have attached documentation/costs.

○ I did not attach documentation/costs. Below, explain why:

____

CBI? ☐ Yes

C3-27. Describe the modifications that will be required to install the dry bottom ash handling system. [Check all boxes that apply.]

- ☐ Physical changes to facility
  - ☐ Installation of mechanical drag system
  - ☐ Boiler alteration to accommodate the mechanical drag system
  - ☐ Installation of completely dry bottom ash handling system
  - ☐ Installation of storage silos
  - ☐ Modification of the silos to moisture-condition the ash
  - ☐ Modification of the silos for ash transfer to rail cars
  - ☐ Modification of the silos for marketable ash
  - ☐ Construction of haul roads
  - ☐ Construction of rail track
  - ☐ Construction of landfill. Provide the landfill ID(s) from Table A-6: ________
  - ☐ Increasing landfill capacity. Provide the landfill ID(s) from Table A-6: ________
  - ☐ Changes to air permit
  - ☐ Other, explain: ________
- ☐ Changes in personnel/training, explain: ________
- ☐ Changes in ash disposal practices
  - ☐ Storage of ash in landfill. Provide the landfill ID(s) from Table A-6: ________
  - ☐ Marketing of ash
  - ☐ Hauling ash to off-site storage
  - ☐ Dust suppression activities
  - ☐ Other, explain: ________

CBI? ☐ Yes

C3-28. Indicate the types of destinations expected for the dry bottom ash from the planned system and the percentage of the dry bottom ash that is expected to go to each destination. [Check all boxes that apply.]

☐ Marketed, sold, and/or given away

Select ______ % of the dry bottom ash

If other, specify: ______

Select ______ % of the dry bottom ash

If other, specify: ______

Select ______ % of the dry bottom ash

If other, specify: ______

☐ Stored in landfills reported in Table A-6 ______ % of the dry bottom ash

☐ Stored in landfills NOT reported in Table A-6 ______ % of the dry bottom ash

☐ Other, specify:

______ ______ % of the dry bottom ash

CBI? ☑ Yes

C3-29. If the plant is not in the process of installing or planning to install a dry bottom ash handling system, have cost estimates been obtained/developed since January 1, 1995, for such a conversion/installation?

● Yes (Provide documentation/costs, for example, bid proposals or internal plant engineering estimates.)

○ No (Skip to Question C3-30)

Note: All bid proposals and/or other documentation/costs originally submitted to the plant as CBI, should be marked CBI for the purpose of this collection request.

● I have attached documentation/costs.

○ I did not attach documentation/costs. Below, explain why:

CBI? ☐ Yes

C3-30. Has the plant encountered any unscheduled outages on this generating unit caused by the bottom ash handling system in the last five years?

○ Yes (Continue)

● No (Skip to Section 3.2)

CBI?
☐ Yes

C3-31. In Table C-22, provide information on unscheduled generating unit outages caused by bottom ash handling for each of the last five years.

Table C-22. Unscheduled Generating Unit Outages Caused by Bottom Ash Handling

Year	Ash Handling	Total Days of Outage	Reason(s) for outage(s)	Method(s) Used to Resolve Outage(s)
2005	Dry			
	Wet			
2006	Dry			
	Wet			
2007	Dry			
	Wet			
2008	Dry			
	Wet			
2009	Dry			
	Wet			

Plant ID: 02268
Plant Name: Conemaugh
SE Unit ID: 2

Part: C
Section Title: 3.1. Bottom Ash Handling - Generating Unit Level Information

Instructions: Throughout Section 3.1 (Questions C3-1 through C3-31), provide ash handling information for each steam electric generating unit operated at any time in 2009, including units that may have been idle for an extended period of time. Make copies of Section 3.1 for each steam electric generating unit using the "Copy Section 3.1" button below. Enter the steam electric generating Unit ID (use Unit IDs assigned in Table A-8) in the space above titled "SE Unit ID".

CBI? ☐ Yes

C3-1. Is bottom ash generated in any fossil-fueled steam electric generating units at the plant? See Part A Section 8 for steam electric generating unit fuel classifications.

● Yes (Continue)
○ No (Skip to Section 4)

CBI? ☐ Yes

C3-2. Provide bottom ash handling information in Table C-18, for each steam electric generating unit reported in Table A-8, following these instructions:

- Provide bottom ash handling information at the steam electric generating unit level. For the purpose of this questionnaire, more than one type of bottom ash handling (e.g., wet sluicing, SCC) may be selected for one generating unit. Check all types of bottom ash handling that apply to this steam electric generating unit.
- Refer to the glossary and the "Part C Instructions" tab for definitions related to wet and dry bottom ash handling systems.

Table C-18. Bottom Ash Handling Systems Operated in 2009 by Generating Unit

Type of Boiler	Type of Bottom Ash Handling System	Typical Amount of Bottom Ash Produced in 2009 (Dry weight basis)		Typical Percent Moisture of Bottom Ash in 2009		Design Ash Handling Rate (Dry weight basis)		Number of Days Ash was Handled by the Bottom Ash Handling System in 2009		Loss on Ignition of Bottom Ash Produced (Provide typical range for 2009)	
		Wet Conveyed	Dry Conveyed	Wet Conveyed	Dry Conveyed	Wet Conveyed	Dry Conveyed	Wet Conveyed	Dry Conveyed	Wet Conveyed	Dry Conveyed
Example: Dry-bottom; Other:	☑ Wet sluicing ☐ Mechanical drag system ☐ Dry vacuum ☐ Dry pressure ☐ Other:	1,500 tpd; 365 dpy	0 tpd; 0 dpy	30 %; ☐ NA	%; ☑ NA	5 tpd; 5 dpy	0 tpd; 0 dpy	365 days	0 days	1 to 2 %; ☐ Not monitored ☐ NA	to %; ☐ Not monitored ☑ NA
Dry-bottom; Other:	☑ Wet sluicing ☐ Mechanical drag system ☐ Dry vacuum ☐ Dry pressure ☐ Other:	122.5 tpd; 365 dpy	tpd; dpy	24.00% %; ☐ NA	%; ☐ NA	855 tpd; 365 dpy	tpd; dpy	365 days	days	0.00% to 1.00% %; ☐ Not monitored ☐ NA	to %; ☐ Not monitored ☐ NA

CBI? ☐ Yes

C3-3. Is wet sluicing used to collect bottom ash for this steam electric generating unit?

● Yes (Continue)

○ No (Skip to Question C3-11)

Provide information for the wet bottom ash handling system in Table C-19. For the source of sluice water, you may enter more than one source from the following options:

- "IN" if *raw intake water* is used;
- "IN-Makeup" if raw intake water is only used as makeup;
- "TR" for use of *intake water* that has been *treated* on site prior to use;
- "TR-Makeup" if treated intake water is used only as makeup; and/or
- Process wastewater and/or treated wastewater described the code tables on the "Code Tables" tab provided at the end of this workbook.

An example is provided in Table C-19 for a plant that uses the effluent from its ash pond (WWT-1, as would be defined in Part A) for bottom ash sluicing and also makes up for losses with untreated river water (which is code IN-Makeup as shown above).

Table C-19. Process Wastewater Generated from Wet Bottom Ash Handling in 2009

Average Sluice Water Flow Rate (gpd)	Typical Duration AND Frequency of Sluicing (hpd AND dpy)	Source(s) of Sluice Water	Percent Contribution of Source to Sluice Water Flow
EXAMPLE:		WWT-2 Effluent	*90* %
14,400,000 gpd	*24* hpd	TR	*10* %
	365 dpy	Select	%
		Other:	%
		POND-1 Effluent	100.00% %
5000000 gpd	24 hpd	Select	%
	365 dpy	Select	%
		Other:	%

CBI? ☐ Yes

C3-4. For water sources that may be used as a source of *bottom ash sluice* water (e.g., fresh intake, recycled process water), indicate the maximum chlorides concentration and the maximum solids percentage that is acceptable for the water to be used for those purposes. [Check all boxes that apply.]

☐ Chlorides concentration, less than: ________ ppm

☐ Solids percentage, less than: ________ %

☑ Other: Not ________ ppm

CBI? ☐ Yes

C3-5. Is any of the wet *bottom ash sluice* water immediately recycled (e.g., without treatment such as a pond) back to plant process?

○ Yes (Continue)

● No (Skip to Question C3-6)

Describe how the wet *bottom ash sluice* is reused:

CBI? ☐ Yes

C3-6. Is any of the wet *bottom ash sluice* indirectly discharged to a publicly or privately owned treatment works?

○ Yes

● No

CBI? ☐ Yes

C3-7. Does solids removal (other than in pond(s)/impoundment(s)) occur at the plant?

● Yes (Continue)

○ No (Skip to Question C3-11)

CBI? ☐ Yes

C3-8. In Table C-20 provide solids removal information, on a dry ton basis, for the wet ash sluice system. For the purpose of Table C-20, solids removal does NOT include ash ponds.

Table C-20. Wet Ash Sluice Systems Operated in 2009

Solids Removal (Check all boxes that apply)	Bottom Ash Disposal (Check all boxes that apply)	Amount (tons) of Solids Disposed (Dry weight basis)	Typical Percent Moisture of Bottom Ash Disposed
☑ Dewatering bin	☐ Sold or given away without further treatment	tons	%
☐ Hydrocyclones	☐ Sold or given away after further treatment	tons	%
☐ Centrifuges	☐ Stored in/transferred to a pond/impoundment reported in Table A-4	tons	%
☐ Filters	☑ Stored in landfills reported in Table A-6	35490 tons	24.00% %
☐ Other:	☐ Stored in landfills NOT reported in Table A-6	tons	%
	☐ Other:	tons	%

CBI? ☐ Yes

C3-9. Provide the amount of wastewater overflow from solids removal (e.g., dewatering bins) for the wet ash sluice system.

1260000 gpd

CBI? ☐ Yes

C3-10. What is the destination(s) of the wastewater overflow from solids removal? If the plant recycles the wastewater, indicate the amount and the plant process to which this waste is recycled. [Check all boxes that apply.]

☐ Immediately recycled back to plant process.

Provide the amount of wastewater overflow that is recycled.

_______ gpd

Describe how the wastewater overflow is reused:

☑ Transferred to on-site treatment system. Identify the type of treatment system below. [Check all boxes that apply.]

☑ Settling pond ☐ Constructed wetlands

☑ pH adjustment ☐ Other, specify:

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

☐ Indirect discharge to a publicly or privately owned treatment works

☑ Other, explain: Stored in SPD-3 our recycle basin for reuse in ash sluice system or transferred to SPD-1 for reuse

CBI? ☐ Yes

C3-11. Does the plant use a mechanical drag system (e.g., submerged chain conveyor (SCC)) to remove bottom ash from this generating unit boiler?

○ Yes (Continue)

● No (Skip to Question C3-15)

Name the type and describe the process of removing bottom ash from the generating unit boiler(s).

____

CBI? ☐ Yes

C3-12. Is any process wastewater generated from overflow, or other means, from the mechanical drag system?

○ Yes (Continue)

○ No (Skip to Question C3-15)

CBI? ☐ Yes

C3-13. Provide the amount of wastewater overflow from the mechanical drag system.

__________ gpd

CBI? ☐ Yes

C3-14. What is the destination(s) of the wastewater overflow from the mechanical drag system? If the plant recycles the wastewater, indicate the amount and the plant process to which this waste is recycled. [Check all boxes that apply.]

☐ Immediately recycled back to plant process.

Provide the amount of wastewater overflow that is recycled.

__________ gpd

Describe how the wastewater overflow is reused:

____

☐ Transferred to on-site treatment system. Identify the type of treatment system below. [Check all boxes that apply.]

☐ Settling pond ☐ Constructed wetlands

☐ pH adjustment ☐ Other, specify: __________

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

☐ Indirect discharge to a publicly or privately owned treatment works

☐ Other, explain: ______________________________

CBI?
☐ Yes

C3-15. In Table C-21, identify the destination(s) for wet and dry bottom ash transferred from the hopper(s) of this steam electric generating unit. Provide the distribution of the wet and dry ash by destination and whether the storage indentified is an intermediate or final destination.

Note: The sum of the percentage of ash distribution should equal 100% for the dry and wet bottom ash, separately.

Table C-21. Storage Destinations that Receive Bottom Ash

Dry Conveyed Bottom Ash			Wet Conveyed Bottom Ash		
Storage Destination(s)	Percent of Dry Conveyed Bottom Ash to this Destination	Destination Type	Storage Destination(s)	Percent of Wet Conveyed Bottom Ash to this Destination	Destination Type
Select If other, explain:	%	○ Intermediate ○ Final	LANDFILL-1 If other, explain:	100.00% %	○ Intermediate ● Final
Select If other, explain:	%	○ Intermediate ○ Final	Select If other, explain:	%	○ Intermediate ○ Final
Select If other, explain:	%	○ Intermediate ○ Final	Select If other, explain:	%	○ Intermediate ○ Final
Select If other, explain:	%	○ Intermediate ○ Final	Select If other, explain:	%	○ Intermediate ○ Final
Select If other, explain:	%	○ Intermediate ○ Final	Select If other, explain:	%	○ Intermediate ○ Final
Total Dry	100 %		Total Wet	100 %	

CBI?
☐ Yes

C3-16. Was the bottom ash from this steam electric generating unit conveyed both *wet and dry* in 2009?

○ Yes (Continue)

● No (Skip to Question C3-19)

CBI?
☐ Yes

C3-17. Indicate why bottom ash from the steam electric generating unit was conveyed both wet and dry in 2009. [Check all boxes that apply.] For each selection, identify the number of days in 2009 the wet system was operated for this reason.

- ☐ Wet bottom ash handling system operated during times in which the dry collected bottom ash was not marketable. ______ days
- ☐ Wet bottom ash handling system operated when the dry bottom ash collection system was not operational due to maintenance issues. ______ days
- ☐ Wet bottom ash handling system operated in order to maintain its function as a backup to the dry system (i.e., wet system operated to ensure that it is still functional.) ______ days
- ☐ Wet bottom ash handling system operated because the dry bottom ash handling system does not have the capacity to handle all of the bottom ash. ______ days
- ☐ Other, explain: ______ ______ days

CBI?
☐ Yes

C3-18. What modifications would be required to handle all the bottom ash with a dry bottom ash handling system? [Check all boxes that apply.]

- ☐ No system modifications necessary. Procedural changes would be sufficient.
- ☐ Increase the capacity of the silo(s).
- ☐ Increase the number of silos.
- ☐ Modify the loading silos to have the ability to moisture condition the ash.
- ☐ Install/increase the capacity of landfills.
- ☐ Increase the capacity of the dry bottom ash conveying equipment.
- ☐ Design/develop new infrastructure to dispose of dry ash. Specify the new infrastructure needed: ______
- ☐ Other, explain: ______

CBI? ☐ Yes

C3-19. If the current bottom ash handling operations for the steam electric generating unit are expected to significantly change by December 31, 2020, indicate how (i.e., convert to or add dry handling capability). [Check all boxes that apply.]

- ☐ Expand capacity (handling and/or storage).
- ☐ Decreased use of wet bottom ash handling system. ________ (expected operating days per year for wet system)
- ☐ End use of wet bottom ash handling system. ________ (expected end date)
- ☑ No change expected in bottom ash handling operations.
- ☐ Other, explain: ________

CBI? ☐ Yes

C3-20. Was the dry bottom ash handling installed as a retrofit to the steam electric generating unit?

- ○ NA, this unit does not use dry bottom ash handling (Skip to Question C3-24)
- ● No (Skip to Question C3-24)
- ○ Yes (Continue)

Year Built: ________

Shutdown time (days) required to bring dry bottom ash handling system on line: ________

Was a generating unit outage(s), outside of regularly scheduled outages, required to bring the dry bottom ash handling system on line?

- ○ Yes
- ○ No

CBI? ☐ Yes

C3-21. What type of retrofit was the dry bottom ash handling system?

- ○ The retrofit was made to an existing dry system. (Skip to Question 3-29)
- ○ A dry bottom ash handling system was installed (for operation in addition to the wet fly ash handling system). (Continue)
- ○ The retrofit was a complete conversion from a wet to dry bottom ash handling system. (Continue)

CBI? ☐ Yes

C3-22. Describe the changes that were required to retrofit (for a retrofit to an existing dry system, an installation of a dry system, or a complete conversion from wet to dry). [Check all boxes that apply.]

- ☐ Physical changes to facility
  - ☐ Installation of pressure/vacuum system and piping
  - ☐ Boiler alteration to accommodate the mechanical drag system
  - ☐ Expansion of pressure/vacuum system and piping
  - ☐ Installation of storage silos
  - ☐ Modification of the silos to moisture-condition the ash
  - ☐ Modification of the silos for ash transfer to rail cars
  - ☐ Modification of the silos for marketable ash
  - ☐ Construction of haul roads
  - ☐ Construction of rail track
  - ☐ Construction of landfill. Provide the landfill ID(s) from Table A-6: ________
  - ☐ Increasing landfill capacity. Provide the landfill ID(s) from Table A-6: ________
  - ☐ Changes to air permit
  - ☐ Other, explain: ________
- ☐ Changes in personnel/training, explain: ________
- ☐ Changes in ash disposal practices
  - ☐ Storage of ash in landfills. Provide the landfill ID(s) from Table A-6: ________
  - ☐ Marketing of ash
  - ☐ Hauling ash to off-site storage
  - ☐ Dust suppression activities
  - ☐ Other, explain: ________

CBI? ☐ Yes

C3-23. Attach an engineering process diagram(s) for the dry bottom ash handling system retrofit that depicts (with dimensions) the conveyance portion of the system (e.g., a diagram(s) that depicts how the dry bottom ash system is configured within the building to convey bottom ash from the boiler(s) to the building exit).

☐ Diagram attached.

CBI? ☐ Yes

C3-24. Is the plant in the process of installing a dry bottom ash handling system to handle some or all of the ash currently handled by the wet bottom ash handling system?

○ Yes Estimated shutdown time (days) required to bring dry bottom ash handling system online: ________ (Skip to Question C3-26)

● No (Continue to Question C3-25)

CBI? ☐ Yes

C3-25. Is the plant planning to install a dry bottom ash handling system to handle some or all of the ash currently handled by the wet bottom ash handling system?

○ Yes Estimated shutdown time (days) required to bring dry bottom ash handling system online: ________ (Continue to Question C3-26)

● No (Skip to Question C3-29)

CBI? ☐ Yes

C3-26. If the plant is in the process of installing, or planning to install, a dry bottom ash handing system by December 31, 2020, provide the cost estimates that have been developed for such a conversion/installation.

○ Yes (Provide documentation/costs, for example, bid proposals or internal plant engineering estimates.)

● No (Skip to Question C3-29)

Note: All bid proposals and/or other documentation/costs originally submitted to the plant as CBI, should be marked CBI for the purpose of this collection request.

○ I have attached documentation/costs.

○ I did not attach documentation/costs. Below, explain why:

____

CBI? ☐ Yes

C3-27. Describe the modifications that will be required to install the dry bottom ash handling system. [Check all boxes that apply.]

- ☐ Physical changes to facility
  - ☐ Installation of mechanical drag system
  - ☐ Boiler alteration to accommodate the mechanical drag system
  - ☐ Installation of completely dry bottom ash handling system
  - ☐ Installation of storage silos
  - ☐ Modification of the silos to moisture-condition the ash
  - ☐ Modification of the silos for ash transfer to rail cars
  - ☐ Modification of the silos for marketable ash
  - ☐ Construction of haul roads
  - ☐ Construction of rail track
  - ☐ Construction of landfill. Provide the landfill ID(s) from Table A-6: ________
  - ☐ Increasing landfill capacity. Provide the landfill ID(s) from Table A-6: ________
  - ☐ Changes to air permit
  - ☐ Other, explain: ________
- ☐ Changes in personnel/training, explain: ________
- ☐ Changes in ash disposal practices
  - ☐ Storage of ash in landfill. Provide the landfill ID(s) from Table A-6: ________
  - ☐ Marketing of ash
  - ☐ Hauling ash to off-site storage
  - ☐ Dust suppression activities
  - ☐ Other, explain: ________

CBI?
☐ Yes

C3-28. Indicate the types of destinations expected for the dry bottom ash from the planned system and the percentage of the dry bottom ash that is expected to go to each destination. [Check all boxes that apply.]

☐ Marketed, sold, and/or given away
- Select ▾ ________ % of the dry bottom ash
  - If other, specify: ________
- Select ▾ ________ % of the dry bottom ash
  - If other, specify: ________
- Select ▾ ________ % of the dry bottom ash
  - If other, specify: ________

☐ Stored in landfills reported in Table A-6 ________ % of the dry bottom ash

☐ Stored in landfills NOT reported in Table A-6 ________ % of the dry bottom ash

☐ Other, specify:
________ ________ % of the dry bottom ash

CBI?
☑ Yes

C3-29. If the plant is not in the process of installing or planning to install a dry bottom ash handling system, have cost estimates been obtained/developed since January 1, 1995, for such a conversion/installation?

● Yes (Provide documentation/costs, for example, bid proposals or internal plant engineering estimates.)
○ No (Skip to Question C3-30)

Note: All bid proposals and/or other documentation/costs originally submitted to the plant as CBI, should be marked CBI for the purpose of this collection request.

● I have attached documentation/costs.

○ I did not attach documentation/costs. Below, explain why:

CBI?
☐ Yes

C3-30. Has the plant encountered any unscheduled outages on this generating unit caused by the bottom ash handling system in the last five years?

○ Yes (Continue)
● No (Skip to Section 3.2)

CBI?
☐ Yes

C3-31. In Table C-22, provide information on unscheduled generating unit outages caused by bottom ash handling for each of the last five years.

Table C-22. Unscheduled Generating Unit Outages Caused by Bottom Ash Handling

Year	Ash Handling	Total Days of Outage	Reason(s) for outage(s)	Method(s) Used to Resolve Outage(s)
2005	Dry			
	Wet			
2006	Dry			
	Wet			
2007	Dry			
	Wet			
2008	Dry			
	Wet			
2009	Dry			
	Wet			

Plant ID: 02268
Plant Name: Conemaugh

Part: C
Section Title: 3.2 Bottom Ash Handling - Storage and Use Data

Instructions: Complete Section 3.2 (Questions C3-32 through C3-34). Provide information for bottom ash handling and bottom ash storage at the plant.

CBI?
☐ Yes

C3-32. For each storage destination reported in Table C-21, provide the distance the bottom ash is transported from the generating unit to intermediate storage or from intermediate storage to the final disposal/destination, the amount of bottom ash transported in 2009, and the percent moisture of the bottom ash entering storage, if transported dry. Additionally, for each destination indicate how the bottom ash is transported by entering one of the following options: conveyor belt, pipe, truck, barge, rail, or other (provide a description). If the bottom ash is sold to more than one destination (e.g., some bottom ash is sold for cement manufacturing and some is sold for structural fill) enter the average percent moisture for all bottom ash sold in Table C-23. Tables C-24 and C-25 will request information by market.

Table C-23. Bottom Ash Storage Information

Storage Destination ID	Distance from the Generating Unit to Intermediate Storage or from the Intermediate Storage to the Final Disposal/Destination	Tons of Bottom Ash Transported to Destination in 2009 (dry weight basis)	How is Bottom Ash Transported to Destination?	Percent Moisture of the Bottom Ash Entering Destination
LANDFILL-1 Other:	1 miles	70980 tons	Truck If other, explain:	24.00% %
Select Other:	miles	tons	Select If other, explain:	%
Select Other:	miles	tons	Select If other, explain:	%
Select Other:	miles	tons	Select If other, explain:	%
Select Other:	miles	tons	Select If other, explain:	%
Select Other:	miles	tons	Select If other, explain:	%
Select Other:	miles	tons	Select If other, explain:	%
Select Other:	miles	tons	Select If other, explain:	%
Select Other:	miles	tons	Select If other, explain:	%

APPENDIX A

Document 3

Part D – Pond/Impoundment Systems and Other Wastewater Treatment Operations

OMB Control Number: 2040-0281
Approval Expires: 05/31/2013

Plant ID: 02268
Plant Name: Conemaugh

Steam Electric Questionnaire

PART D - POND/IMPOUNDMENT SYSTEMS AND OTHER WASTEWATER TREATMENT OPERATIONS

Table of Contents

Plant ID: 02268
Plant Name: Conemaugh

Part: D
Section Title: 1. Plant Pond/Impoundment Systems and Wastewater Treatment Systems

CBI? ☐ Yes

D1-1. Have you used, do you use, OR do you plan to use (or begin construction/installation of) by December 31, 2020 any *ponds/impoundments* 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, petroleum coke, or oil, including but not limited to *fly ash*, *bottom ash*, boiler slag, or flue gas emission control residues?

Note: This includes ponds/impoundments located on non-adjoining property that are under the operational control of the plant.

◉ Yes
○ No

CBI? ☐ Yes

D1-2. Do you operate OR plan to operate (or begin construction/installation of) by December 31, 2020 any wastewater treatment systems, other than pond/impoundment systems, for the treatment of process wastewaters from ash handling or FGD operations?

Note: This includes systems located on non-adjoining property that are under the operational control of the plant.

◉ Yes
○ No

STOP! **If you answered "No" to both Questions D1-1 and D1-2, do NOT complete the remainder of Part D. Skip to the next Questionnaire Part. Otherwise, continue to Part D Section 2.**

Plant ID: 02268
Plant Name: Conemaugh

Part: D
Section Title: 2. Pond/Impoundment System and Wastewater Treatment System Identification

Instructions: Complete Section 2 (Questions D2-1 through D2-7) for *pond/impoundment systems* and/or *wastewater treatment systems* that the plant operates and/or plans to operate (or begin construction/installation of) by December 31, 2020, including those located on non-adjoining property, for the treatment of *process wastewaters* from ash handling or FGD operations. Please provide all free response answers in the highlighted yellow areas.

CBI? ☑ Yes

D2-1. Has the plant been involved with any ash or FGD wastewater treatment studies (pilot- or full-scale), including studies on pond/impoundment systems, since 2000?

◉ Yes (Continue)
○ No (Skip to Question D2-4)

CBI? ☑ Yes

D2-2. Are any of these studies ongoing?

○ Yes
◉ No

CBI? ☑ Yes

D2-3. Was a summary and/or report describing/documenting the pilot- or full-scale study prepared (including internal and published reports)?

◉ Yes (Provide a copy of the summary/report)
○ No (Continue)

Provide a description of the pilot- or full-scale study. Note the types of treatment technologies studied and the analytes measured in influent to and/or effluents from the wastewater treatment system.

• Between November 2004 and February 2005, Applied Bioscience conducted a joint pilot study of the ABMet® system at the Conemaugh Station with Duke Energy and Progress Energy using diluted Conemaugh purge water to evaluate the viability of biological removal of selenium from the FGDS wastewater at native pH. Influent and effluent parameters included pH, ORP, DO, temperature, chloride, sulfate, metals (Se, Hg, As, Be, B, Cu, Pb), TSS and TDS. The pilot study was successful in reducing selenium on the diluted purge water. This technology was not effective for boron and manganese removal.

CBI?
☑ Yes

D2-4. List any ash or FGD wastewater treatment technologies that have been studied by the plant that are not covered by Questions D2-1 through D2-3 (e.g., those that have been studied in bench-scale studies).

• In February of 2000, Radian conducted a Selenium Removal Study using a proprietary chemical. Testing was not successful.
• On March 24, 2003, a bench study to remove selenium from scrubber purge water was conducted by CONEMAUGH using hydrogen peroxide (H2O2). Testing was not successful.
• In September 2004, URS conducted a bench study to remove selenium by lowering the pH to less than 6 and using ferric chloride. Testing was not successful.
• In August and September of 2007, URS conducted bench scale testing of treatment technologies:

CBI?
☐ Yes

D2-5. Do you operate OR plan to operate (or begin construction/installation of) by December 31, 2020 any systems, including those located on non-adjoining property, for the treatment of process wastewaters from ash handling or FGD operations?

◉ Yes (Continue)
○ No (Skip to Section 4.1)

CBI?
☐ Yes

D2-6. Do you operate OR plan to operate (or begin construction/installation of) by December 31, 2020 any pond/impoundment systems, including those located on non-adjoining property, for the treatment of process wastewaters from ash handling or FGD operations?

◉ Yes (Continue)
○ No (Skip to Question D2-7)

List these pond/impoundment systems in Table D-1. For each pond/impoundment system, EPA assigned a number (e.g., POND-1, POND-2) in Table D-1, which will be used throughout the remainder of the survey. In the "Plant Designation" column, provide the plant's name for each pond/impoundment system. In the "Individual Ponds/Impoundments Included in the Pond System" column, identify all pond/impoundment units from Table A-4 that are included in the pond system.

NOTE: Do NOT include a pond/impoundment unit in Table D-1 if the pond/impoundment unit is or is planned to be part of a broader wastewater treatment system containing *non-pond wastewater treatment units* (e.g., pond/impoundment unit in a biological wastewater treatment system).

Table D-1. Plant Pond/Impoundment Systems

Pond/ Impoundment System ID	Year Initially Brought Online	Plant Designation	Individual Pond/Impoundments (Identified in Table A-4) Included in the Pond/Impoundment System
Active/Inactive/Open Pond/Impoundment Systems			
POND-1	1970	Bottom Ash Final Settling Ponds	☐ SPD - 1 ☑ SPD - 3 ☑ SPD - 5 ☐ SPD - 7 ☑ SPD - 9 ☐ SPD - 11 ☐ SPD - 13 ☐ SPD - 2 ☑ SPD - 4 ☑ SPD - 6 ☐ SPD - 8 ☐ SPD - 10 ☐ SPD - 12 ☐ SPD - 14
POND-2			☐ SPD - 1 ☐ SPD - 3 ☐ SPD - 5 ☐ SPD - 7 ☐ SPD - 9 ☐ SPD - 11 ☐ SPD - 13 ☐ SPD - 2 ☐ SPD - 4 ☐ SPD - 6 ☐ SPD - 8 ☐ SPD - 10 ☐ SPD - 12 ☐ SPD - 14
POND-3			☐ SPD - 1 ☐ SPD - 3 ☐ SPD - 5 ☐ SPD - 7 ☐ SPD - 9 ☐ SPD - 11 ☐ SPD - 13 ☐ SPD - 2 ☐ SPD - 4 ☐ SPD - 6 ☐ SPD - 8 ☐ SPD - 10 ☐ SPD - 12 ☐ SPD - 14
POND-4			☐ SPD - 1 ☐ SPD - 3 ☐ SPD - 5 ☐ SPD - 7 ☐ SPD - 9 ☐ SPD - 11 ☐ SPD - 13 ☐ SPD - 2 ☐ SPD - 4 ☐ SPD - 6 ☐ SPD - 8 ☐ SPD - 10 ☐ SPD - 12 ☐ SPD - 14
POND-5			☐ SPD - 1 ☐ SPD - 3 ☐ SPD - 5 ☐ SPD - 7 ☐ SPD - 9 ☐ SPD - 11 ☐ SPD - 13 ☐ SPD - 2 ☐ SPD - 4 ☐ SPD - 6 ☐ SPD - 8 ☐ SPD - 10 ☐ SPD - 12 ☐ SPD - 14
POND-6			☐ SPD - 1 ☐ SPD - 3 ☐ SPD - 5 ☐ SPD - 7 ☐ SPD - 9 ☐ SPD - 11 ☐ SPD - 13 ☐ SPD - 2 ☐ SPD - 4 ☐ SPD - 6 ☐ SPD - 8 ☐ SPD - 10 ☐ SPD - 12 ☐ SPD - 14
POND-7			☐ SPD - 1 ☐ SPD - 3 ☐ SPD - 5 ☐ SPD - 7 ☐ SPD - 9 ☐ SPD - 11 ☐ SPD - 13 ☐ SPD - 2 ☐ SPD - 4 ☐ SPD - 6 ☐ SPD - 8 ☐ SPD - 10 ☐ SPD - 12 ☐ SPD - 14
POND-8			☐ SPD - 1 ☐ SPD - 3 ☐ SPD - 5 ☐ SPD - 7 ☐ SPD - 9 ☐ SPD - 11 ☐ SPD - 13 ☐ SPD - 2 ☐ SPD - 4 ☐ SPD - 6 ☐ SPD - 8 ☐ SPD - 10 ☐ SPD - 12 ☐ SPD - 14
POND-9			☐ SPD - 1 ☐ SPD - 3 ☐ SPD - 5 ☐ SPD - 7 ☐ SPD - 9 ☐ SPD - 11 ☐ SPD - 13 ☐ SPD - 2 ☐ SPD - 4 ☐ SPD - 6 ☐ SPD - 8 ☐ SPD - 10 ☐ SPD - 12 ☐ SPD - 14
POND-10			☐ SPD - 1 ☐ SPD - 3 ☐ SPD - 5 ☐ SPD - 7 ☐ SPD - 9 ☐ SPD - 11 ☐ SPD - 13 ☐ SPD - 2 ☐ SPD - 4 ☐ SPD - 6 ☐ SPD - 8 ☐ SPD - 10 ☐ SPD - 12 ☐ SPD - 14

Retired/Closed Pond/Impoundment Systems			
RET-POND-1	1970	Ash Silo Drainage	☑ RET SPD - 1 ☐ RET SPD - 3 ☐ RET SPD - 2 ☐ RET SPD - 4
RET-POND-2			☐ RET SPD - 1 ☐ RET SPD - 3 ☐ RET SPD - 2 ☐ RET SPD - 4
RET-POND-3			☐ RET SPD - 1 ☐ RET SPD - 3 ☐ RET SPD - 2 ☐ RET SPD - 4
RET-POND-4			☐ RET SPD - 1 ☐ RET SPD - 3 ☐ RET SPD - 2 ☐ RET SPD - 4
RET-POND-5			☐ RET SPD - 1 ☐ RET SPD - 3 ☐ RET SPD - 2 ☐ RET SPD - 4
Planned Pond/Impoundment Systems			
POND-A			☐ SPD - A ☐ SPD - C ☐ SPD - E ☐ SPD - B ☐ SPD - D
POND-B			☐ SPD - A ☐ SPD - C ☐ SPD - E ☐ SPD - B ☐ SPD - D
POND-C			☐ SPD - A ☐ SPD - C ☐ SPD - E ☐ SPD - B ☐ SPD - D

CBI?
☑ Yes

D2-7. Do you operate OR plan to operate (or begin construction/installation of) by December 31, 2020 any wastewater treatment systems, including those located on non-adjoining property, other than pond/impoundment systems for the treatment of *process wastewaters* from ash handling or FGD operations?

◉ Yes (Continue)

○ No (Skip to Section 3.1)

List these wastewater treatment systems in Table D-2. For each wastewater treatment system, EPA assigned a number (e.g., WWT-1, WWT-2) in Table D-2, which will be used throughout the remainder of the survey. In the "Plant Designation" column, provide the plant's name for each wastewater treatment system. As an example, if a plant operates a *chemical precipitation* FGD wastewater treatment system that discharges to an ash pond/impoundment system (as shown in EPA example diagrams EPA_D-1 and EPA_D-2 located at the bottom of Part D Section 3.1) the FGD wastewater treatment system should be identified in Table D-2 (e.g., as WWT-1) and the ash pond/impoundment system should have been previously identified in Table D-1 (e.g., as POND-1).

Note that "Approximate Length of Piping from FGD Scrubber System" refers to the length of piping from the *FGD solids separation* overflow storage tank (or *FGD scrubber absorber* if no FGD solids separation) to the beginning of the FGD wastewater treatment system. "Approximate Length of Piping to Subsequent Treatment or Discharge" refers to the length of piping from the end of the FGD wastewater treatment system to either the beginning of the subsequent treatment system or the wastewater discharge point,
as appropriate.

Plant ID: 02268
Plant Name: Conemaugh
Pond/Impoundment System ID or Wastewater Treatment System ID: POND-1

Part: D
Section Title: 3.1. Wastewater Treatment Diagram

Instructions: Complete Section 3.1 (Question D3-1) for each *pond/impoundment system* or *wastewater treatment system* identified in Table D-1 and Table D-2, including planned systems, systems under construction/installation, or planned to be under construction/installation by December 31, 2020. Enter the pond/impoundment system ID or wastewater treatment system ID in the yellow highlighted space provided above (use the pond/impoundment system ID or wastewater treatment system ID assigned in Table D-1 and Table D-2).

Make a copy of Section 3.1 for each pond/impoundment system or wastewater treatment system identified in Table D-1 and Table D-2 using the "Copy Section 3.1" button below.

Copy Section 3.1

CBI?
☐ Yes

D3-1. Attach a block diagram that shows the pond/impoundment system or wastewater treatment system operations, the process wastewaters that currently enter or are planned to enter the pond/impoundment system or wastewater treatment system, and the ultimate destinations of the pond/impoundment system or wastewater treatment system effluent(s). Specific instructions for the diagram are provided in the checklist below. The diagram should have a similar level of detail as EPA's example diagrams, EPA_D-1 and EPA_D-2.

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 D-1, the second D-2, etc. Include the plant name, plant ID, and pond/impoundment system ID or wastewater treatment system ID in the upper right hand corner of the diagram.

☑ Diagram 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 pond/impoundment system ID or wastewater treatment system ID on the diagram.
- ☑ Include each pond/impoundment or wastewater treatment unit operation. Show all influent and effluent streams from the units and label all influent and effluent streams from the pond/impoundment system or wastewater treatment system using the code tables on the "Code Tables" tab provided at the end of this workbook. Note that the "Code Tables" tab provides codes for wastewater treatment units that are operated in series and/or in parallel (e.g., in EPA_D-1, Chemical Precipitation Reaction Tank 1-1 and Chemical Precipitation Reaction Tank 2-1 are in series). Effluent streams may include *process wastewater* and *sludges*.
- ☑ If applicable, use EPA-assigned numbers from Part A or B (e.g., FGD-1) to label *process operations*. If a process operation does not have an EPA-assigned number (e.g., boiler, air preheater), 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 on the "Code Tables" tab provided at the end of this workbook.
- ☑ Indicate where chemical addition occurs (i.e., into or between which wastewater treatment units). For pond/impoundment wastewater treatment units, indicate and note on the diagram where within or near the pond/impoundment the chemical is added (e.g., within the pond/impoundment near the process wastewater influent point, within the pond/impoundment near the effluent, in the effluent/discharge canal). The chemicals indicated should correspond to the chemicals listed in Table D-7 and Table D-13.
- ☑ Identify the final, general destination of the *treated* process wastewater and waste streams (e.g., treated process wastewater effluent to *POTW* or surface waters; solid wastes to on- or off-site destinations). Use codes from code tables on the "Code Tables" tab provided at the end of this workbook, when applicable.
- ☑ Indicate, as appropriate, where treated process wastewater 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 wastewater treatment system on the diagram (in gpm or gpd). For planned pond/impoundment systems and wastewater treatment systems, provide the design flow rates for the system. Note that these should be the same flow rates that are entered into Tables D-3 and D-4 in Questions D3-2 and D3-3. 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 process wastewater stream is intermittent, provide amount and frequency; for example "100 gal, twice/day, 100 dpy" or "1000 gpm, 4 hpd, 365 dpy". For sludges, provide amount in tpd.
- ☑ Include *NPDES permit* outfall numbers, if applicable.

Plant ID: 02268
Plant Name: Conemaugh
Pond/Impoundment System ID or Wastewater Treatment System ID: POND-1

Part: D
Section Title: 3.2. Wastewater Treatment Wastewater Flows

Instructions: Complete Section 3.2 (Question D3-2 and D3-3) for each *pond/impoundment system* or *wastewater treatment system* identified in Table D-1 and Table D-2, including planned systems, systems under construction/installation, or planned to be under construction/installation by December 31, 2020. Enter the pond/impoundment system ID or wastewater treatment system ID in the yellow highlighted space provided above (use the pond/impoundment system ID or wastewater treatment system ID assigned in Table D-1 and Table D-2).

Make a copy of Section 3.2 for each pond/impoundment system or wastewater treatment system identified in Table D-1 and Table D-2 using the "Copy Section 3.2" button below.

Copy Section 3.2

CBI?
☐ Yes

D3-2. Complete a row in Table D-3 for each *process wastewater* stream or *treated* wastewater stream that enters this pond/impoundment system or wastewater treatment system. For planned pond/impoundment systems and wastewater treatment systems, provide the design flow rates for the system. Use the process and treated wastewater terms provided in the drop down menus. Note that these terms originated from code tables on the "Code Tables" tab provided at the end of this workbook.

Note: The examples in Tables D-3 and D-4 are derived from the EPA examples diagrams, EPA_D-1 and EPA_D-2, provided at the bottom of Part D Section 3.1.

Table D-3. Pond/Impoundment System or Wastewater Treatment System Influent Flows in 2009

Process or Treated Wastewater	Average Annual (2009) Wastewater Flow Rate	Wastewater Treatment Unit ID
Example (from EPA_D-1):		
FGD scrubber purge	200 gpm 10 hpd 365 dpy	Equalization, Primary
Other:	OR gpd dpy	Other:
Example (from EPA_D-2):		
WWT-1 Effluent	175 gpm 24 hpd 365 dpy	Pond Unit - 1
Other:	OR gpd dpy	Other:
Floor drain wastewater	gpm hpd dpy	Pond Unit - 4
Other:	OR 70000 gpd 365 dpy	Other: Pond Unit 5 and Pond Unit 6
Yard drain wastewater	gpm hpd dpy	Pond Unit - 4
Other:	OR 400000 gpd 365 dpy	Other: Pond Unit 5 and Pond Unit 6
Other	gpm hpd dpy	Pond Unit - 4
Other: BAS Dewatering Bin Effluent	OR 9500000 gpd 360 dpy	Other: Pond Unit 5 and Pond Unit 6
Sludge	gpm hpd dpy	Pond Unit - 4
Other:	OR 200000 gpd 300 dpy	Other: Pond Unit 5 and Pond Unit 6
Other	gpm hpd dpy	Pond Unit - 4
Other: Treated SPD-8 Effluent	OR 1800000 gpd 220 dpy	Other: Pond Unit 5 and Pond Unit 6
Cooling tower blowdown	gpm hpd dpy	Pond Unit - 4
Other:	OR 1500000 gpd 145 dpy	Other: Pond Unit 5 and Pond Unit 6
Limestone pile runoff	gpm hpd dpy	Other
Other:	OR 7000 gpd 365 dpy	Other: Ash Recycle Sump
Floor drain wastewater	gpm hpd dpy	Other
Other:	OR 300 gpd 365 dpy	Other: Ash Recycle Sump

Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy	Select Other:

CBI?
☐ Yes

D3-3. Complete a row in Table D-4 for each treated wastewater stream or *sludge* stream that exits this pond/impoundment system or wastewater treatment system (i.e., streams that are *discharged*, *recycled*, or disposed). For planned pond/impoundment systems and wastewater treatment systems, provide the design flow rates for the system. Use the treated wastewater, wastewater treatment unit, and destination terms provided in the drop down menus. Note that these terms originated from code tables on the "Code Tables" tab provided at the end of this workbook.

*Provide the *NPDES permit* outfall number of the effluent in the last column of the table, if applicable.

Table D-4. Pond/Impoundment System or Wastewater Treatment System Effluent Flows in 2009

Treated Wastewater	Average Annual (2009) Wastewater Flow Rate	Solids and Sludge: Amount (tpd or gpm)		Solids and Sludge: % Moisture	Final Destination: Wastewater Treatment Unit ID	Final Destination: Destination	NPDES Permit Outfall Number*
Example (from EPA_D-1): Effluent - 1; Other:	175 gpm 24 hpd 365 dpy; OR NA gpd NA dpy	NA	○ tpd ○ gpm	NA	NA; Other:	POND-1; Other:	NA
Example (from EPA_D-1): Filter backwash; Other:	NA gpm NA hpd NA dpy; OR 10,000 gpd 365 dpy	NA	○ tpd ○ gpm	NA	Equalization, Secondary; Other:	NA; Other:	NA
Example (from EPA_D-2): Sludge; Other:	NA gpm NA hpd NA dpy; OR NA gpd NA dpy	500	● tpd ○ gpm	30	NA; Other:	Hauled off site for reuse (removal fee); Other:	NA
Example (from EPA_D-2): Effluent - 2; Other:	5,000 gpm 24 hpd 365 dpy; OR NA gpd NA dpy	NA	○ tpd ○ gpm	NA	NA; Other:	Reuse as fly ash sluice; Other:	NA
Example (from EPA_D-2): Effluent - 3; Other:	1,175 gpm 24 hpd 365 dpy; OR gpd dpy	NA	○ tpd ○ gpm	NA	NA; Other:	Discharge to surface water; Other:	001
Effluent - 1; Other:	gpm hpd dpy; OR 10000000 gpd 360 dpy		○ tpd ○ gpm		NA; Other:	Reuse as bottom ash sluice; Other:	
Effluent - 2; Other:	gpm hpd dpy; OR 823000 gpd 360 dpy		○ tpd ○ gpm		Pond Unit - 1; Other:	Reuse as FGD absorber makeup; Other: or Discharge to SW	004
Sludge; Other:	gpm hpd dpy; OR gpd dpy	29	● tpd ○ gpm	20.00%	NA; Other:	On-site company owned landfill; Other:	NA
Sludge; Other:	gpm hpd dpy; OR gpd dpy	0.12	● tpd ○ gpm	20.00%	NA; Other:	On-site company owned landfill; Other:	NA
Select; Other:	gpm hpd dpy; OR gpd dpy		○ tpd ○ gpm		Select; Other:	Select; Other:	
Select; Other:	gpm hpd dpy; OR gpd dpy		○ tpd ○ gpm		Select; Other:	Select; Other:	
Select; Other:	gpm hpd dpy; OR gpd dpy		○ tpd ○ gpm		Select; Other:	Select; Other:	
Select; Other:	gpm hpd dpy; OR gpd dpy		○ tpd ○ gpm		Select; Other:	Select; Other:	
Select; Other:	gpm hpd dpy; OR gpd dpy		○ tpd ○ gpm		Select; Other:	Select; Other:	

Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	
Select Other:	___ gpm ___ hpd ___ dpy OR ___ gpd ___ dpy		O tpd O gpm		Select Other:	Select Other:	

Plant ID: 02268
Plant Name: Conemaugh
Pond/Impoundment Unit ID: Pond Unit-3

Part: D
Section Title: 4.1. Active/Inactive/Open and Planned Pond/Impoundment Unit Information

Instructions: Complete Section 4.1 (Questions D4-1 through D4-12) for each active/inactive/open *pond/impoundment* unit used OR planned to be used (or constructed/installed), including those located on non-adjoining property, by December 31, 2020 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, petroleum coke, or oil, including but not limited to fly ash, bottom ash, boiler slag, or flue gas emission control residues. Use the pond/impoundment unit IDs assigned in Table A-4.

Make a copy of Section 4.1 for each active/inactive/open and planned pond/impoundment units used (or planned to be 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, petroleum coke, or oil, including but not limited to fly ash, bottom ash, boiler slag, or flue gas emission control residues using the "Copy Section 4.1" button below.

NOTE: If a pond/impoundment unit is part of a broader wastewater treatment system containing non-pond wastewater treatment units (e.g., a pond/impoundment unit in a biological wastewater treatment system), complete questions in this section for the pond/impoundment unit.

CBI?
☐ Yes

D4-2. Provide the residence time of the process wastewater in the pond/impoundment unit, the life of the pond/impoundment unit (based on the current estimation), and the number of cells in the pond/impoundment unit.

11 Residence time, hours (as currently operated)

30 Life of pond/impoundment unit, years (based on current estimation)

1 Number of cells in pond/impoundment unit

CBI?
☐ Yes

D4-3. Complete Table D-5. Provide the pond/impoundment unit's volume, surface area, bottom and top elevation, freeboard height, maximum height of berms and dams above the surrounding grade, and the total quantity of solids placed in the pond/impoundment when it was originally built or planned/designed, at its current status, and at its expected end of life. Additionally, provide the expected year of closure/retirement in the "Expected End of Life" column. Volume should reflect the free water volume, including the stored solids. For planned pond/impoundment units, enter "NA" in all fields in the "Current" column. Figure D-1 presents an illustration of pond/impoundment dimensions.

Note: Respondents are not required to take new measurements to provide this data; however, best available information should be used to complete Table D-5.

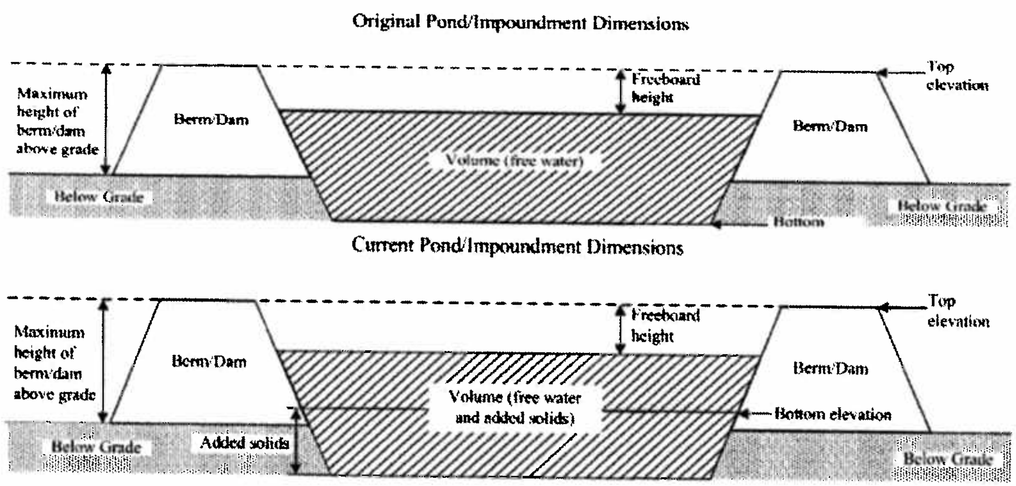


Figure D-1. Pond/Impoundment Dimensions

Table D-5. Active/Inactive/Open and Planned Pond/Impoundment Information

	Originally Built or Planned/Designed	Current	Expected End of Life
Volume, ft^3	270000	270000	270000
Surface area, ft^2	36450	36450	36450
Bottom elevation, ft	1084.6	1084.6	1084.6
Top elevation, ft	1092	1092	1092
Freeboard height, ft	2	2	2
Maximum height of berms/dams above grade, ft	13	13	13
Total solids placed in the pond/impoundment, tons		0	0
Expected year of closure/retirement			2040

CBI?
☐ Yes

D4-4. Does the pond/impoundment unit have a *liner*?

● Yes (Complete Table D-6)
○ No (Skip to Question D4-5)
○ NA (Pond/Impoundment is planned to be constructed. Information is currently unavailable. Skip to Question D4-10).

Table D-6. Pond/Impoundment Unit Liner

Liner Layer Number (number from inner to outer layer)	Type of Liner	Thickness of Liner Layer (cm)	Permeability of Liner Layer (cm/sec)
1	● Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)	61	0.0000001
	○ Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)		
	○ Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)		
	○ Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)		

CBI?
☐ Yes

D4-5. Has the pond/impoundment unit ever been dredged?

● Yes (Provide following Information)
2008 Year of last dredging
4 Frequency of dredging that year, dpy
220 Amount of material removed that year, tons
1 Number of times dredged in the last five years
4 Number of days dredged in the last five years
220 Amount of material removed in the last five years, tons
○ No (Skip to Question D4-7)
○ NA (Pond/Impoundment is planned to be constructed. Skip to Question D4-10)

CBI?
☐ Yes

D4-6. Indicate where the dredged solids are transferred or are planned to be transferred.

- ○ Dredged solids used in embankment construction.
- ● Dredged solids transferred to landfill.
- ○ Dredged solids marketed/sold for reuse.
- ○ Other (Explain): ____________________

CBI?
☐ Yes

D4-7. Has the pond/impoundment unit been expanded since the date it was built?

- ○ Yes (Continue)
- ● No (Skip to Question D4-10)
- ○ NA (Pond/Impoundment is planned to be constructed. Skip to Question D4-10)

CBI?
☐ Yes

D4-8. Identify the type of expansion.

- ○ Lateral expansion
- ○ Vertical expansion
- ○ Both lateral and vertical expansion

CBI?
☐ Yes

D4-9. Describe any expansion(s), since January 1, 2000, to the pond/impoundment unit, including the starting and ending dimensions.

____

Provide the total cost associated with the expansion(s). Total costs should include labor, materials, energy, hazardous and nonhazardous waste disposal, purchased equipment, installation, buildings, site preparation, land, engineering costs, construction expenses, and any other costs available.

$____________________ Total cost of expansion

CBI?
☐ Yes

D4-10. Indicate the *pollutants* targeted for removal by this pond/impoundment unit using techniques other than solely settling (e.g., adding chemicals to remove certain metals). [Check all boxes that apply.]

- ☐ Metals (specify): ____________________
- ☐ TSS
- ☐ Nitrogen compounds (ammonia, nitrate, nitrite)
- ☐ Organic Acids
- ☐ Chlorine or other oxidizing agents
- ☐ Oil and grease
- ☐ Other: ____________________
- ☑ NA (Skip to Question D4-12)

CBI?
☐ Yes

D4-11. Of the pollutants listed in D4-10, which effluent limitation(s) drives/will drive the operation of this pond/impoundment unit? Provide the pollutant and the limitation (mg/L or ug/L).

Pollutant: ______
Limitation: ______ Select
Pollutant: ______
Limitation: ______ Select
Pollutant: ______
Limitation: ______ Select

CBI?
☐ Yes

D4-12. Did the plant add chemicals to this pond/impoundment unit in 2009?

- ○ Yes (Complete Table D-7)
- ● No (Skip to Section 4.2)
- ○ NA (Pond/impoundment is planned to be constructed. Provide information in Table D-7 to the extent possible based on plans.)

Note that "Chemical Type" refers to the generic name of the chemical added to the pond/impoundment (e.g., lime, sodium hydroxide, alum, polymer). "Average Dose Concentration" refers to the average concentration of the chemical within the pond/impoundment unit just after it is added to the unit. In the "Location of Chemical Addition" column, indicate where within or near the pond/impoundment the chemical is added (e.g., within the pond/impoundment near the process wastewater influent point, within the pond/impoundment near the effluent, in the effluent/discharge canal). If chemical addition is known only on a yearly basis, divide the yearly value by the approximate number of days the plant added chemicals (which should be the same estimate for the "Frequency of Addition" column).

Table D-7. Chemicals Used in Pond/Impoundment 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)
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	

Plant ID: 02268
Plant Name: Conemaugh
Pond/Impoundment Unit ID: Pond Unit-4

Part: D
Section Title: 4.1. Active/Inactive/Open and Planned Pond/Impoundment Unit Information

Instructions: Complete Section 4.1 (Questions D4-1 through D4-12) for each active/inactive/open *pond/impoundment* unit used OR planned to be used (or constructed/installed), including those located on non-adjoining property, by December 31, 2020 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, petroleum coke, or oil, including but not limited to fly ash, bottom ash, boiler slag, or flue gas emission control residues. Use the pond/impoundment unit IDs assigned in Table A-4.

Make a copy of Section 4.1 for each active/inactive/open and planned pond/impoundment units used (or planned to be 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, petroleum coke, or oil, including but not limited to fly ash, bottom ash, boiler slag, or flue gas emission control residues using the "Copy Section 4.1" button below.

NOTE: If a pond/impoundment unit is part of a broader wastewater treatment system containing non-pond wastewater treatment units (e.g., a pond/impoundment unit in a biological wastewater treatment system), complete questions in this section for the pond/impoundment unit.

CBI? ☐ Yes

D4-1. Do you use OR plan to use (or begin construction/installation of) by December 31, 2020, any active/inactive/open ponds/impoundments, including those located on non-adjoining property, 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, petroleum coke, or oil, including but not limited to fly ash, bottom ash, boiler slag, or flue gas emission control residues?

● Yes (Continue)
○ No (Skip to Section 4.2)

Copy Section 4.1

CBI? ☐ Yes

D4-2. Provide the residence time of the process wastewater in the pond/impoundment unit, the life of the pond/impoundment unit (based on the current estimation), and the number of cells in the pond/impoundment unit.

11 Residence time, hours (as currently operated)
30 Life of pond/impoundment unit, years (based on current estimation)
1 Number of cells in pond/impoundment unit

CBI? ☐ Yes

D4-3. Complete Table D-5. Provide the pond/impoundment unit's volume, surface area, bottom and top elevation, freeboard height, maximum height of berms and dams above the surrounding grade, and the total quantity of solids placed in the pond/impoundment when it was originally built or planned/designed, at its current status, and at its expected end of life. Additionally, provide the expected year of closure/retirement in the "Expected End of Life" column. Volume should reflect the free water volume, including the stored solids. For planned pond/impoundment units, enter "NA" in all fields in the "Current" column. Figure D-1 presents an illustration of pond/impoundment dimensions.

Note: Respondents are not required to take new measurements to provide this data; however, best available information should be used to complete Table D-5.

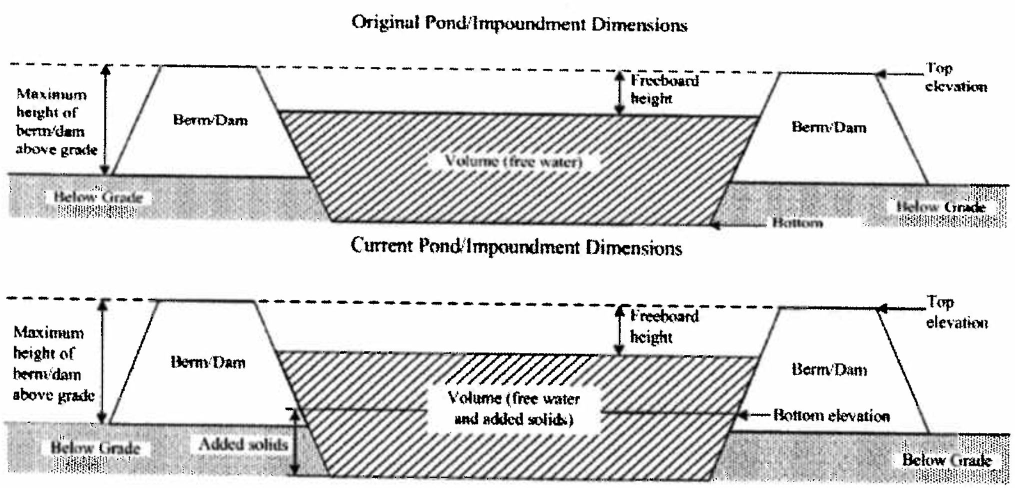


Figure D-1. Pond/Impoundment Dimensions

Table D-5. Active/Inactive/Open and Planned Pond/Impoundment Information

	Originally Built or Planned/Designed	Current	Expected End of Life
Volume, ft^3	270000	270000	270000
Surface area, ft^2	36450	36450	36450
Bottom elevation, ft	1084.6	1084.6	1084.6
Top elevation, ft	1092	1092	1092
Freeboard height, ft	2	2	2
Maximum height of berms/dams above grade, ft	13	13	13
Total solids placed in the pond/impoundment, tons		0	0
Expected year of closure/retirement			2040

CBI?
☐ Yes

D4-4. Does the pond/impoundment unit have a *liner*?

- ● Yes (Complete Table D-6)
- ○ No (Skip to Question D4-5)
- ○ NA (Pond/Impoundment is planned to be constructed. Information is currently unavailable. Skip to Question D4-10).

Table D-6. Pond/Impoundment Unit Liner

Liner Layer Number (number from inner to outer layer)	Type of Liner	Thickness of Liner Layer (cm)	Permeability of Liner Layer (cm/sec)
1	● Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)	61	0.0000001
	○ Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)		
	○ Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)		
	○ Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)		

CBI?
☐ Yes

D4-5. Has the pond/impoundment unit ever been dredged?

● Yes (Provide following information)

2010 Year of last dredging
1 Frequency of dredging that year, dpy
5135 Amount of material removed that year, tons
7 Number of times dredged in the last five years
35 Number of days dredged in the last five years
35000 Amount of material removed in the last five years, tons

○ No (Skip to Question D4-7)
○ NA (Pond/Impoundment is planned to be constructed. Skip to Question D4-10)

CBI? ☐ Yes

D4-6. Indicate where the dredged solids are transferred or are planned to be transferred.

- ○ Dredged solids used in embankment construction.
- ● Dredged solids transferred to landfill.
- ○ Dredged solids marketed/sold for reuse.
- ○ Other (Explain): ______

CBI? ☐ Yes

D4-7. Has the pond/impoundment unit been expanded since the date it was built?

- ○ Yes (Continue)
- ● No (Skip to Question D4-10)
- ○ NA (Pond/Impoundment is planned to be constructed. Skip to Question D4-10)

CBI? ☐ Yes

D4-8. Identify the type of expansion.

- ○ Lateral expansion
- ○ Vertical expansion
- ○ Both lateral and vertical expansion

CBI? ☐ Yes

D4-9. Describe any expansion(s), since January 1, 2000, to the pond/impoundment unit, including the starting and ending dimensions.

______

Provide the total cost associated with the expansion(s). Total costs should include labor, materials, energy, hazardous and nonhazardous waste disposal, purchased equipment, installation, buildings, site preparation, land, engineering costs, construction expenses, and any other costs available.

$ ______ Total cost of expansion

CBI? ☐ Yes

D4-10. Indicate the *pollutants* targeted for removal by this pond/impoundment unit using techniques other than solely settling (e.g., adding chemicals to remove certain metals). [Check all boxes that apply.]

- ☐ Metals (specify): ______
- ☑ TSS
- ☐ Nitrogen compounds (ammonia, nitrate, nitrite)
- ☐ Organic Acids
- ☐ Chlorine or other oxidizing agents
- ☑ Oil and grease
- ☑ Other: pH
- ☐ NA (Skip to Question D4-12)

CBI?
☐ Yes

D4-11. Of the pollutants listed in D4-10, which effluent limitation(s) drives/will drive the operation of this pond/impoundment unit? Provide the pollutant and the limitation (mg/L or ug/L).

Pollutant: TSS
Limitation: 30 mg/L
Pollutant: Oil and Grease
Limitation: 15 mg/L
Pollutant: pH
Limitation: ______ Select

CBI?
☐ Yes

D4-12. Did the plant add chemicals to this pond/impoundment unit in 2009?

● Yes (Complete Table D-7)
○ No (Skip to Section 4.2)
○ NA (Pond/impoundment is planned to be constructed. Provide information in Table D-7 to the extent possible based on plans.)

Note that "Chemical Type" refers to the generic name of the chemical added to the pond/impoundment (e.g., lime, sodium hydroxide, alum, polymer). "Average Dose Concentration" refers to the average concentration of the chemical within the pond/impoundment unit just after it is added to the unit. In the "Location of Chemical Addition" column, indicate where within or near the pond/impoundment the chemical is added (e.g., within the pond/impoundment near the process wastewater influent point, within the pond/impoundment near the effluent, in the effluent/discharge canal). If chemical addition is known only on a yearly basis, divide the yearly value by the approximate number of days the plant added chemicals (which should be the same estimate for the "Frequency of Addition" column).

Table D-7. Chemicals Used in Pond/Impoundment 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)
Hydrated Lime	Hydrated Lime	Graymont	pH adjustment	[illegible] box	0.003	100	○ gpd ● lb/day	● Solid ○ Liquid	365
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	

Plant ID: 02268
Plant Name: Conemaugh
Pond/Impoundment Unit ID: Pond Unit 5

Part: D
Section Title: 4.1. Active/Inactive/Open and Planned Pond/Impoundment Unit Information

Instructions: Complete Section 4.1 (Questions D4-1 through D4-12) for each active/inactive/open *pond/impoundment* unit used OR planned to be used (or constructed/installed), including those located on non-adjoining property, by December 31, 2020 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, petroleum coke, or oil, including but not limited to fly ash, bottom ash, boiler slag, or flue gas emission control residues. Use the pond/impoundment unit IDs assigned in Table A-4.

Make a copy of Section 4.1 for each active/inactive/open and planned pond/impoundment units used (or planned to be 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, petroleum coke, or oil, including but not limited to fly ash, bottom ash, boiler slag, or flue gas emission control residues using the "Copy Section 4.1" button below.

NOTE: If a pond/impoundment unit is part of a broader wastewater treatment system containing non-pond wastewater treatment units (e.g., a pond/impoundment unit in a biological wastewater treatment system), complete questions in this section for the pond/impoundment unit.

CBI?
☐ Yes

D4-2. Provide the residence time of the process wastewater in the pond/impoundment unit, the life of the pond/impoundment unit (based on the current estimation), and the number of cells in the pond/impoundment unit.

11 Residence time, hours (as currently operated)
30 Life of pond/impoundment unit, years (based on current estimation)
1 Number of cells in pond/impoundment unit

CBI?
☐ Yes

D4-3. Complete Table D-5. Provide the pond/impoundment unit's volume, surface area, bottom and top elevation, freeboard height, maximum height of berms and dams above the surrounding grade, and the total quantity of solids placed in the pond/impoundment when it was originally built or planned/designed, at its current status, and at its expected end of life. Additionally, provide the expected year of closure/retirement in the "Expected End of Life" column. Volume should reflect the free water volume, including the stored solids. For planned pond/impoundment units, enter "NA" in all fields in the "Current" column. Figure D-1 presents an illustration of pond/impoundment dimensions.

Note: Respondents are not required to take new measurements to provide this data; however, best available information should be used to complete Table D-5.

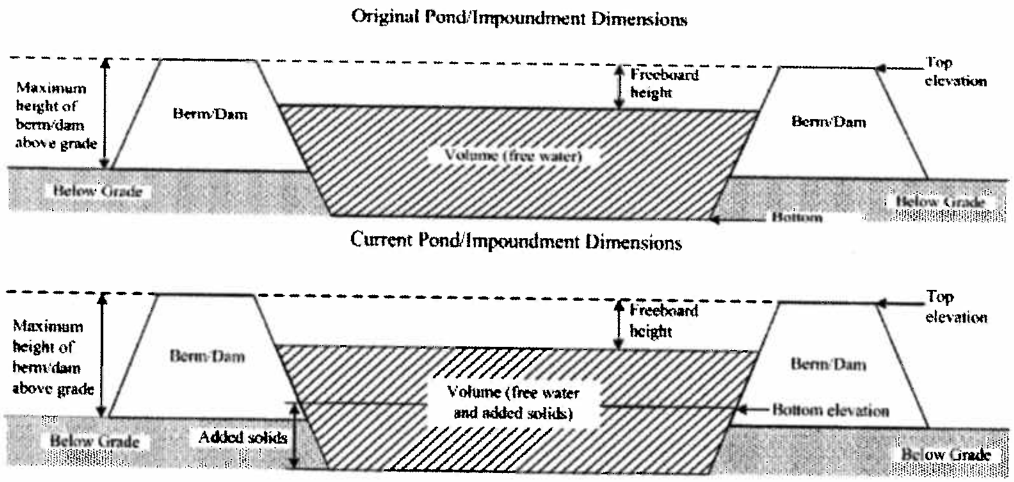


Figure D-1. Pond/Impoundment Dimensions

Table D-5. Active/Inactive/Open and Planned Pond/Impoundment Information

	Originally Built or Planned/Designed	Current	Expected End of Life
Volume, ft^3	270000	270000	270000
Surface area, ft^2	36450	36450	36450
Bottom elevation, ft	1084.6	1084.6	1084.6
Top elevation, ft	1092	1092	1092
Freeboard height, ft	2	2	2
Maximum height of berms/dams above grade, ft	13	13	13
Total solids placed in the pond/impoundment, tons		0	0
Expected year of closure/retirement			2040

CBI?
☐ Yes

D4-4. Does the pond/impoundment unit have a *liner*?

- ● Yes (Complete Table D-6)
- ○ No (Skip to Question D4-5)
- ○ NA (Pond/Impoundment is planned to be constructed. Information is currently unavailable. Skip to Question D4-10).

Table D-6. Pond/Impoundment Unit Liner

Liner Layer Number (number from inner to outer layer)	Type of Liner	Thickness of Liner Layer (cm)	Permeability of Liner Layer (cm/sec)
1	● Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)	61	0.0000001
	○ Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)		
	○ Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)		
	○ Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)		

CBI?
☐ Yes

D4-5. Has the pond/impoundment unit ever been dredged?

○ Yes (Provide following information)

2010 Year of last dredging
1 Frequency of dredging that year, dpy
3610 Amount of material removed that year, tons
7 Number of times dredged in the last five years
35 Number of days dredged in the last five years
30000 Amount of material removed in the last five years, tons

○ No (Skip to Question D4-7)
○ NA (Pond/Impoundment is planned to be constructed. Skip to Question D4-10)

CBI? ☐ Yes

D4-6. Indicate where the dredged solids are transferred or are planned to be transferred.

- ○ Dredged solids used in embankment construction.
- ● Dredged solids transferred to landfill.
- ○ Dredged solids marketed/sold for reuse.
- ○ Other (Explain): ____________

CBI? ☐ Yes

D4-7. Has the pond/impoundment unit been expanded since the date it was built?

- ○ Yes (Continue)
- ● No (Skip to Question D4-10)
- ○ NA (Pond/Impoundment is planned to be constructed. Skip to Question D4-10)

CBI? ☐ Yes

D4-8. Identify the type of expansion.

- ○ Lateral expansion
- ○ Vertical expansion
- ○ Both lateral and vertical expansion

CBI? ☐ Yes

D4-9. Describe any expansion(s), since January 1, 2000, to the pond/impoundment unit, including the starting and ending dimensions.

____

Provide the total cost associated with the expansion(s). Total costs should include labor, materials, energy, hazardous and nonhazardous waste disposal, purchased equipment, installation, buildings, site preparation, land, engineering costs, construction expenses, and any other costs available.

$ ____________ Total cost of expansion

CBI? ☐ Yes

D4-10. Indicate the *pollutants* targeted for removal by this pond/impoundment unit using techniques other than solely settling (e.g., adding chemicals to remove certain metals). [Check all boxes that apply.]

- ☐ Metals (specify): ____________
- ☑ TSS
- ☐ Nitrogen compounds (ammonia, nitrate, nitrite)
- ☐ Organic Acids
- ☐ Chlorine or other oxidizing agents
- ☑ Oil and grease
- ☑ Other: pH
- ☐ NA (Skip to Question D4-12)

CBI?
☐ Yes

D4-11. Of the pollutants listed in D4-10, which effluent limitation(s) drives/will drive the operation of this pond/impoundment unit? Provide the pollutant and the limitation (mg/L or ug/L).

Pollutant: TSS
Limitation: 30 mg/L
Pollutant: Oil and Grease
Limitation: 15 mg/L
Pollutant: pH
Limitation: Select

CBI?
☐ Yes

D4-12. Did the plant add chemicals to this pond/impoundment unit in 2009?

- ● Yes (Complete Table D-7)
- ○ No (Skip to Section 4.2)
- ○ NA (Pond/impoundment is planned to be constructed. Provide information in Table D-7 to the extent possible based on plans.)

Note that "Chemical Type" refers to the generic name of the chemical added to the pond/impoundment (e.g., lime, sodium hydroxide, alum, polymer). "Average Dose Concentration" refers to the average concentration of the chemical within the pond/impoundment unit just after it is added to the unit. In the "Location of Chemical Addition" column, indicate where within or near the pond/impoundment the chemical is added (e.g., within the pond/impoundment near the process wastewater influent point, within the pond/impoundment near the effluent, in the effluent/discharge canal). If chemical addition is known only on a yearly basis, divide the yearly value by the approximate number of days the plant added chemicals (which should be the same estimate for the "Frequency of Addition" column).

Table D-7. Chemicals Used in Pond/Impoundment 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)
Hydrated Lime	Hydrated Lime	Graymont	pH adjustment	inlet distribution box	0.003	100	○ gpd ● lb/day	○ Solid ○ Liquid	365
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	

Plant ID: 02268
Plant Name: Conemaugh
Pond/Impoundment Unit ID: Pond Unit-6

Part: D
Section Title: 4.1. Active/Inactive/Open and Planned Pond/Impoundment Unit Information

Instructions: Complete Section 4.1 (Questions D4-1 through D4-12) for each active/inactive/open *pond/impoundment* unit used OR planned to be used (or constructed/installed), including those located on non-adjoining property, by December 31, 2020 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, petroleum coke, or oil, including but not limited to fly ash, bottom ash, boiler slag, or flue gas emission control residues. Use the pond/impoundment unit IDs assigned in Table A-4.

Make a copy of Section 4.1 for each active/inactive/open and planned pond/impoundment units used (or planned to be 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, petroleum coke, or oil, including but not limited to fly ash, bottom ash, boiler slag, or flue gas emission control residues using the "Copy Section 4.1" button below.

NOTE: If a pond/impoundment unit is part of a broader wastewater treatment system containing non-pond wastewater treatment units (e.g., a pond/impoundment unit in a biological wastewater treatment system), complete questions in this section for the pond/impoundment unit.

CBI?
☐ Yes

D4-2. Provide the residence time of the process wastewater in the pond/impoundment unit, the life of the pond/impoundment unit (based on the current estimation), and the number of cells in the pond/impoundment unit.

11 ______ Residence time, hours (as currently operated)

30 ______ Life of pond/impoundment unit, years (based on current estimation)

1 ______ Number of cells in pond/impoundment unit

CBI?
☐ Yes

D4-3. Complete Table D-5. Provide the pond/impoundment unit's volume, surface area, bottom and top elevation, freeboard height, maximum height of berms and dams above the surrounding grade, and the total quantity of solids placed in the pond/impoundment when it was originally built or planned/designed, at its current status, and at its expected end of life. Additionally, provide the expected year of closure/retirement in the "Expected End of Life" column. Volume should reflect the free water volume, including the stored solids. For planned pond/impoundment units, enter "NA" in all fields in the "Current" column. Figure D-1 presents an illustration of pond/impoundment dimensions.

Note: Respondents are not required to take new measurements to provide this data; however, best available information should be used to complete Table D-5.

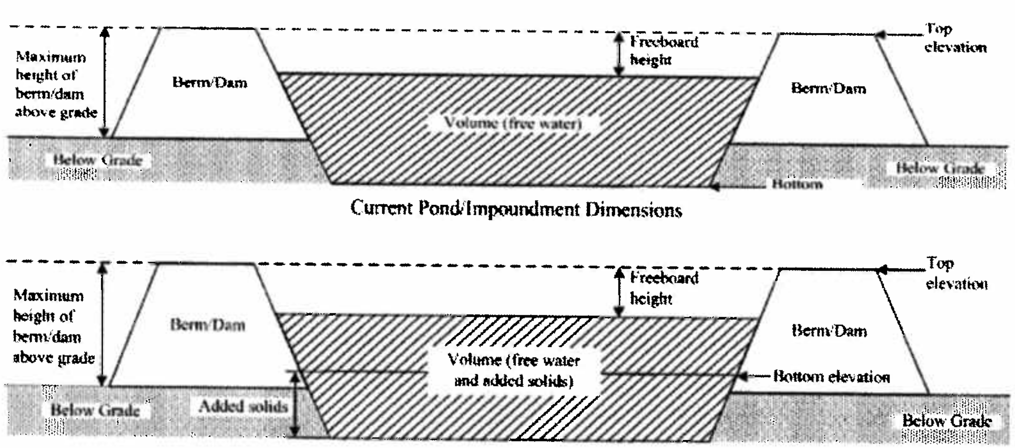


Figure D-1. Pond/Impoundment Dimensions

Table D-5. Active/Inactive/Open and Planned Pond/Impoundment Information

	Originally Built or Planned/Designed	Current	Expected End of Life
Volume, ft^3	270000	270000	270000
Surface area, ft^2	36450	36450	36450
Bottom elevation, ft	1084.6	1084.6	1084.6
Top elevation, ft	1092	1092	1092
Freeboard height, ft	2	2	2
Maximum height of berms/dams above grade, ft	13	13	13
Total solids placed in the pond/impoundment, tons		0	0
Expected year of closure/retirement			2040

CBI?
☐ Yes

D4-4. Does the pond/impoundment unit have a *liner*?

● Yes (Complete Table D-6)
○ No (Skip to Question D4-5)
○ NA (Pond/Impoundment is planned to be constructed. Information is currently unavailable. Skip to Question D4-10).

Table D-6. Pond/Impoundment Unit Liner

Liner Layer Number (number from inner to outer layer)	Type of Liner	Thickness of Liner Layer (cm)	Permeability of Liner Layer (cm/sec)
1	● Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)	61	0.0000001
	○ Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)		
	○ Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)		
	○ Compacted clay ○ Geosynthetic clay ○ High density polyethylene (HDPE) ○ Other (provide below:)		

CBI?
☐ Yes

D4-5. Has the pond/impoundment unit ever been dredged?

● Yes (Provide following information)

2010 Year of last dredging
1 Frequency of dredging that year, dpy
3523 Amount of material removed that year, tons
7 Number of times dredged in the last five years
35 Number of days dredged in the last five years
30000 Amount of material removed in the last five years, tons

○ No (Skip to Question D4-7)
○ NA (Pond/Impoundment is planned to be constructed. Skip to Question D4-10)

CBI?
☐ Yes

D4-6. Indicate where the dredged solids are transferred or are planned to be transferred.

- ○ Dredged solids used in embankment construction.
- ● Dredged solids transferred to landfill.
- ○ Dredged solids marketed/sold for reuse.
- ○ Other (Explain): ____________

CBI?
☐ Yes

D4-7. Has the pond/impoundment unit been expanded since the date it was built?

- ○ Yes (Continue)
- ● No (Skip to Question D4-10)
- ○ NA (Pond/Impoundment is planned to be constructed. Skip to Question D4-10)

CBI?
☐ Yes

D4-8. Identify the type of expansion.

- ○ Lateral expansion
- ○ Vertical expansion
- ○ Both lateral and vertical expansion

CBI?
☐ Yes

D4-9. Describe any expansion(s), since January 1, 2000, to the pond/impoundment unit, including the starting and ending dimensions.

____

Provide the total cost associated with the expansion(s). Total costs should include labor, materials, energy, hazardous and nonhazardous waste disposal, purchased equipment, installation, buildings, site preparation, land, engineering costs, construction expenses, and any other costs available.

$ ____________ Total cost of expansion

CBI?
☐ Yes

D4-10. Indicate the *pollutants* targeted for removal by this pond/impoundment unit using techniques other than solely settling (e.g., adding chemicals to remove certain metals). [Check all boxes that apply.]

- ☐ Metals (specify): ____________
- ☑ TSS
- ☐ Nitrogen compounds (ammonia, nitrate, nitrite)
- ☐ Organic Acids
- ☐ Chlorine or other oxidizing agents
- ☑ Oil and grease
- ☑ Other: pH
- ☐ NA (Skip to Question D4-12)

CBI?
☐ Yes

D4-11. Of the pollutants listed in D4-10, which effluent limitation(s) drives/will drive the operation of this pond/impoundment unit? Provide the pollutant and the limitation (mg/L or ug/L).

Pollutant: TSS
Limitation: 30 mg/L
Pollutant: Oil and Grease
Limitation: 15 mg/L
Pollutant: pH
Limitation: ______ Select

CBI?
☐ Yes

D4-12. Did the plant add chemicals to this pond/impoundment unit in 2009?

● Yes (Complete Table D-7)
○ No (Skip to Section 4.2)
○ NA (Pond/impoundment is planned to be constructed. Provide information in Table D-7 to the extent possible based on plans.)

Note that "Chemical Type" refers to the generic name of the chemical added to the pond/impoundment (e.g., lime, sodium hydroxide, alum, polymer). "Average Dose Concentration" refers to the average concentration of the chemical within the pond/impoundment unit just after it is added to the unit. In the "Location of Chemical Addition" column, indicate where within or near the pond/impoundment the chemical is added (e.g., within the pond/impoundment near the process wastewater influent point, within the pond/impoundment near the effluent, in the effluent/discharge canal). If chemical addition is known only on a yearly basis, divide the yearly value by the approximate number of days the plant added chemicals (which should be the same estimate for the "Frequency of Addition" column).

Table D-7. Chemicals Used in Pond/Impoundment 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)
Hydrated Lime	Hydrated Lime	Graymont	pH adjustment	inlet distribution box	0.003	100	○ gpd ● lb/day	● Solid ○ Liquid	365
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	
							○ gpd ○ lb/day	○ Solid ○ Liquid	

Plant ID: 02268
Plant Name: Conemaugh

Part: D
Section Title: Part D 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	Comments
☐ Yes	D2-6	Note that SPD-1, SPD-2, and SPD-7 through SPD-12 are not associated with FGD or Ash Handling systems and are, therefore, not included in Table D-1 or D-2 as described by Steamhelp (ERG) in an e-mail to us on August 16, 2010.
☑ Yes	D2-7	An upgrade to WWT-1 and WWT-2 is under consideration at this time. However, a final desicion has not been made as of October 15, 2010. The upgrade may include either the addition of an anoxic biological reactor for selenium removal and resin system for boron removal or replacement of WWT-1 and WWT-2 with a zero liquid discharge system consisting of brine concentrators and ash blending of the concentrate.
☐ Yes	D4-5	For Pond Units 4, 5, and 6, the number of days dredged in the last 5 years and the amount removed are estimated values.
☑ Yes	D5-2, D5-10 & D5-11	An upgrade to WWT-1 and WWT-2 is under consideration at this time. However, a final desicion has not been made as of October 15, 2010. The upgrade may include either the addition of an anoxic biological reactor for selenium removal and resin system for boron removal or replacement of WWT-1 and WWT-2 with a zero liquid discharge system consisting of brine concentrators and ash blending of the concentrate.
☐ Yes	D3-3 WWT-2 Table D-4	Flow rates for Effluents 2 through 4 are not measured and are rough estimates based on pump capacities and runtimes.
☐ Yes	D4-3	Pond Units 3, 4, 5 and 6 are dredged routinely to maintain solids storage capacity. For Pond Units 4, 5 and 6, solids accumulate from the bottom elevation at a rate of 1 to 2 feet per quarter. Upon closure of each pond, all solids will be removed.
☑ Yes	D5-10	Bid proposals from Siemens and Infilco Degremont (IDI) to upgrade the WWT-1 System were received for this proposed work, but were prepared at the request of Counsel and is privileged and confidential and are not included in this submittal. Both proposal included alternatives for the reduction of selenium via an anoxic system and the reduction of boron using precipitation and/or resins systems. The proposal from IDI was selected as the better of the two
☐ Yes		
☐ Yes		
☐ Yes		
☐ Yes		
☐ 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
Filter, Microfiltration - 1	FLT-M-1
Filter, Microfiltration - 2	FLT-M-2

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

Steam Electric Questionnaire Code Tables

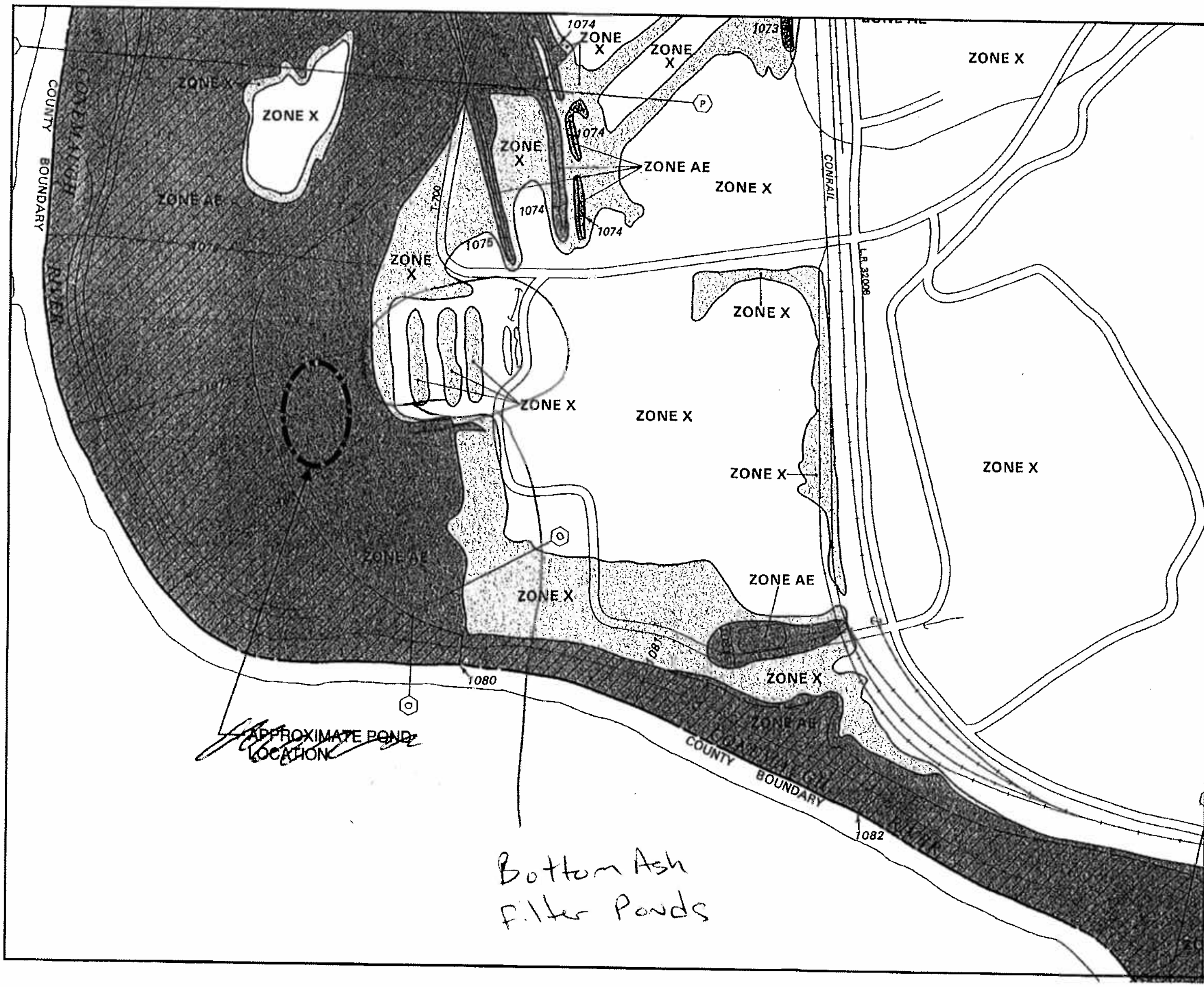
Wastewater Treatment Units	
For Use in Tables and Questions Throughout Parts D and F.	
Filter, Microfiltration - 3	FLT-M-3
Filter, Microfiltration - 4	FLT-M-4
Filter, Sand/Gravity - 1	FLT-S-1
Filter, Sand/Gravity - 2	FLT-S-2
Filter, Sand/Gravity - 3	FLT-S-3
Filter, Sand/Gravity - 4	FLT-S-4
Filter, Ultrafiltration - 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



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWNSHIP OF
WEST WHEATFIELD,
PENNSYLVANIA
INDIANA COUNTY

PANEL 14 OF 20
(SEE MAP INDEX FOR PANELS NOT PRINTED)

PANEL LOCATION

COMMUNITY-PANEL NUMBER
421724 0014 B

EFFECTIVE DATE:
APRIL 2, 1990

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Conemaugh Generating Station
Approximately Property Boundary

APPENDIX A

Document 4

System Description "Ash Water Recycle" Conemaugh Station

Raytheon Engineers & Constructors, Inc.

Atlanta Regional Office

FOR: PENNSYLVANIA ELECTRIC COMPANY
GENERATION DIVISION DESIGN ENGINEERING
JOHNSTOWN, PENNSYLVANIA

SYSTEM DESCRIPTION

TITLE: ASH WATER RECYCLE

NUMBER: SD46 Revision 0

STATION: Conemaugh **PROJ. NO.:** 421026 **W.O. SERIAL:** 61188

ORIGINATOR: RE&C/Atlanta **DATE:** May 5, 1995

Raytheon Engineers and Constructors, Inc.

Prepared By: Cindy R Khalaf Date: 5/5/95

Reviewed By: [signature] Date: 5/8/95

Approved By: John Shultz Date: 5/8/95

PENELEC REVIEW

Project Engr. T.L. Shlom Date 5-17-95

Support Reviews:

Name	Date	Name	Date

SYSTEM DESCRIPTION

ASH WATER RECYCLE

CONEMAUGH STATION

Revision 0

wpA0254m

ASH WATER RECYCLE
SYSTEM DESCRIPTION
TABLE OF EFFECTIVE PAGES

Page	Date	Rev.
i	05/05/95	0
ii	05/05/95	0
1	05/05/95	0
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3	05/05/95	0
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6	05/05/95	0
7	05/05/95	0
8	05/05/95	0
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TABLE OF CONTENTS

46.1.0 INTRODUCTION

The handling of bottom ash requires a large quantity of water. The Ash Water Recycle System recovers as much of this ash water as possible, as well as non-hazardous waste water from other locations. This recycled ash water is returned to the bottom ash handling system forming a closed system. No ash water is routinely discharged out of the closed system. This system description describes the collection and distribution of this water.

46.2.0 FUNCTION

The ash water recycle system supplies water to the following ash handling system users:

1) Units 1 and 2 Bottom Ash Sluice Pumps

2) Units 1 and 2 Bottom Ash Hopper Refractory Cooling Water Supply Header

The ash water storage ponds are used to settle ash particles carried over from the dewatering bins during ash sluicing. These ponds are also used as storage when a dewatering bin is drained or filled. Additional information concerning the bottom ash handling system is contained in SD-32, Bottom Ash System Description.

The ash water filter ponds are used to settle the sludge generated by the Plate Separator, sometimes referred to as the Intake Clarifier. The plate separator treats river water for use as cooling tower makeup. Additional information on this system can be found in SD-01, Cooling Tower Makeup System Description.

The ash water filter ponds also collect waste water from miscellaneous sumps as described below.

46.3.0 DESCRIPTION

46.3.1 Overview

The complete ash water recycle system is shown on sketch 1942-SK-M-175. Design flow diagrams for the system are B-352-4317, Ash Water Recycle System, and C-739-203, Waste Neutralizing Systems. The system consists of the following major components:

a) Four (4) Ash Filter Ponds, sometimes referred to as Ash Storage Ponds

b) One (1) Ash Water Recycle Sump

c) Three (3) Ash Water Recycle Pumps

d) Two (2) Ash Water Recycle Sump Level Control Pumps

46.3.2 Detailed Description

The Ash Water Recycle System is common to both Units 1 and 2.

During bottom ash sluicing, water is drained from the ash water storage ponds via an overflow weir into the ash water recycle sump and pumped to the suction of the high pressure, bottom ash sluice pumps, which provide water to the bottom ash hoppers.

Bottom ash is transferred from the hoppers to the dewatering bins. In the bins, ash settles and water overflows to two of the four ash storage ponds.

Water from the ponds is drained to manhole No. 4 which contains a weir. The overflow weir discharges to the ash recycle water sump.

During normal operation, two ponds are valved to settle ash particles carried over from the dewatering bins; one pond is valved for storage of ash water that is drained from a dewatering bin during ash truck loading; and the remaining pond is valved out of service for cleaning or maintenance.

The ash water recycle sump contains three ash recycle pumps, one per Unit and one spare. These sump pumps provide water to both Units' bottom ash sluice pumps as described above and to both Units' bottom ash hopper refractory cooling water supply headers.

The ash water recycle sump also contains two level control pumps, one operating and one spare. These pumps are used to transfer excess water to the cooling tower desilting basin for temporary storage and use as makeup water to the FGDS.

Water can enter the ash water filter ponds from a variety of sources, including the following:

a) Ash Valley Water Transfer Pumps*

b) Limestone Pile Runoff Pumps*

c) Floodwater Backup Valve Box Sump

d) Plate Separator (Intake Clarifier) Sludge Pumps

e) Desilting Basin Pumps*

f) Ash Silo Area Drainage Pumps*

g) Dewatering Bins Drains

h) Ash Recycle Pumps minimum flow

i) Air Preheating Water (Circulating Water)

j) FGDS Service Building Collection Sump Pumps*

k) FGDS Start-Up/Standby Transformer Collection Sump Pumps*

A description of the miscellaneous sumps notated with an asterisk (*) is located in SD-47, Miscellaneous Sumps and Pump Stations System Description.

If an empty ash filter pond is being put in service or if insufficient makeup is provided from plant drains or rainfall, water must be supplied from other sources: either from the Ash Valley Water Transfer Sump or from Air Preheating Water, both via normally closed plug valves to each pond.

Items c through g above enter the Ash Water Storage Ponds via an Ash Filter Pond Receiver Box. Flow from the receiver box may be directed to any of the four ponds by use of slide gates dedicated to each pond.

The Ash Recycle Pumps continuously recirculate the minimum flow required by the pump manufacturer to prevent pump overheating. Recirculation occurs to the two ponds normally dedicated to ash water storage service, pond Nos. 1 and 2, via a flow restricting orifice.

Waste water also enters the system from two other sources. The FGDS Service Building Floor Drains Collection Sump and the FGDS Start-up/Stand-by Transformer Rainfall Collection Sump discharge to manhole No. 4 via the Area 3 Oil/Water Separator. Additional information concerning these sumps is located in SD-47, Miscellaneous Sumps and Pump Stations System Description.

An emergency drain and overflow are provided from manhole No. 4 (the weir) to a drainage ditch.

46.4.0 MAJOR COMPONENTS

46.4.1 Ash Water Recycle Sump

46.4.1.1 Function

The function of the ash water recycle sump is to provide a location for mounting of the ash recycle and level control pumps and to provide surge capacity for ash water storage pond level changes.

46.4.1.2 Design Criteria

Construction	Reinforced concrete
Dimensions	50 feet square
Depth	18'-3" from top of concrete to sump floor
Total Capacity	340,000 gallons (approximate)

46.4.1.3 Detailed Description

The ash water sump receives discharge from manhole No. 4 and is evacuated by the ash water recycle pumps and level control pumps described below.

The sump is constructed of reinforced concrete. The top of the sump is at grade elevation. The pumps are located on the north end of the sump, mounted on a reinforced concrete top. The ash water recycle pump intake is separated from the level control pump intake by a wall extending vertically from the top to the bottom of the sump and horizontally from the north sump wall to the edge of the pump mounting slab. The concrete top is as large as required for pump mounting; the remainder of the sump is open to the atmosphere and surrounded by handrail for personnel protection.

For piping in the sump area, reference drawing D-354-3906 sh. 3, FGDS Project Waste Water Sumps Plans and Sections. For sump construction, reference drawing D-421-1060 sh. 2, Waste Water Treatment Sumps Foundations Plan, Sections, and Details.

46.4.2 Ash Water Recycle Pumps

46.4.2.1 Function

The function of the ash water recycle pumps is to supply water above a minimum pressure to the suction of the bottom ash sluice pumps, and to the bottom ash hopper refractory cooling supply header.

46.4.2.2 Design Criteria

Manufacturer	Floway, Inc.
Model No.	27 FKH
Type	Vertical turbine
Primary Material of Construction	Stainless steel
Speed	1190 rpm
Design Capacity	8000 gpm
Design Total Dynamic Head	107 ft
Minimum Submergence Required	54" above bottom of bell
At Design Conditions:	
Pump Efficiency	86%
Brake Horsepower	256
Motor:	
Manufacturer	G.E.
Enclosure	TEFC
Type	VSS
Frame	5011VP
Power Requirements	460 VAC/3 ph/60 hz
Horsepower	300
Speed	1190 rpm

46.4.2.3 Detailed Description

Ash recycle water is pumped by the three ash recycle pumps from the ash recycle sump to various bottom ash handling system users.

The pumps are single stage, vertical turbine type, with a 20" diameter column and 24" diameter discharge. The overall pump length beneath the mounting plate is approximately 18'-6", including the inlet strainer.

Fire protection water with city water as a backup is used for seal and bearing cooling. Cooling water enters the each enclosed line shaft through a dedicated solenoid valve (SV-7207, SV-7208, and SV-7209 for pumps A,B, and C, respectively) which must be open for the pump to be allowed to start. The line supplying each pump branches to provide water for motor bearing lubrication cooling, also. Each motor bearing cooling line contains a pressure reducing valve, pressure gauge, and flow meter (rotameter) in a heated enclosure. The regulator and rotameter are provided to maintain the flow through the motor bearing within the specified range of 2 to 3.5 gpm.

Each pumps' discharge consists of 24" diameter pipe containing a check valve and a butterfly valve. The three pump discharge pipes join into a 30" diameter manifold. A 16" diameter pump minimum recirculation pipe, containing a butterfly valve and a flow restricting orifice, branches off this manifold and returns to two of the ash water storage ponds. The pump manufacturer requires a minimum flow through the pump to prevent overheating. This pipe allows flow through the pumps even if all downstream users are isolated.

Ash recycle system makeup lines from air preheating water and the limestone pile runoff sump discharge into the minimum recirculation line. The limestone pile runoff sump discharge pipe is 6" diameter, containing a normally closed butterfly valve. The air preheating water makeup line is also 6" diameter and contains normally closed ball and butterfly valves as well as a flow measuring orifice (FE 7163).

The 30" diameter ash recycle manifold branches off into two 20" diameter lines, one dedicated to each Unit. These lines supply bottom ash hopper refractory cooling and bottom ash sluice pumps suction.

46.4.3 Ash Water Recycle Sump Level Control Pumps

46.4.3.1 Function

The function of the ash water recycle sump level control pumps is to discharge excess ash water from the ash water recycle system to the desilting basin.

46.4.3.2 Design Criteria

Manufacturer	Floway, Inc.
Model No.	19 FKM
Type	Vertical turbine
Primary Material of Construction	Stainless steel
Speed	1785 rpm
Design Capacity	5000 gpm
Design Total Dynamic Head	95 ft
Minimum Submergence Required	42" above bottom of bell
At Design Conditions:	
Pump Efficiency	81%
Brake Horsepower	150
Motor:	
Manufacturer	G.E.
Enclosure	TEFC
Type	VSS
Frame	445VP
Power Requirements	460 VAC/3 ph/60 hz
Horsepower	150
Speed	1785 rpm

46.4.3.3 Detailed Description

Ash recycle water is pumped by the two ash water recycle sump level control pumps from the ash recycle sump to the desilting basin.

The pumps are single stage, vertical turbine type, with a 16" diameter column and 18" diameter discharge. The overall pump length beneath the mounting plate is 18'-8", including the inlet strainer.

The same water line supplying ash recycle pump seal and bearing cooling water also supplies bearing cooling water to the level control pumps. Cooling water enters each enclosed line shaft through a dedicated solenoid valve (SV-7210 for pump A, SV-7211 for pump B) which must be open for the pump to be allowed to start.

Each pump's discharge consists of 18" diameter pipe containing a check valve and a butterfly valve. The two pump discharge pipes join into a 20" diameter manifold which contains a restricting orifice.

Two 20" diameter connections, one per unit, are provided in the manifold for future cooling tower drains.

46.5.0 CONTROLS

46.5.1 Recycle Sump Level Controls

46.5.1.1 Purpose

The purpose of the recycle sump level controls is to maintain the water level in the sump between a minimum required for proper sump pump operation and a maximum to prevent overflow of the system. The sump is also the mechanism by which level is maintained in the four ash water storage ponds, thus in maintaining sump level, storage pond level is also maintained.

46.5.1.2 Description

Sump level transmitters LT-7006 and LT-7007 provide the control signal which regulates recycle sump level by modulating the storage pond outlet valves LV-7013 or LV-7023.

For Pond 1 to function as a storage pond, inlet valve BN-346 must be closed and valve BN-393 (HV-7077) must be open. Valve open position switch ZS-7143, located on HV-7077, activates the controls for Pond 1 outlet valve BN-361 (LV-7013) so that the ash recycle sump level transmitters LT-7006 and LT-7007 will control the release of water from Pond 1 into the recycle sump.

Storage pond outlet valve LV-7013 is a slide gate valve located on the pond discharge structure. Using LV-7013, the level in the pond can be changed by up to 5 feet, 3 inches, or approximately 1,200,000 gallons of storage. The water level can drop from the pond outlet overflow weir level, elevation

1090 ft., to the bottom of the slide gate valve, elevation 1084.7 ft. See Gilbert drawing D-782-010 for details of the pond discharge structure. The slide gate valve is equipped with a motor operator with position feedback for automatic control.

Similarly, for Pond 2 to function as a storage pond, inlet valve BN-346 must be closed and valve BN-393 (HV-7078) must be open. Valve open position switch ZS-7145, located on HV-7078, activates the controls for Pond 2 outlet valve BN-361 (LV-7023) so that the ash recycle sump level transmitters LT-7006 and LT-7007 will control the release of water from Pond 2 into the recycle sump.

If inlet valves HV-7077 and HV-7078 are both open, Pond Outlet Valves LV-7013 and LV-7023 will both modulate to control the release of water from the ponds into the recycle sump.

If the water flow into the ash water recycle sump from the storage ponds is equal to the flow of water pumped to the bottom ash sluice pumps, no water storage is necessary. However, the minimum pump flow from the ash water recycle pumps will always be entering the storage pond (approximately 1800 gpm). This will cause pond outlet valve LV-7013 to open slightly to return the pump minimum water flow to the recycle sump.

If the water flow into the ash water recycle sump from the storage ponds is less than the flow of water pumped to the bottom ash sluice pumps, additional water from the storage pond is required. As level in the ash recycle sump begins to drop, LT-7006 and LT-7007 signal to increase the opening of pond outlet valve LV-7013 to admit more water to the recycle sump. Control action of the level controller is proportional to level only.

If the water flow into the ash water recycle sump from the storage ponds is greater than the flow of water pumped to the bottom ash sluice water pumps, water storage in the pond is required. As level in the ash recycle sump begins to rise, LT-7006 and LT-7007 signal to decrease the opening of pond outlet valve LV-7013 to retain more of this water in the storage pond.

Ash Recycle Sump Level settings are as follows:

	Elevation (ft)
Emergency overflow from sump	1078.67
Overflow imminent, high level alarm	1078.33
Start level control pump	1071.50
Stop level control pump	1069.67
LV-7013 fully closed	1069.11
LV-7013 fully open	1065.50
Stop all pumps, low level alarm	1065.00

46.5.2 Control Philosophy for Ash Water Recycle Sump Level Control Pumps

46.5.2.1 Purpose

The purpose of the these controls is to start the level control pumps in order to remove excess water from the system, thereby preventing overflow of the sump.

46.5.2.2 Description

Once the ash water storage pond is full, the discharge structure weir will overflow into the ash water recycle sump, and the sump level will begin to rise. On high level, LT-7006 and LT-7007 will initiate the start of a recycle sump level control pump to discharge excess water to the desilting basin for temporary storage and reuse.

Two 100% capacity level control pumps are provided. Sump high level starts the lead level control pump. When level returns to the "STOP LEVEL CONTROL PUMP" level, the pump will stop.

If level continues to rise, the lag pump will start at the "HI-HI ALARM" level. Both pumps will stop at the "STOP LEVEL CONTROL PUMP" level.

Each level control pump is provided with a three position ON-OFF-AUTO switch. In the ON position, a pump will run if the start permissive "recycle sump level not low" is met. In the AUTO position, the pumps respond to the recycle sump level controls.

Normally these pumps are both placed in the AUTO mode. With both pumps in the AUTO mode, an automatic lead-lag switch will alternate the pump selected as the lead pump. Tripping of the lead pump will automatically start the standby pump.

46.5.3 Ash Water Recycle Pump Controls

46.5.3.1 Purpose

The purpose of the ash water recycle pump controls is to insure that ash water recycle pumps are running as required whenever a unit is sluicing ash or has fire in the boiler, in order to supply cooling and seal water to the boiler ash hopper.

46.5.3.2 Description

Three pumps are provided: one full capacity for each Unit, and one common spare. Each pump has a three position control switch, ON-OFF-AUTO. Normally all three pumps will be placed in the AUTO mode. A sump low water level switch will stop all pumps in ON or AUTO mode. Manual reset of the low level switch trip is required. This protects the pumps from cavitation due to low net positive suction head.

The ON mode starts the pump selected. In AUTO mode a pump starts on low discharge header pressure (35 psig from PS-7104). The order in which the three pumps start is controlled by one common three position sequencing switch.

The pump starting order is selected as follows: ABC, BCA, and CAB. Time delays will retard the automatic start of pumps not selected to be the lead pump. The delay time is adjustable from 0-60 seconds for each pump.

A trip of a running pump will start, without time delay, the next sequential pump in AUTO mode. In AUTO mode, all pumps except the lead pump, will be automatically shutoff on high discharge pressure (48.7 psig from PS-7119). Once started in AUTO, the lead pump will run until manually switched to the OFF position, or until a low level trip occurs.

46.6.0 ALARMS

The following alarms are provided to FGDS control room to assist the operations personnel in monitoring and operating the system.

	Alarm	Monitoring Equipment	Corrective Action
1.	Ash Recycle Sump Low-Low Level	LT-7006 LT-7007	Verify position of all valves on pipes leading to and from sump. Check no. of recycle and level control pumps running. Verify accuracy of transmitters.
2.	Ash Recycle Sump High Level - Overflow Eminent	LT-7006 LT-7007	Same corrective action as for Low-Low Sump Level.
3.	Ash Recycle Sump High-High Level	LT-7006 LT-7007	Same corrective action as for Low-Low Sump Level.
4.	Ash Recycle Pumps Discharge Header High Pressure	PS-7119	Verify the number of recycle pumps running. Check for blockage in the discharge line, including closed valves.
5.	Ash Recycle Pumps Discharge Header Low Pressure	PS-7104	Verify the number of recycle pumps running. Check for recycle pump malfunction. Check for malfunction of end users causing excessive water usage (i.e. pipe break)

	Alarm	Monitoring Equipment	Corrective Action
6.	Ash Recycle Pumps Seal Water/Bearing Lube Pressure Low	PS-7226	Determine if other alarms have been generated indicating a problem with the fire protection water system (source of seal/brg wtr). Check for blockage in the water supply line including closed valves. Check for malfunction of pressure switch.

46.7.0 PRINCIPAL MODES OF OPERATION

The following section will provide general information on the major operating modes. For detailed operating information, the operating procedure for the system should be consulted.

46.7.1 Startup Operation

When placing an ash storage pond in service, close the underdrain valve on the empty pond and fill the empty pond with water from the ash valley water transfer sump pumps or the air preheating water supply, if ash valley water is not available. Reference drawings B-352-4318 and C-302-311 for information concerning water supplies.

The time to fill one pond will be approximately two days at the design flowrate of 1000 gpm. The ash valley area clarifier flow should be adjusted as necessary to provide the additional water required.

After filling, open the inlet valve HV-7077 or HV-7078 on the pond being placed in service.

To start any pump manually, select pump HAND control from the CRT and actuate pump START.

Normally, all pumps will be in AUTO. To place pumps in AUTO, select Lead Pump Sequence from the CRT then select pump AUTO control.

46.7.2 Normal Operation

Each Unit has two bottom ash dewatering bins. One of the two bins will be in service while the other is draining. Two bins, one from each Unit, are drained to a storage pond approximately once per day. After a bin has been dewatered and emptied of ash, it will be refilled from the storage ponds.

During normal operation, two ponds will be valved to settle ash particles carried over from the dewatering bins during ash sluicing. One pond will be valved for storage of ash sluice water that is drained from a dewatering bin. The remaining pond will be out of service for cleaning or maintenance.

For filling or draining dewatering bins, a water holding volume must be available to supply or receive the large volumes required, up to 300,000 gallons per bin. The A and B Ash Water Storage Ponds have been modified to provide this water storage function. These ponds also have the capability to function as ash filter ponds, but not concurrently with the water storage function.

Only one water storage pond is required. The other water storage pond can be valved for settling ash if required. The storage pond prevents unnecessary discharge of ash water from the closed system, and provides the large volume of water required to fill a bin.

The two ash water ponds which operate as filters do so by draining the water entering the pond through a filter bed and underdrain system in the bottom of the pond. As the filtering media in the bottom of a pond plugs with ash and dirt, the pond water level rises until it reaches the overflow weir on the discharge structure. When this occurs, the pond functions primarily as a settling basin.

The ash water ponds should be operated continuously in the settling mode, with the pond full and overflowing the discharge structure weir. This will insure that uncontrolled level changes in the recycle sump will not occur.

The only time when ash pond level must change is when ponds are drained and removed from service, or filled and returned to service, as described below under Infrequent Operation. This can be accomplished without creating recycle sump level alarm conditions by following a controlled procedure as described under Startup Operation.

Either Pond A or B must always be valved for water storage service in order to operate an ash water recycle pump.

The pipe connecting the ash water recycle pump discharge header to the selected storage pond provides a minimum flow path for the recycle pumps.

Normal accumulation of rainfall and plant drains should provide sufficient system makeup to compensate for losses from evaporation in the bottom ash hoppers and from water losses associated with wet ash removal from the dewatering bins.

During normal operation, two ash recycle pumps, one per Unit, should return ash water to the bottom ash sluice pumps' suction. The third pump is spare.

Neither of the two Ash Water Recycle Sump Level Control Pumps will normally be pumping.

46.7.3 Shutdown Operation

Close the inlet gate of the pond being removed from service.

If another pond needs to be filled, use the water from the pond to be drained as described under the Startup Operation Section.

Slowly open the drain valve on the pond being removed from service. Verify that the ash recycle level control system starts one level control pump and maintains water level in the recycle sump by discharging to the cooling tower desilting basin. Verify that water is being pumped from the desilting basin to the FGDS at a rate which prevents overflow from the desilting basin.

When removing an ash water storage pond from service, it is important that the water level in the pond be controlled, so that excessive water drainage from a pond to the recycle sump does not overflow at the cooling tower desilting basin emergency overflow.

This can be accomplished by throttling the underdrain valves on the draining pond. Should a high level alarm occur at the cooling tower desilting basin, water flow from a draining ash pond must be stopped until the desilting basin level can be returned to a low condition.

The water in the cooling tower desilting basin is pumped to the FGDS ash pond water tank. The rate at which this makeup tank can accept water is primarily affected by the number of generating units in service, the electric load on the station, and the sulfur content of the coal.

To stop any pump, actuate pump STOP from the CRT.

46.7.4 Abnormal or Infrequent Operation

During normal operation, this is a closed system and no water is discharged or added, therefore, any conditions requiring makeup or discharge are infrequent or abnormal.

Discharge of Water From the Recycle Sump to the Desilting Basin

Infrequently, two operating conditions may occur that require discharge of water from the recycle sump to the desilting basin. These conditions are:

a) Excessive rainfall and plant drains are entering the ash water storage ponds primarily from the ash silo area drainage sump

b) Removing an ash water storage pond from service

One Ash Water Recycle Sump Level Control Pump will operate as necessary and should maintain or reduce the sump level.

As described under the shutdown operation section, when an ash water storage pond is drained, it is important to closely monitor the cooling tower desilting basin level to insure that it does not overflow.

<u>Adding Water to the Ash Water Recycle System</u>

Infrequently, two operating conditions may occur that require adding water to the ash water recycle system:

a) Placing an empty ash water pond into filtering service

b) Insufficient water makeup from plant drains or rainfall. This makeup is required to replace water lost due to evaporation of ash water from the bottom ash hopper, leakage from piping, and water carried with the ash from the truck hauling operation.

Should seasonal conditions cause a lack of rainfall, such that the water loss from the ash water recycle system is greater than the water additions from rain and plant drains, a makeup water supply from the Air Preheating System (cooling tower water) is provided. See Drawing C-302-311. The makeup water flow to each pond is controlled manually. Valves (BN-359) should be throttled open to admit makeup water on a continuous basis as required.

Makeup can also be supplied from the ash valley water transfer sump through a separate pond connection, via a normally closed, manual plug valve. This is the preferred source of makeup if water is available.

Changing the Storage Function From One Pond to the Other

When changing the storage function from the No. 1 to the No. 2 ash water storage pond, water should be manually added to the No. 2 pond until the level is approximately 3 feet below the overflow weir. This insures water is available to fill a dewatering bin. Next, valve HV-7078 must be opened on pond No. 2 and valve HV-7077 closed on pond No. 1.

Pond No. 1 can now be drained as described under shutdown operation. Reverse this procedure when placing the No. 1 pond in storage service.

46.7.5 Emergency Operation

There are no emergency operating conditions associated with this system.

46.8.0 REFERENCES

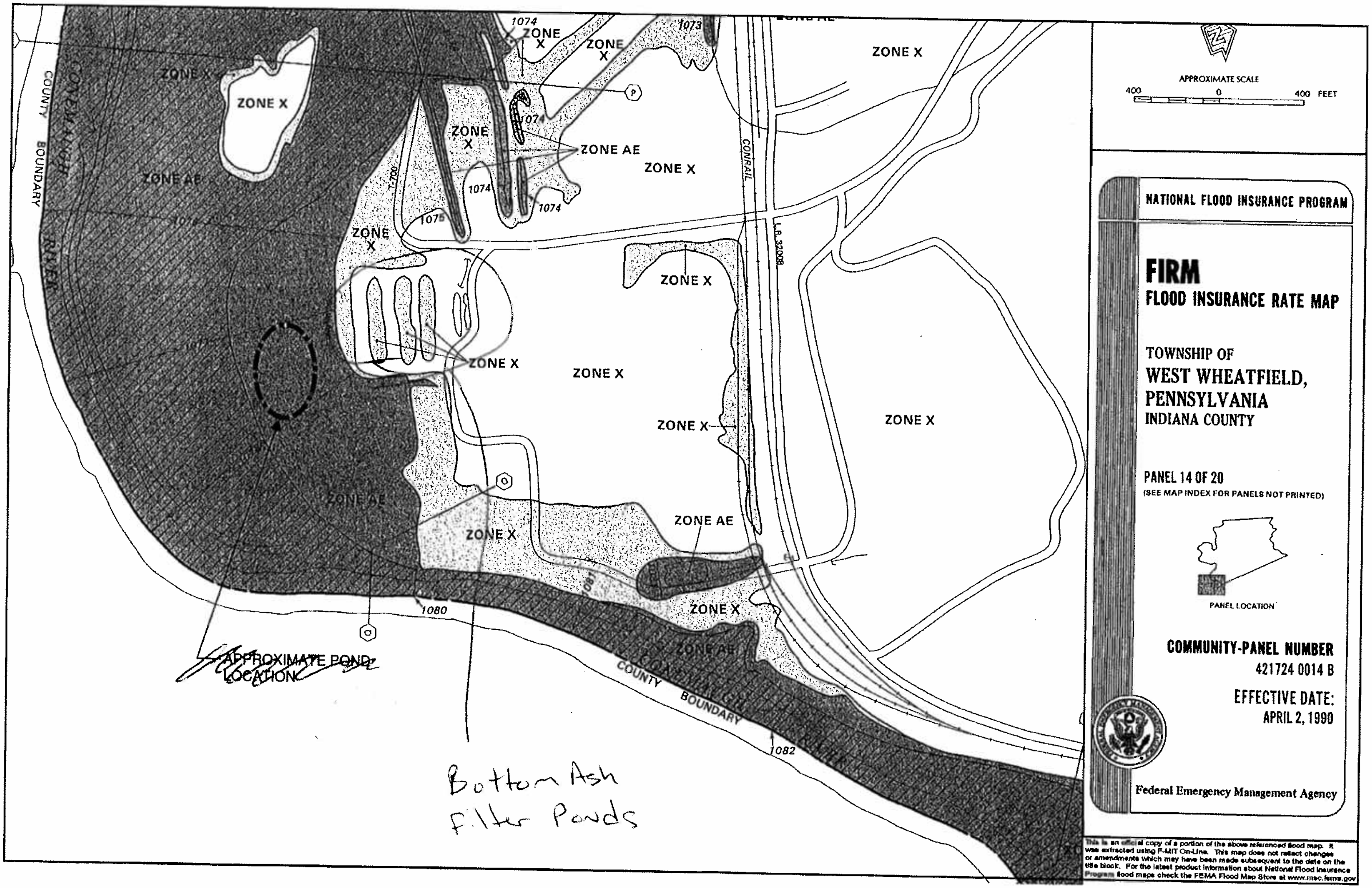
SD-01	Cooling Tower Makeup System Description
SD-32	Bottom Ash System Description
SD-47	Miscellaneous Sumps and Pump Stations System Description
-----	Operating Procedures as applicable
-----	FGDS Control Description, Book II, Section XXII
B-352-4318	FGDS Project Flow Diagram - Ash Valley Water Transfer System
D-354-3906 sh 3	FGDS Project Waste Water Sumps Plans and Sections
D-421-1060 sh 2	Waste Water Treatment Sumps Foundations Plan, Sections, and Details
D-782-010	New Discharge Structure for Pond 4 Plan, Sections, and Details

46.9.0 LIST OF FIGURES

APPENDIX A

Document 5

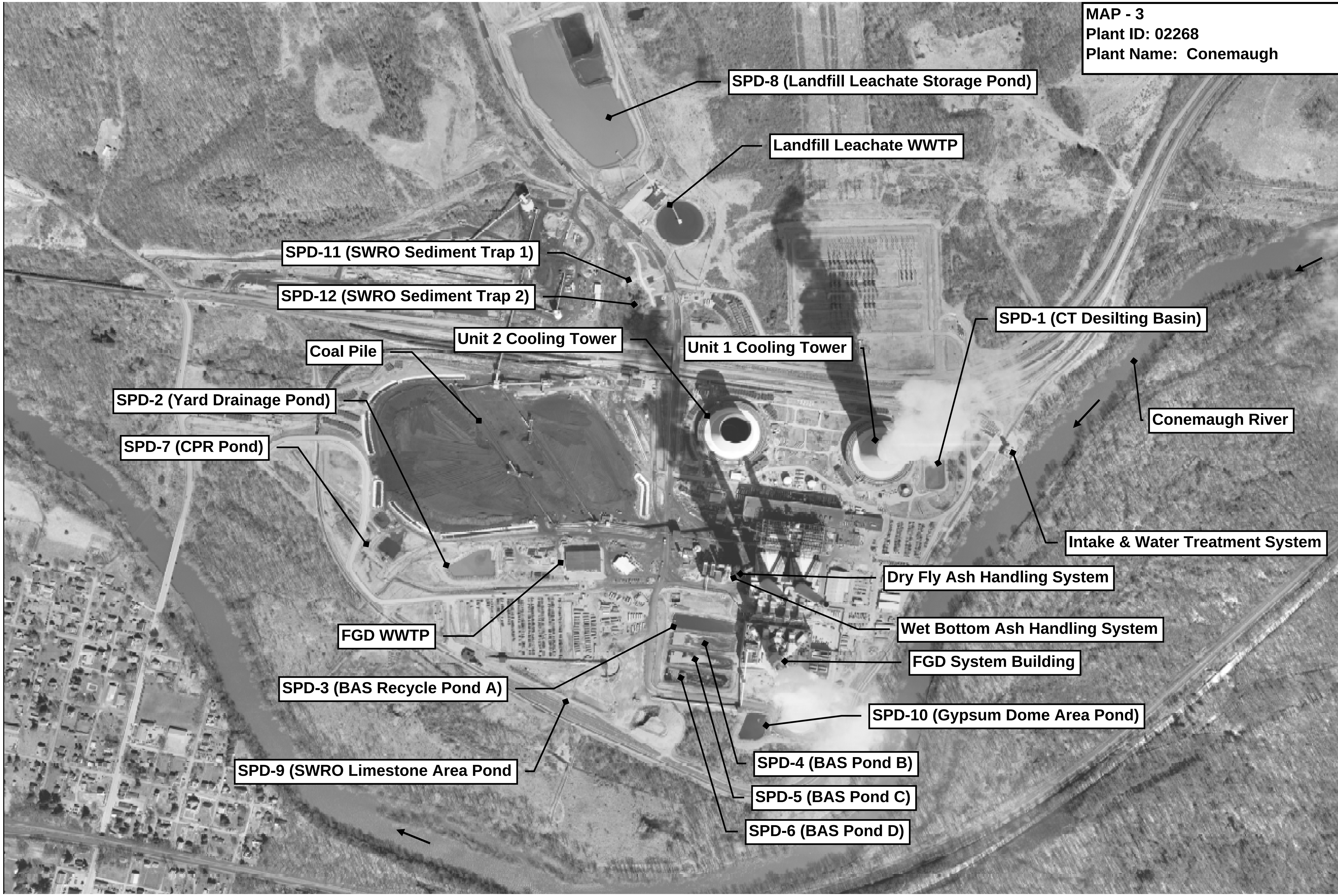
Flood Insurance Rate Map


NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
TOWNSHIP OF
WEST WHEATFIELD,
PENNSYLVANIA
INDIANA COUNTY
PANEL 14 OF 20
(SEE MAP INDEX FOR PANELS NOT PRINTED)
PANEL LOCATION
COMMUNITY-PANEL NUMBER
421724 0014 B
EFFECTIVE DATE:
APRIL 2, 1990
Federal Emergency Management Agency
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov
APPROXIMATE SCALE
400 0 400 FEET
ZONE X
ZONE AE
CONRAIL
L.R. 32008
CONEMAUGH RIVER
COUNTY BOUNDARY
1073
1074
1075
1080
1082
APPROXIMATE POND LOCATION
Bottom Ash Filter Ponds

APPENDIX A

Document 6

Map – 1 (Aerial Approximately Property Boundary)

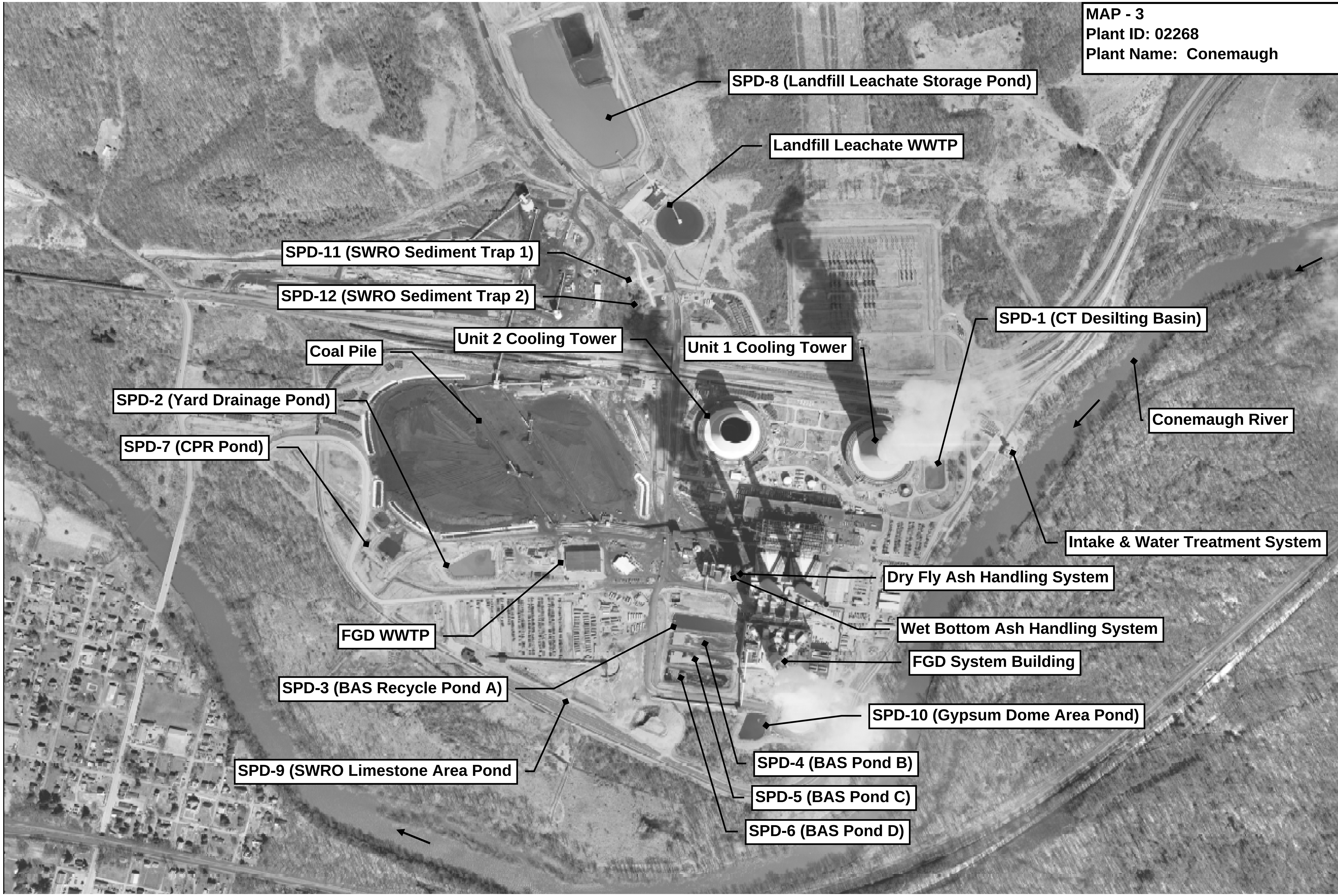


Conemaugh Generating Station
Buildings and Ponds/Impoundments

APPENDIX A

Document 7

Part A – Map – 3 (Buildings and Ponds/Impoundments)



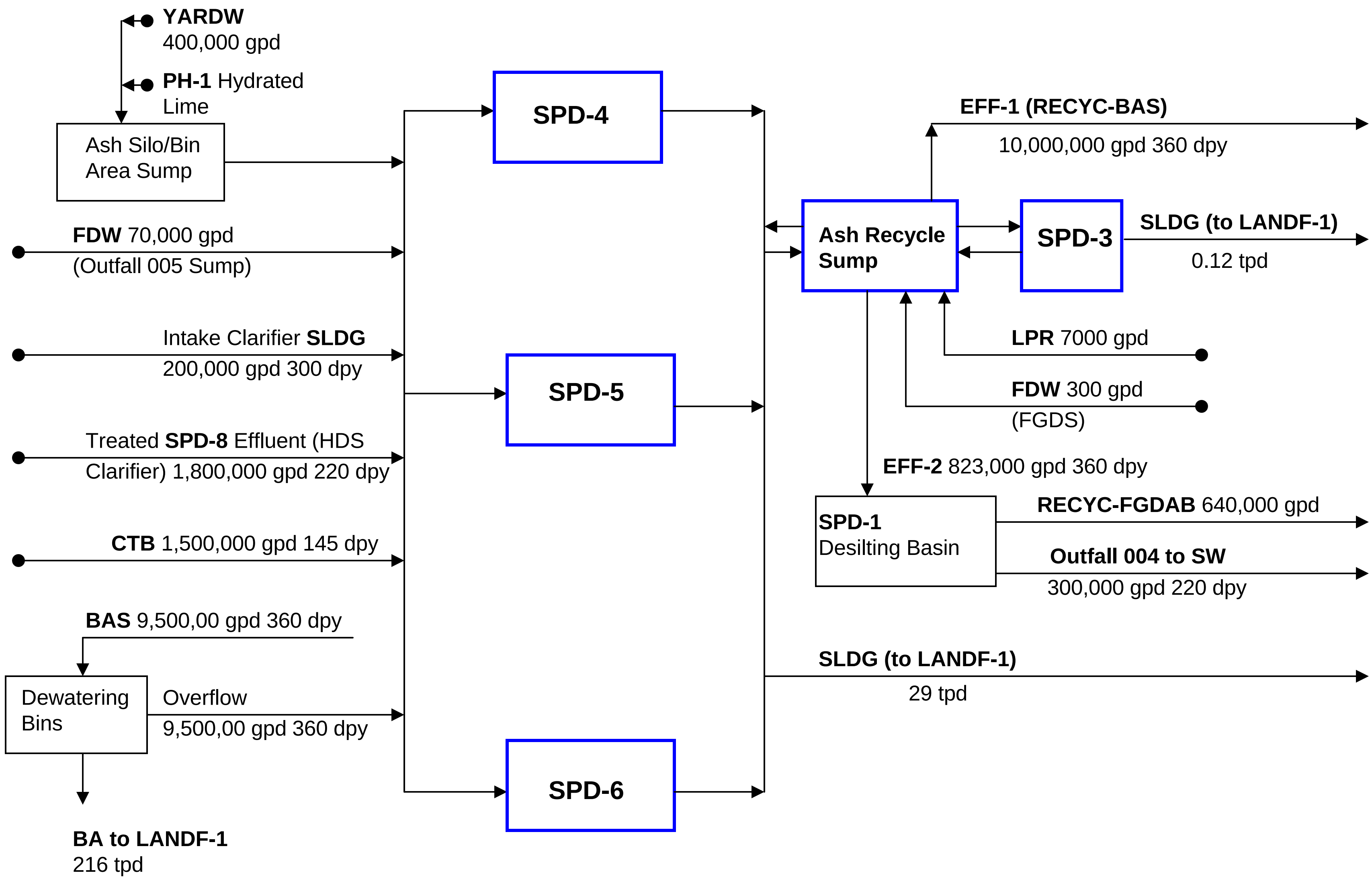
Conemaugh Generating Station
Buildings and Ponds/Impoundments

APPENDIX A

Document 8

Part D Diagram D-1 Conemaugh (Flow Diagram)

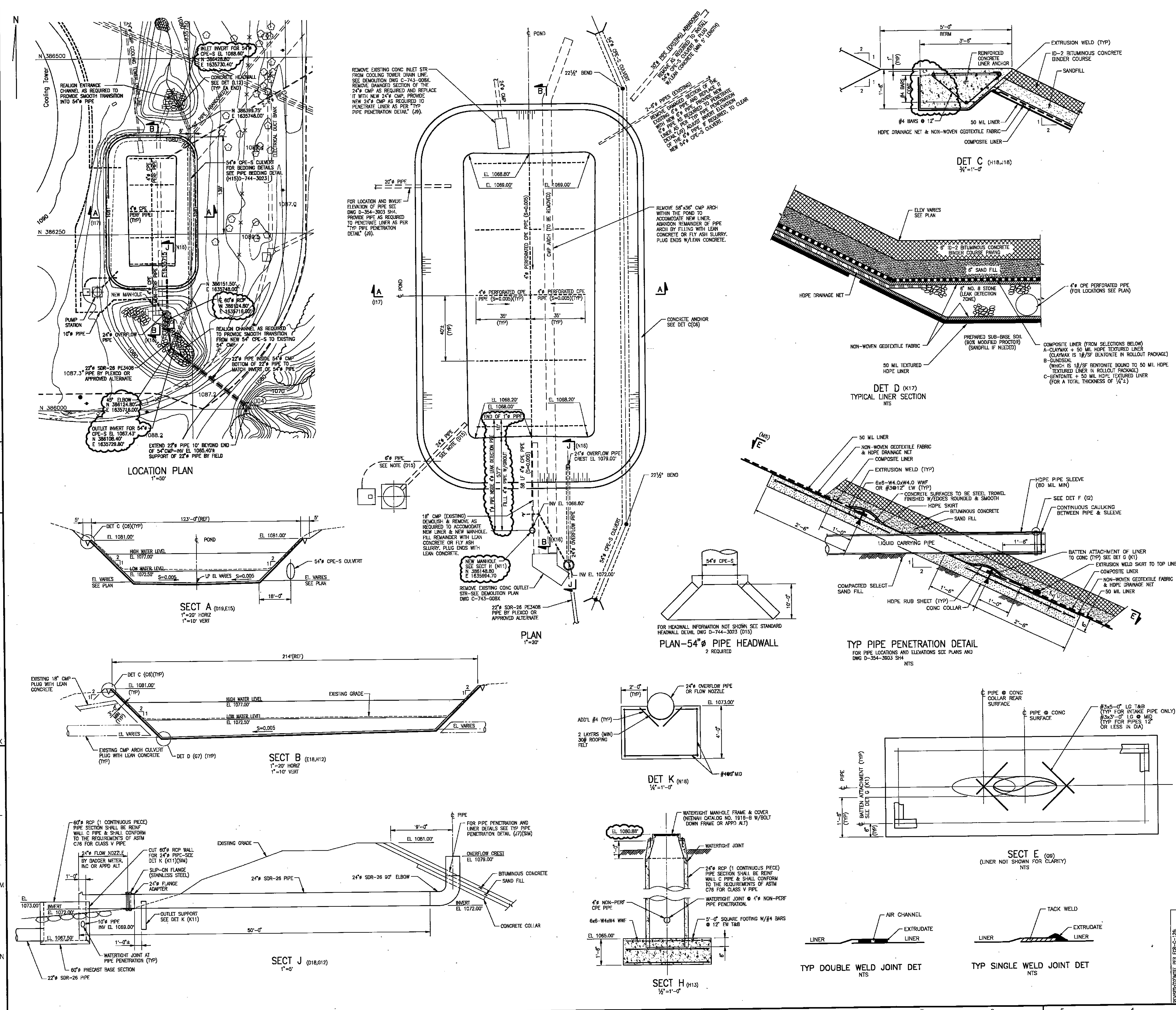
Diagram Number: D-1
Plant ID: 02268
Plant Name: Conemaugh
Pond System ID: POND-1



APPENDIX A

Document 9

Drawing D-739-5009 (Cooling Tower Desilting Basin)

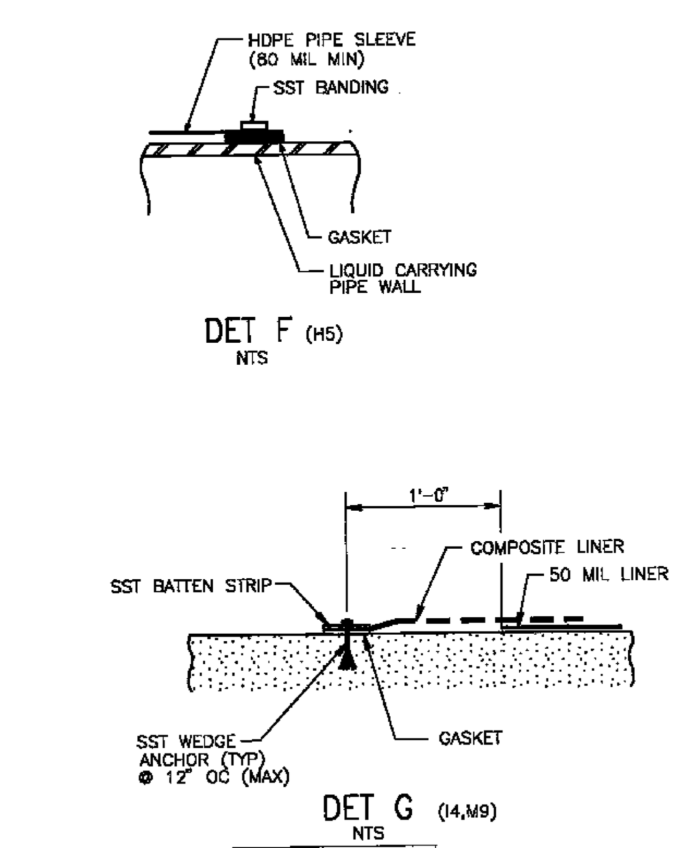


NOTES:

1. CONTRACTOR SHALL CONDUCT HIS WORK ACTIVITIES TO ENSURE MINIMUM INTERFERENCE WITH PLANT ACTIVITIES. CONTRACTOR SHALL NOT CLOSE, BLOCK, OR OTHERWISE OBSTRUCT PLANT ACCESS ROADS OR OTHER FACILITIES WITHOUT PRIOR PERMISSION FROM OWNER.
2. ANY UTILITIES (PIPES, DUCT BANKS, CABLES, CONDUITS, ETC.) OR STRUCTURES DISCOVERED BY THE CONTRACTOR DURING THE EXECUTION OF THE WORK SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF OWNER FOR RESOLUTION.
3. CONTRACTOR SHALL CONTROL EROSION DURING THE EXECUTION OF THE WORK IN ACCORDANCE WITH DRAWING D-744-3017.
4. ALL AREAS RECEIVING LINERS SHALL BE FINISH GRADED TO 90% MOD PROCTOR IN ACCORDANCE WITH SPECIFICATION C-421026-24.
5. PERSONNEL WORKING ON THE LINERS SHALL NOT WEAR DAMAGING SHOES, SHALL NOT SMOKE, AND SHALL NOT ENGAGE IN OTHER ACTIVITIES THAT COULD DAMAGE THE LINERS.
6. LINERS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH SPECIFICATION T-421026-35, "IMPERMEABLE LINERS".
7. VENTILATION SYSTEMS UNDER LINERS SHALL BE INSTALLED IF REQUIRED, SO THAT ALL GAS BUILDUP UNDER THE LINERS IS REMOVED.
8. HDPE LINER THICKNESS SHALL BE A MINIMUM OF 50 MILS.
9. PRIOR TO INSTALLATION OF LINERS, CONTRACTOR SHALL ENSURE THAT ALL PIPE PENETRATIONS IN THE LINED AREAS ARE IN PLACE.
10. UPON COMPLETION OF BASIN CONSTRUCTION, CONTRACTOR SHALL RESTORE DISTURBED AREAS, INCLUDING ROADS AND SURFACE DRAINAGE, TO THEIR ORIGINAL CONDITIONS.
11. BITUMINUOUS CONCRETE BINDER COURSE PAVING SHALL MEET THE REQUIREMENTS OF PENNDOT FOR SPECIFICATIONS, LATEST EDITION, PER SECTION 400, "FLEXIBLE PAVEMENTS". APPLY A BITUMINOUS SEAL COAT SUCH AS E-3 CATIONIC EMULSIFIED SEALANT WITHOUT THE AGGREGATE AS PER PENDOT REQUIREMENT.
12. CPE-S PIPE SHALL BE EMBEDDED IN CLASS 1 CRUSHED STONE A MINIMUM OF 6" BELOW THE BOTTOM OF THE PIPE, 12" ABOVE THE TOP OF THE PIPE AND 12" ON EACH SIDE OF THE PIPE. EMBEDMENT MATERIAL SHALL BE IN 6" LIFTS AND MECHANICALLY COMPACTED TO A DENSITY OF 95% MODIFIED PROCTOR PER ASTM D-1557.
13. PIPE INSTALLATION SHALL CONFORM TO ASTM D-2321.
14. FOR GENERAL NOTES, CORRUGATED PIPE NOTES, LEGEND, AND ABBREVIATIONS SEE DRAWING D-744-3014.
15. CONTRACTOR TO VERIFY REFERENCE DIMENSIONS BASED ON EXISTING POND SIZE. ANY DIMENSIONAL DISCREPANCY GREATER THAN 5 FEET IN THE SIZE AND/OR LOCATION OF THE POND SHALL BE BROUGHT TO THE OWNER'S ATTENTION FOR RESOLUTION.

REFERENCE DRAWINGS:

ROADS, GRADING & DRAINAGE PLAN SHEET 1	D-744-3014
ROADS, GRADING & DRAINAGE PLAN SHEET 4	D-744-3017
ROADS, GRADING & DRAINAGE PLAN SHEET 7	D-744-3020
ROADS, GRADING & DRAINAGE-SECTIONS & DETAILS SH1	D-744-3023
FGDS PROJECT UNDERGROUND YARD PIPING	D-354-3903 SH4
INLET & OUTLET STR-COOLING TWR DESILTING BASIN	C-743-008



---ATTENTION---
THIS DRAWING IS AN 'AUTOCAD' SUPPORTED DRAWING AND MUST BE REVISED ELECTRONICALLY.
TO OBTAIN ELECTRONIC FILE CONTACT:
PENNSYLVANIA ELECTRIC CO.
GENERATION ENGINEERING SERVICES
JOHNSTOWN PENNSYLVANIA
(814)533-8574

GEORGIA REGISTERED PROFESSIONAL ENGINEER NO. 19451 MARK HOLLISTER SOUSA
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER MARK HOLLISTER SOUSA PE-041728-R

Mark H Sousa
JAN 17, 1996

REV	DATE	BY	CH	APPROVED	
2	1-17-96	DM	KKF	MJ	REVISED: (D2) NOTE PER FCR-C-126; (A17,E17,I13,L11) COORD & ELEV; (B7) DET C PER AS-BUILT INFO FROM FELD DATED FEB 20, 1995; (G13) LEAK DETECTION SYSTEM PER FSK-C-036. ISSUED FOR RECORD PURPOSES ONLY.
1	9-1-94	TN	KKK	M. SOUSA FK	GENERAL REVISION OVERFLOW PIPE CHANGED FROM 10" TO 24" & RELOCATED. ADDED: SECT J & DET K; 22"ø PIPE & 60"ø MH @ 24"ø OVERFLOW PIPE. INCORPORATED FCR-C-125 & DCN-C-56

EBASCO SERVICES INCORPORATED

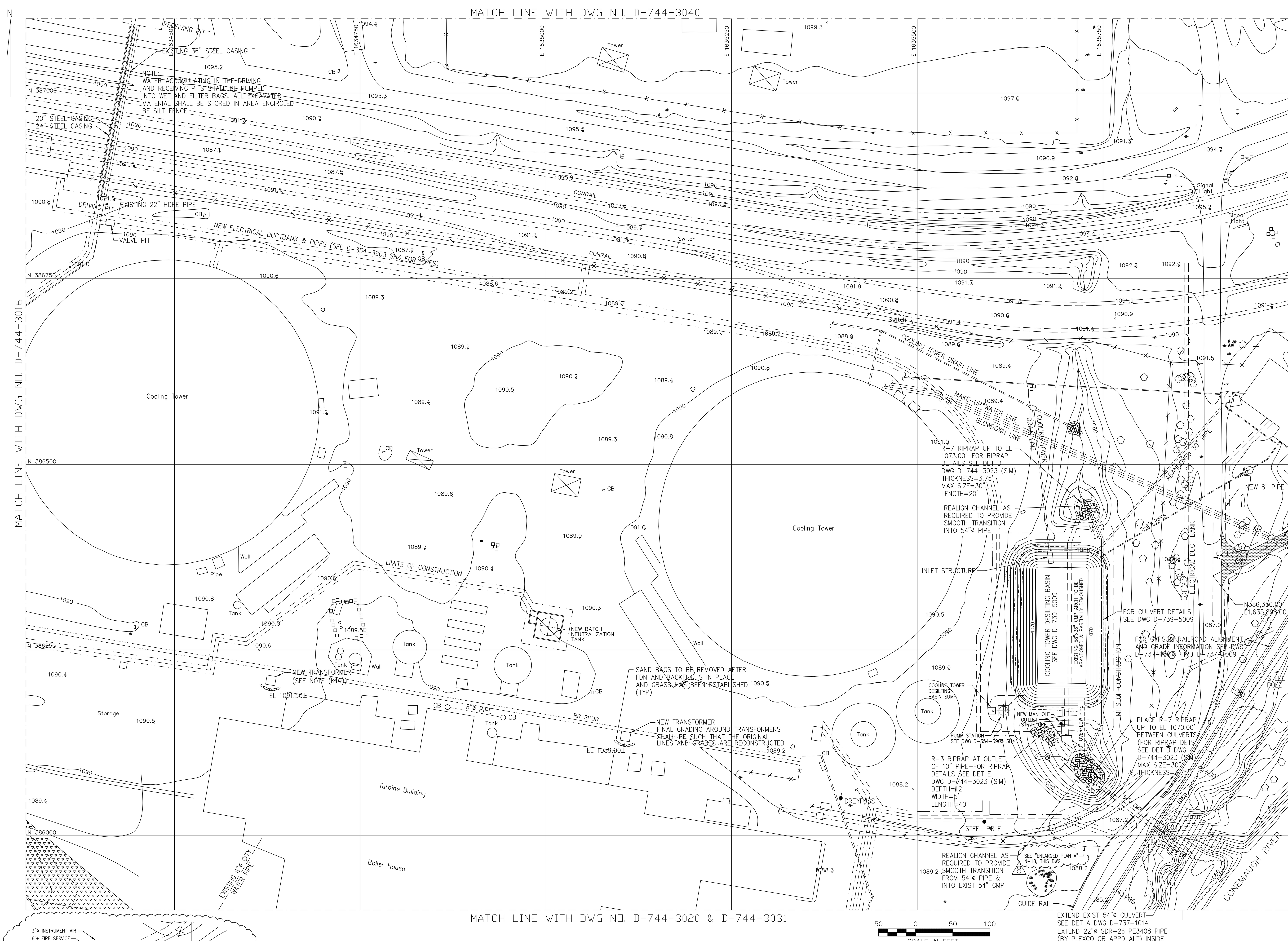
EBASCO SERVICES INCORPORATED
DIV. CIVIL DR. TN/LW
DATE 1-31-94 CH. SM
SCALE AS NOTED
APPROVED
MARK H. SOUSA
KKF FK
Penelec / GPU PENNSYLVANIA ELECTRIC COMPANY JOHNSTOWN PENNSYLVANIA
CONEMAUGH 1&2
DWG TYPE : SITE
TITLE COOLING TOWER DESILTING BASIN
DIKES, LINERS, AND ROADS
PLAN, SECTIONS, AND DETAILS SH1
421026 PROJECT CONTROL NO.
SCALE
D-739-5009 DRAWING NUMBER
2 REV

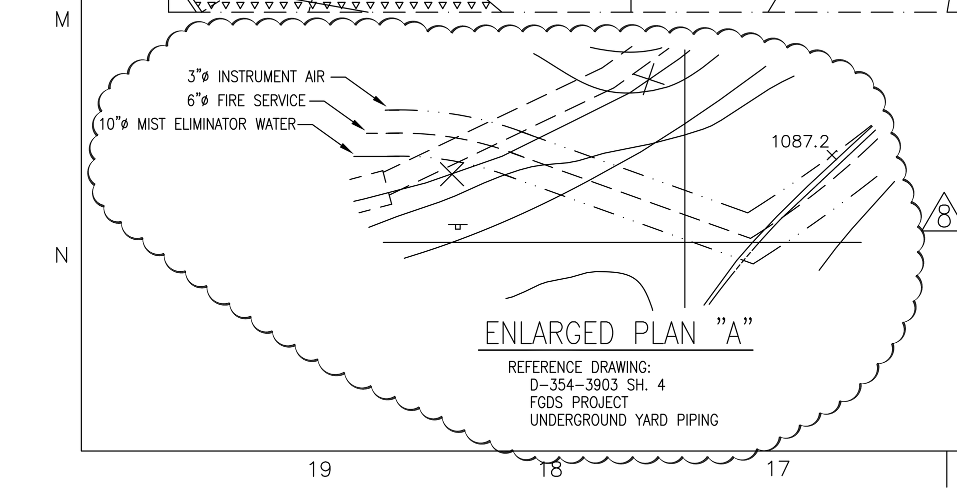
L-FGDS\CIVIL\SITE\73950091.DWG Wed, 1/10/96, 14:43:12, NORRIS, C3063, 66190.003, 1837 2JX19

APPENDIX A

Document 10

Drawing D-74-3017 (Roads, Grading and Drainage Plan)





COOLING TOWER DESILTING BASIN SEQUENCE OF CONSTRUCTION

1. PLACE RIPRAP AT ENTRANCE TO EXISTING 54" CMP (K6), DOWNSTREAM OF NEW CULVERT.
2. INSTALL 54" CPE-S IN ACCORDANCE WITH CULVERT REQUIREMENTS ON DRAWING D-744-3027. CONSTRUCT UPSTREAM AND DOWNSTREAM HEADWALLS, REALIGN CHANNELS AND PLACE REMAINDER OF RIPRAP AT HEADWALLS.
3. AFTER BACKFILLING TRENCH, STABILIZE DISTURBED AREAS WITH GRAVEL OR GRASS AND MULCH.
4. DIVERT FLOW FROM EXISTING 58"x36" CMP ARCH TO NEW 54" CPE-S BY PLUGGING EXISTING PIPE ARCH ENDS.
5. ABANDON EXISTING 18" CMP OVERFLOW PIPE.
6. INSTALL FILTER FENCE DOWNSTREAM OF OUTLET STRUCTURE.
7. DEMOLISH EXISTING INLET AND OUTLET STRUCTURES.
8. SEED AND MULCH DISTURBED AREA AT DEMOLISHED OUTLET STRUCTURE.
9. PREPARE POND FOR LINER INSTALLATION.
10. INSTALL LINER SYSTEM PER DRAWING D-737-5009.

FILTER PRESS BUILDING AREA IS NOT AS-BUILT, AND REFLECTS MODIFICATIONS REQUIRED FOR FUTURE FILTER PRESS BUILDING CONSTRUCTION

NOTES:

1. FOR GENERAL NOTES & LEGEND SEE DRAWINGS D-744-3014 & D-744-3027.
2. ALL PIPE & DUCTBANK TRENCH CONSTRUCTION SHALL BE IN ACCORDANCE WITH NOTES ON DRAWING D-744-3027 & NARRATIVE PHASE XII.
3. EROSION & SEDIMENT CONTROL MEASURES ARE INCLUDED ON THIS DRAWING.
4. FOR CULVERT TRENCH CONSTRUCTION REQUIREMENTS SEE DRAWING D-744-3027.
5. EXCAVATED MATERIAL SHALL BE PLACED IN AN AREA SURROUNDED BY SILT FENCES.
6. POND SHALL BE DEWATERED BY PUMPING INTO FILTER BAGS PLACED ON THE RIPRAP AT THE INLET OF THE EXISTING 54" CMP. FILTER BAGS SHALL BE CLEANED OUT AND DISPOSED OF PROPERLY, AS DIRECTED BY THE OWNER.

DWG NO. D-744-3014	DWG NO. D-744-3039	DWG NO. D-744-3040	
DWG NO. D-744-3015 / D-744-3028	DWG NO. D-744-3016	THIS DRAWING	DWG NO. D-744-3041
DWG NO. D-744-3018	DWG NO. D-744-3019 / D-744-3030	DWG NO. D-744-3020 / D-744-3031	
	DWG NO. D-744-3021	DWG NO. D-744-3022	

KEY PLAN

Genco
GPU Generation Corporation
Technical Services
"AutoCAD" Supported Drawing

EXTEND EXIST 54"ø CULVERT
SEE DET A DWG D-737-1014
EXTEND 22"ø SDR-26 PE3408 PIPE (BY PLEXCO OR APPD ALT) INSIDE 54"ø PIPE

NO.	DATE	BY	DESCRIPTION		APPROVALS
8	4/23/10	WFA	ADDED "ENLARGED PLAN A" CCI PROJ. # 004-0084		JMC
			CAMBRIA CONSULTANTS, INC.		
7	2-6-98	TN	ADDED: GYPSUN RAILROAD LOADING SPUR & GUIDE RAIL. REVISED GRADING & 54"ø CULVERT. UNDER PNC 423448	KKF	M.SOUSA
			Raytheon Engineers & Constructors, 145 TECHNOLOGY PARK, NORCROSS, GA 30092-2913		
6	1-17-96	TN	REVISED:(M19)EDGE OF PAVING PER AS-BUILT INFO FROM FIELD DATED FEB 20, 1995. ADDED:(H2)FILTER PRESS BLDG NOTE;(D18, J13)VALVE PIT & PIPE W/CATCH BASINS PER AS-BUILT INFO FROM FIELD. ISSUED FOR RECORD PURPOSES ONLY.	KKF	M.SOUSA
5	1-31-94	LW	ADDED:(E1)SEQUENCE OF CONSTRUCTION; (H3)ROAD TO FILTER PRESS BUILDING;(J1) NOTES;(J6)COOLING TOWER DESILTING BASIN. DELETED:(B1)PIPE OUTLET PROTECTION DET.	SM	KKF FK / MS
4	10/7/93	TN	ADDED:(L19)NEW ROAD.	GM	KKF / KAK
			MARK HOLLISTER SOUSA GEORGIA PE NO. 19451 PENNSYLVANIA PE NO. PE-041728-R		
3	12-3-92	LB	ADDED:(A19 THRU M4,I15)ADDITIONAL BACK GROUND & PIPING INFORMATION;(C1)30" PIPE OUTLET PROT DET.	AD	M.SOUSA GM
2	5-18-92	TN	REV:(K1)KEY PLAN;(N10)NOTE. ADD:(D19, G5,K16)PIPING & BACKGROUND;(J1)NOTES.	SM	M.SOUSA GM
1	1-20-92	TN	GENERAL REVISION (REVISIONS NOT CIRCLED)	SM	M.SOUSA GM
REV	DATE	BY	EBASCO SERVICES INCORPORATED	CH	APPROVED

EBASCO SERVICES INCORPORATED

DIV. CIVIL DR. TN
DATE 10-9-91 CH. SM
SCALE 1"=50'
APPROVED MARK SOUSA
GM

Penelec / GPU — PENNSYLVANIA ELECTRIC COMPANY — JOHNSTOWN PENNSYLVANIA

CONEMAUGH 1&2

DWG TYPE : SITE
TITLE
ROADS, GRADING & DRAINAGE PLAN
SHEET 4

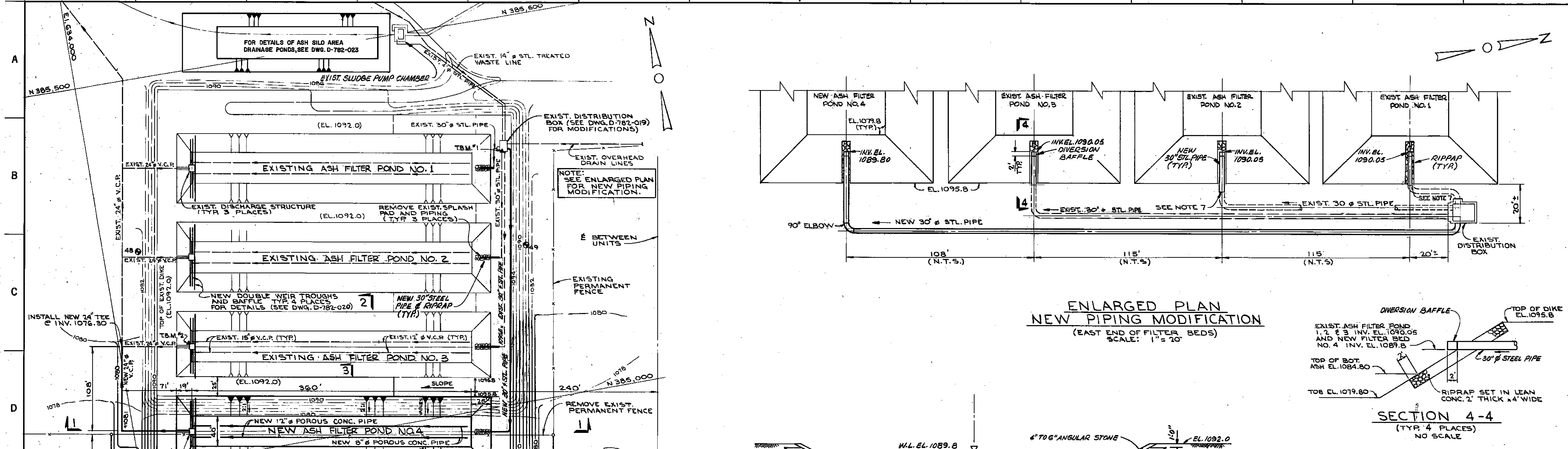
PROJECT CONTROL NO.	SCALE	DRAWING NUMBER	REV
421026		D-744-3017	8

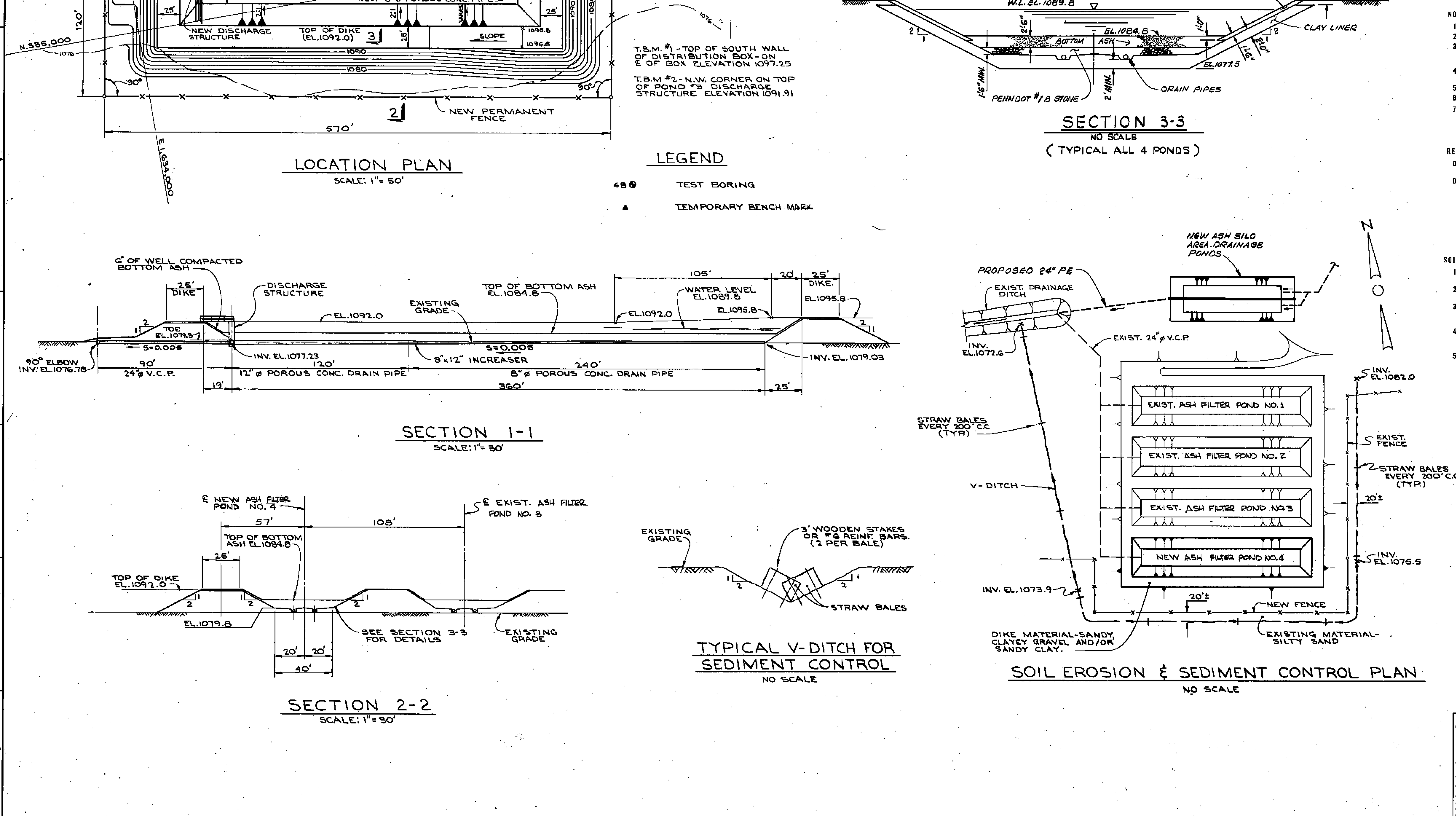
GENCO CAD FILE NAME: W:\42\7443017.DWG

APPENDIX A

Document 11

Drawing D-782-018 (Addition of Ash Filter Pond No. 4)





NOTES:

1. DIKES ARE TO BE CONSTRUCTED OF IMPERVIOUS MATERIAL.
2. EARTH COMPACTION IS TO BE 92% OF MODIFIED PROCTOR DENSITY.
3. COAT THE EXTERNAL SOIL CONTACT SURFACES OF 42",30" & 22" STEEL PIPES WITH HOT COAL TAR ENAMEL AND WRAP WITH ASBESTOS FELT CONFORMING TO THE A.W.W.A. SPEC. C203.
4. THE #4 STONE, #2B STONE, #1B STONE, AND BOTTOM ASH FILTER LAYERS, SHALL ONLY BE LIGHTLY COMPACTED.
5. TOP OF DIKES SHALL BE COVERED WITH A PROTECTIVE 6" LAYER OF COMPACTED BOTTOM ASH.
6. SIDE SLOPES AND DISTURBED AREAS NOT COVERED WITH BOTTOM ASH SHALL BE SEEDED.
7. CONTRACTOR TO MITER EXISTING PIPE AS REQUIRED TO MEET INVERT EL. 1090.05 AT ENDS OF NEW PIPE.

REFERENCES:

D-782-019 EXISTING DISTRIBUTION BOX MODIFICATION

D-782-020 NEW TROUGH INSTALLATION - ASH FILTER PONDS 1,2,3, & 4

SOIL EROSION AND SEDIMENT CONTROL

1. PERIMETER DITCH SHALL BE CONSTRUCTED AND THE STRAW BALE DITCH CHECKS SHALL BE INSTALLED BEFORE THE WORK AREA IS DISTURBED.
2. MATERIAL FROM DITCH CONSTRUCTION SHALL BE STOCKPILED WITHIN THE AREA DRAINED BY THE DITCH FOR LATER RESTORATION USE.
3. DURING CONSTRUCTION OF THE NEW FILTER POND AND ASSOCIATED WORK, THE STRAW BALES SHALL BE REPLACED AND ACCUMULATED SEDIMENT REMOVED AS NECESSARY TO MAINTAIN FLOW. THE SEDIMENT SHALL BE DEPOSITED ON THE STOCKPILE.
4. TOP OF DITCH AND SIDE SLOPES SHALL BE COVERED WITH BOTTOM ASH OR SEEDED AND MULCHED, AS CALLED FOR IN THE SPECIFICATIONS, AS SOON AS POSSIBLE AFTER COMPLETION TO PREVENT EROSION OF THE SURFACES.
5. UPON COMPLETION OF CONSTRUCTION, THE STOCKPILED MATERIAL SHALL BE USED TO RESTORE THE AREA TO ORIGINAL GRADE. ALL DISTURBED AREAS NOT SEEDED AND MULCHED PREVIOUSLY SHALL BE SEEDED AND MULCHED AFTER RESTORATION IS COMPLETE.

FOR REFERENCE ONLY
DO NOT REVISE

REV	MADE	CHKD	SQ LD	APP	DATE	
B	J.L.	A.L.M.	A.L.M.	J.F.W.	4-6-84	REVISED DWG., RELEASED FOR D.E.R. PERMIT
A	KEB	A.L.M.	A.L.M.	RDB	2-16-83	RELEASED FOR DER PERMIT

REVISIONS

DATE	RELEASED FOR	ENGR.
	CONSTRUCTION	
	PRELIMINARY NOT FOR CONSTRUCTION	
	BIDDING PURPOSES	
2-16-83	DER PERMIT	RDB

CONEMAUGH STATION OWNERS GROUP
CONEMAUGH STATION UNITS 1 & 2
CIVIL
ADDITION OF ASH FILTER POND NO. 4
PLAN & SECTIONS

GILBERT ASSOCIATES, INC.
ENGINEERS AND CONSULTANTS READING, PA
Gilbert Commonwealth Companies

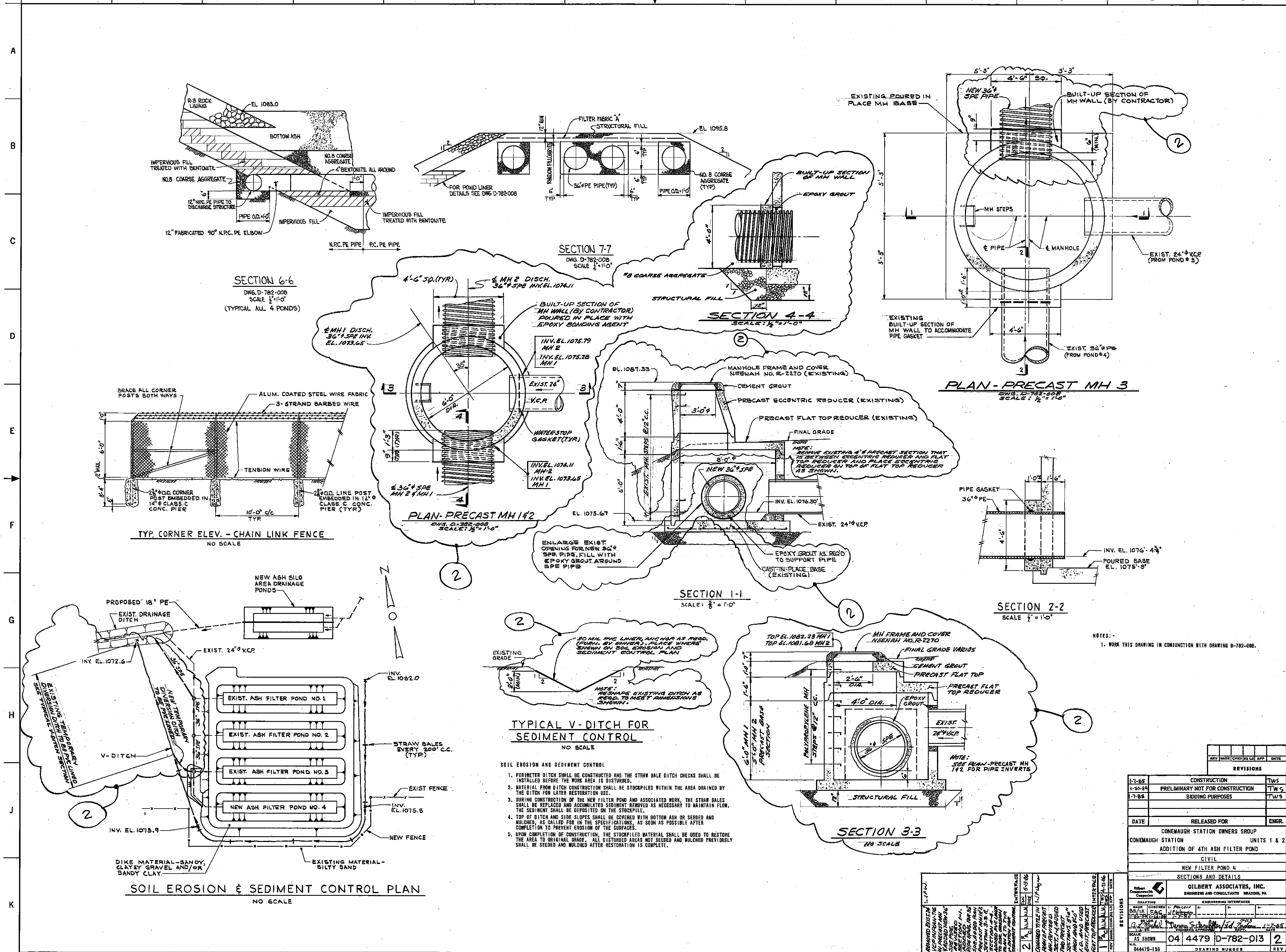
DRAFTING: MADE KEB 2-16-83; CHECKED A.L.M. 2-16-83
SQ LDR: A.L. Merkel 2-16-83
ENGINEERING INTERFACES: 1. 2. 3. 4.
ENGINEER APPROVAL: R. D. Boyer DEPT. 0413 DATE 2-16-83
SCALE: AS SHOWN
W.O. 044479-097
DRAWING NUMBER: 04 4479 D-782-018 REV B

NEW ASH FILTER POND NO. 4

APPENDIX A

Document 12

Drawing D-782-013 (New Filter Pond 4 Plan, Sections & Details)



TYPICAL V-DITCH FOR SEDIMENT CONTROL

NO SCALE

SOIL EROSION AND SEDIMENT CONTROL

1. PERIMETER DITCH SHALL BE CONSTRUCTED AND THE STRAW BALE DITCH CHECKS SHALL BE INSTALLED BEFORE THE WORK AREA IS DISTURBED.
2. MATERIAL FROM DITCH CONSTRUCTION SHALL BE STOCKPILED WITHIN THE AREA DRAINED BY THE DITCH FOR LATER RESTORATION USE.
3. DURING CONSTRUCTION OF THE NEW FILTER POND AND ASSOCIATED WORK, THE STRAW BALES SHALL BE REPLACED AND ACCUMULATED SEDIMENT REMOVED AS NECESSARY TO MAINTAIN FLOW. THE SEDIMENT SHALL BE DEPOSITED ON THE STOCKPILE.
4. TOP OF DITCH AND SIDE SLOPES SHALL BE COVERED WITH BOTTOM ASH OR SEEDED AND MULCHED, AS CALLED FOR IN THE SPECIFICATIONS, AS SOON AS POSSIBLE AFTER COMPLETION TO PREVENT EROSION OF THE SURFACES.
5. UPON COMPLETION OF CONSTRUCTION, THE STOCKPILED MATERIAL SHALL BE USED TO RESTORE THE AREA TO ORIGINAL GRADE. ALL DISTURBED AREAS NOT SEEDED AND MULCHED PREVIOUSLY SHALL BE SEEDED AND MULCHED AFTER RESTORATION IS COMPLETE.

NOTES:-

1. WORK THIS DRAWING IN CONJUNCTION WITH DRAWING D-782-008.

DATE	RELEASED FOR	ENGR.
1-7-85	CONSTRUCTION	TWS
11-30-84	PRELIMINARY NOT FOR CONSTRUCTION	TWS
1-7-85	BIDDING PURPOSES	TWS

CONEMAUGH STATION OWNERS GROUP
CONEMAUGH STATION UNITS 1 & 2
ADDITION OF 4TH ASH FILTER POND
CIVIL
NEW FILTER POND 4
SECTIONS AND DETAILS

GILBERT ASSOCIATES, INC.
ENGINEERS AND CONSULTANTS READING, PA

SCALE AS SHOWN
W.O. 044479-158
DRAWING NUMBER 04 4479 D-782-013 REV 2

NEW FILTER POND 4 SECTIONS & DETS

APPENDIX B

Document 13

Dam Inspection Check List Form

Site Name:	Conemaugh Station	Date:	September 14, 2012
Unit Name:	Ash Filter Ponds	Operator's Name:	GenOn
Unit I.D.:	02268	Hazard Potential Classification:	High ☐ Significant ☐ Low ☒
	Inspector's Name:	Fred Tucker, P.E. and Edward Farquhar	

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?		√	18. Sloughing or bulging on slopes?		√
2. Pool elevation (operator records)?	√		19. Major erosion or slope deterioration?		√
3. Decant inlet elevation (operator records)?	1090.0		20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	N/A		Is water entering inlet, but not exiting outlet?		N/A
5. Lowest dam crest elevation (operator records)?	1092.0		Is water exiting outlet, but not entering inlet?		N/A
6. If instrumentation is present, are readings recorded (operator records)?	N/A		Is water exiting outlet flowing clear?	N/A	
7. Is the embankment currently under construction?		√	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation, stumps, topsoil in area where embankment fill will be placed)?	N/A		From underdrain?		N/A
9. Trees growing on embankment? (If so, indicate largest diameter below)		√	At isolated points on embankment slopes?		√
10. Cracks or scarps on crest?		√	At natural hillside in the embankment area?		√
11. Is there significant settlement along the crest?		√	Over widespread areas?		√
12. Are decant trashracks clear and in place?	N/A		From downstream foundation area?		√
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		√	"Boils" beneath stream or ponded water?		√
14. Clogged spillways, groin or diversion ditches?		√	Around the outside of the decant pipe?		√
15. Are spillway or ditch linings deteriorated?		√	22. Surface movements in valley bottom or on hillside?		√
16. Are outlets of decant or underdrains blocked?		√	23. Water against downstream toe?		√
17. Cracks or scarps on slopes?		√	24. Were Photos taken during the dam inspection?	√	

Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.

Issue #	Comments
1	No formal records or protocol is in place for inspections. However, maintenance Contractor of the ponds does inspect the ponds on a daily basic.
20	Overflow from each pond (4 cells) is through “saw tooth” weirs into a weir trough to concrete riser with bottom discharge through 36” Dia SPE pipe to ash water recycle sump during normal operation. Only overflow into weir trough is visible.
21	Underdrain is associated with dewatering of settled ash and not associated with the dikes. The underdrain pipes discharge into the outlet structure. Any seepage from the underdrain pipes in the pond bottom is not visible.

Coal Combustion Waste (CCW)

Impoundment Inspection

Impoundment NPDES Permit PA0005011 **INSPECTOR** Tucker/Farquhar

Date September 14, 2012
Impoundment Name Ash Filter Ponds

Impoundment Company GenOn (part owner) et al.
EPA Region 3

State Agency (Field Office) Address
Pennsylvania Department of Environmental Protection
Bureau of Waste Management
286 Industrial Park Road
Ebensburg, PA 15931

Name of Impoundment Ash Filter Ponds: BAS Recycle Pond A (SPD-3); BAS Pond B (SPD-4); BAS Pond C (SPD-5); BAS Pond D (SPD-6)

(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)

New ☐ **Update** ☒

	Yes	**No**
Is impoundment currently under construction?	☐	☒
Is water or ccw currently being pumped into the impoundment?	☒	☐

IMPOUNDMENT FUNCTION:

Nearest Downstream Town Name: New Florence, PA

Distance from the impoundment: <0.5 Miles

Location:

Latitude	40	Degrees	22	Minutes	59.63	Seconds	**N**
Longitude	-79	Degrees	3	Minutes	45.19	Seconds	**W**

State Pennsylvania **County** Indiana

	Yes	No
Does a state agency regulate this impoundment?	☒	☐

If So Which State Agency?	Department of Environmental Resources - Bureau of Waste Management; (water quality only) not regulated for dam safety

<u>HAZARD POTENTIAL</u> *(In the event the impoundment should fail, the following would occur):*

☐ **LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

☒ **LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

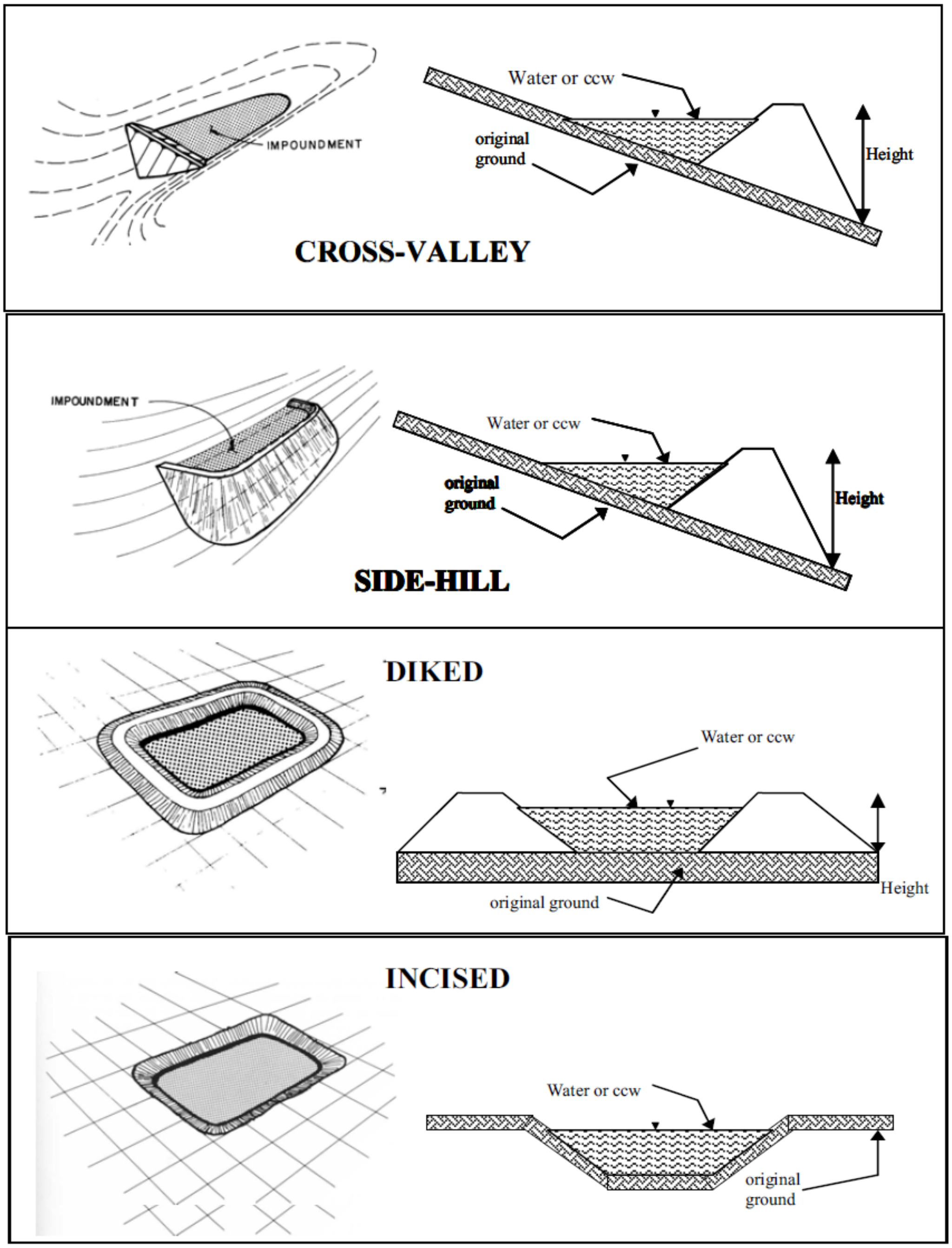
☐ **SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

☐ **HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

<u>DESCRIBE REASONING FOR HAZARD RATING CHOSEN:</u>

Low hazard potential classification for failure or release of some bottom ash into the immediately surrounding environment. There would be no significant risk of loss of human life. If failure occurred, ash would remain on GenOn property.

CONFIGURATION:



☐ Cross-Valley ☐ Side-Hill ☐ Diked

☐ Incised (form completion optional) ☒ Combination Incised/Diked

Embankment Height (ft) Varies from 5 to 13 feet

Embankment Material Sandy clayey gravel and/or sandy clay

Pool Area (ac) 3.3

Liner Side Slopes 1.5 ft R-3 Rock lining over 2 ft impervious fill

			and impervious fill treated with bentonite. Bottom: 2.5 ft bottom ash over 1.5 ft #8 coarse aggregate over 1.5 ft of impervious fill over 8 inches of impervious fill treated with bentonite over 1 ft 4 inches of impervious fill over prepared subgrade.
Current Freeboard (ft)	2.0 (except Pond C dewatered at time of inspection for excavation and removal of settled ash)	**Liner Permeability**	0.0000001 cm/sec

TYPE OF OUTLET (Mark all that apply)

☐ **Open Channel Spillway**

☐ Trapezoidal

☐ Triangular

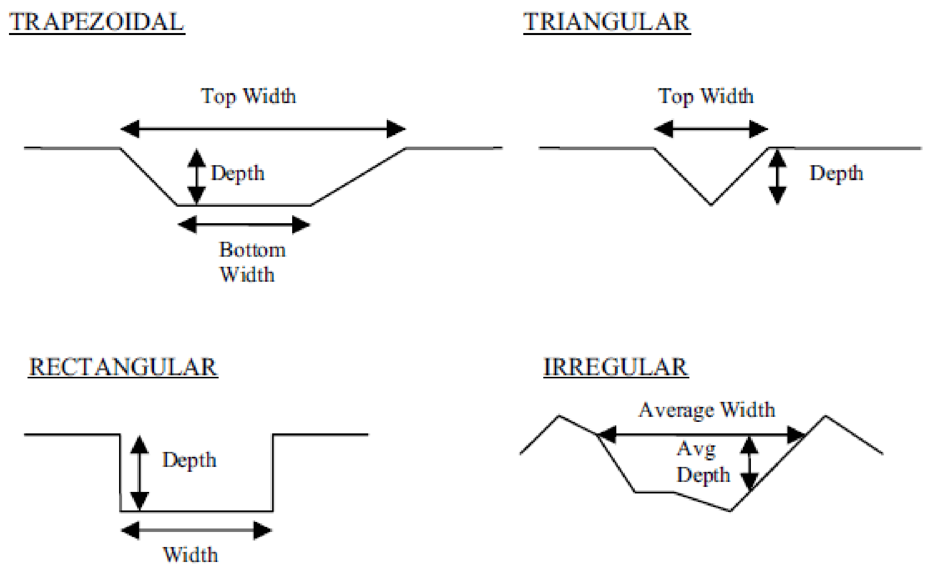
☐ Rectangular

☐ Irregular

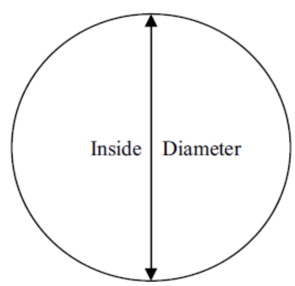
depth (ft)

average bottom width (ft)

top width (ft)



☒ **Outlet**



Material

☐ corrugated metal

☐ welded steel

☐ concrete

☒ plastic (hdpe, pvc, etc.) 36 inch Dia. spe

☐ other (specify):

Is water flowing through the outlet?	**Yes**	**No**
	☒ (Except in Pond C)	☐

☐ **No Outlet**

☐ **Other Type of Outlet** (specify):

The Impoundment was Designed By Not Known at this time.

	Yes	No
Has there ever been a failure at this site?	☐	☒

If So When?

If So Please Describe :

	Yes	No
Has there ever been significant seepages at this site?	☐	☒
If So When?		

If So Please Describe :

	Yes	No
Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site?	☐	☒
If so, which method (e.g., piezometers, gw pumping,...)?		

If So Please Describe :

ADDITIONAL INSPECTION QUESTIONS

Concerning the embankment foundation, was the embankment construction built over wet ash, slag, or other unsuitable materials? If there is no information just note that.

No

Did the dam assessor meet with, or have documentation from, the design Engineer-of-Record concerning the foundation preparation?

No

From the site visit or from photographic documentation, was there evidence of prior releases, failures, or patchwork on the dikes?

No

Coal Combustion Dam Inspection Checklist Form
US Environmental
Protection Agency

Site Name:	Date:
Unit Name:	Operator's Name:
Unit I.D.:	Hazard Potential Classification: High Significant Low
Inspector's Name:	

Inspection Issue #	Comments

Site Name:	**Conemaugh Station**	Date:	**September 14, 2012**
Unit Name:	**Cooling Tower Desilting basin**	Operator's Name:	**GenOn**
Unit I.D.:	**02268**	Hazard Potential Classification:	**High** ☐ **Significant** ☐ **Low** ☒
	Inspector's Name:	Fred Tucker, P.E. and Edward Farquhar	

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

	Yes	No		Yes	No
1. Frequency of Company's Dam Inspections?		√	18. Sloughing or bulging on slopes?		√
2. Pool elevation (operator records)?	√		19. Major erosion or slope deterioration?		√
3. Decant inlet elevation (operator records)?	1079.0		20. Decant Pipes:		
4. Open channel spillway elevation (operator records)?	√		Is water entering inlet, but not exiting outlet?		√
5. Lowest dam crest elevation (operator records)?	1081.0		Is water exiting outlet, but not entering inlet?		√
6. If instrumentation is present, are readings recorded (operator records)?	N/A		Is water exiting outlet flowing clear?	√	
7. Is the embankment currently under construction?		√	21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below):		
8. Foundation preparation (remove vegetation, stumps, topsoil in area where embankment fill will be placed)?	N/A		From underdrain?		N/A
9. Trees growing on embankment? (If so, indicate largest diameter below)		√	At isolated points on embankment slopes?		√
10. Cracks or scarps on crest?		√	At natural hillside in the embankment area?		√
11. Is there significant settlement along the crest?		√	Over widespread areas?		√
12. Are decant trashracks clear and in place?	N/A		From downstream foundation area?		√
13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?		√	"Boils" beneath stream or ponded water?		√
14. Clogged spillways, groin or diversion ditches?		√	Around the outside of the decant pipe?		√
15. Are spillway or ditch linings deteriorated?		√	22. Surface movements in valley bottom or on hillside?		√
16. Are outlets of decant or underdrains blocked?		√	23. Water against downstream toe?		√
17. Cracks or scarps on slopes?		√	24. Were Photos taken during the dam inspection?	√	

Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.

Issue #	Comments

Coal Combustion Waste (CCW)

Impoundment Inspection

Impoundment NPDES Permit PA0005011 **INSPECTOR** Tucker/Farquhar

Date September 14, 2012
Impoundment Name Cooling Tower Desilting Basin

Impoundment Company GenOn (part owner) et al.
EPA Region 3

State Agency (Field Office) Address
Pennsylvania Department of Environmental Protection
Bureau of Waste Management
286 Industrial Park Road
Ebensburg, PA 15931

Name of Impoundment Cooling Tower Desilting Basin (SPD-1)

(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)

New ☐ **Update** ☒

	Yes	**No**
Is impoundment currently under construction?	☐	☒
Is water or ccw currently being pumped into the impoundment?	☐	☒

IMPOUNDMENT FUNCTION:

Nearest Downstream Town Name: New Florence

Distance from the impoundment: <0.5 Miles

Location:

Latitude	40	Degrees	23	Minutes	10.95	Seconds	**N**
Longitude	-79	Degrees	3	Minutes	27.32	Seconds	**W**

State Pennsylvania **County** Indiana

	Yes	No
Does a state agency regulate this impoundment?	☒	☐

If So Which State Agency? Department of Environmental Resources - Bureau of Waste Management; (water quality only) not regulated for dam safety.

HAZARD POTENTIAL *(In the event the impoundment should fail, the following would occur):*

☐ **LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

☒ **LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

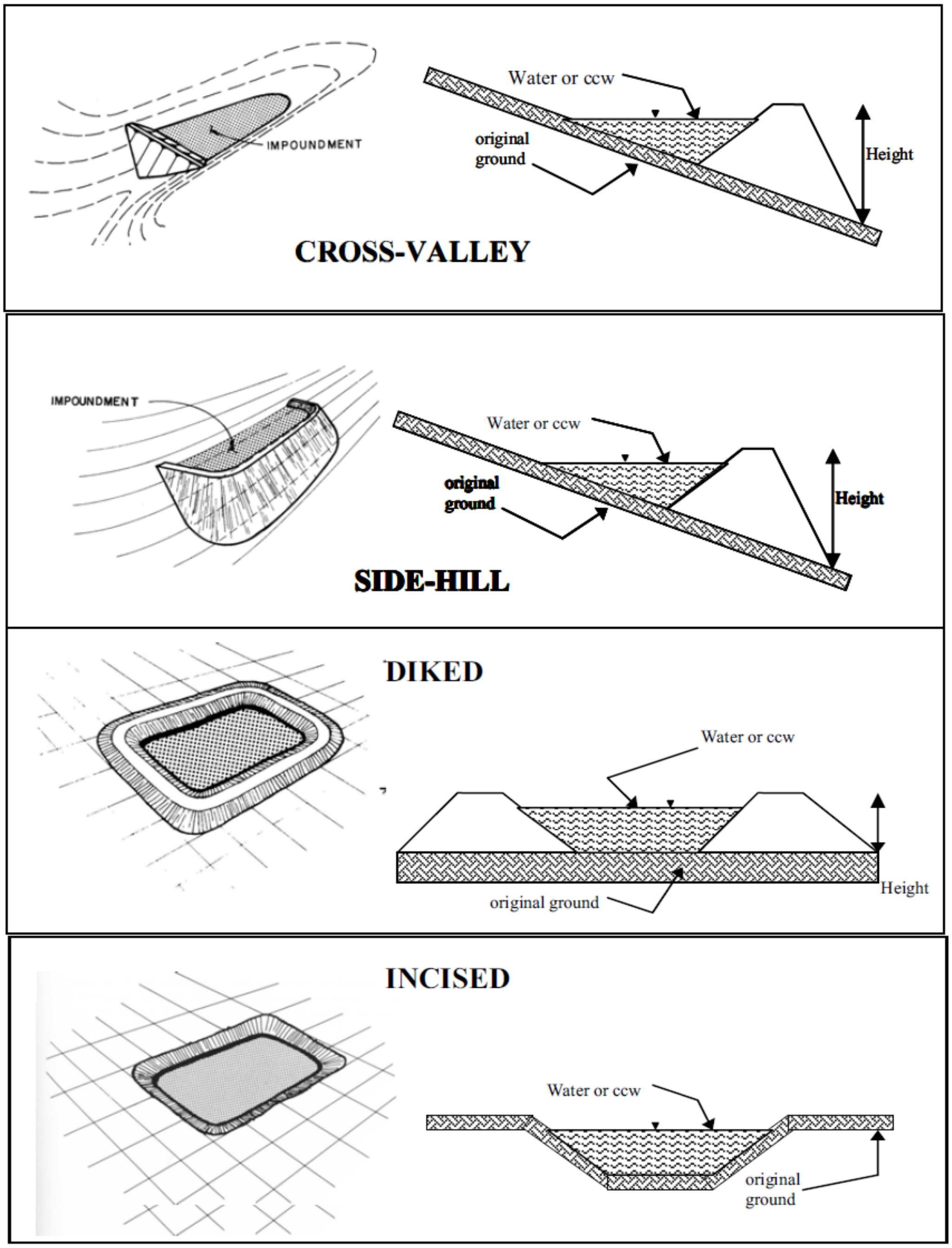
☐ **SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

☐ **HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

Low hazard potential classification for failure or release of very little bottom ash that potentially could reach the Conemaugh River. The basin is used as an over flow if needed for the ash filter ponds. There would be no significant risk of loss of human life. If failure occurred, minimum ash would be released since very little ash accumulates in the basin and would principally remain on-site. An intervening embankment with culvert would attenuate flow to the river.

CONFIGURATION:



☒ Cross-Valley ☐ Side-Hill ☐ Diked

☐ Incised (form completion optional) ☐ Combination Incised/Diked

Embankment Height (ft)	8 feet	**Embankment Material**	Native soils
Pool Area (ac)	3.3	**Liner**	Side Slopes 6 inch #ID-2 bituminous concrete over 6 inches of sand fill over

composite liner (calymax plus 50 mil HDPE) over non-woven Geotextile fabric over HDPE Drainage net over 50 mil textured HDPE liner.

Bottom: 6 inch #ID-2 bituminous concrete over 6 inches of sand fill over composite liner (calymax plus 50 mil HDPE) over non-woven Geotextile fabric over 6 inch no. 8 stone (leak detection zone) over non-woven Geotextile fabric over 50 mil textured HDPE liner.

Current Freeboard (ft)	2.0	**Liner Permeability**	N/A

TYPE OF OUTLET (Mark all that apply)

☐ **Open Channel Spillway**

☐ Trapezoidal

☐ Triangular

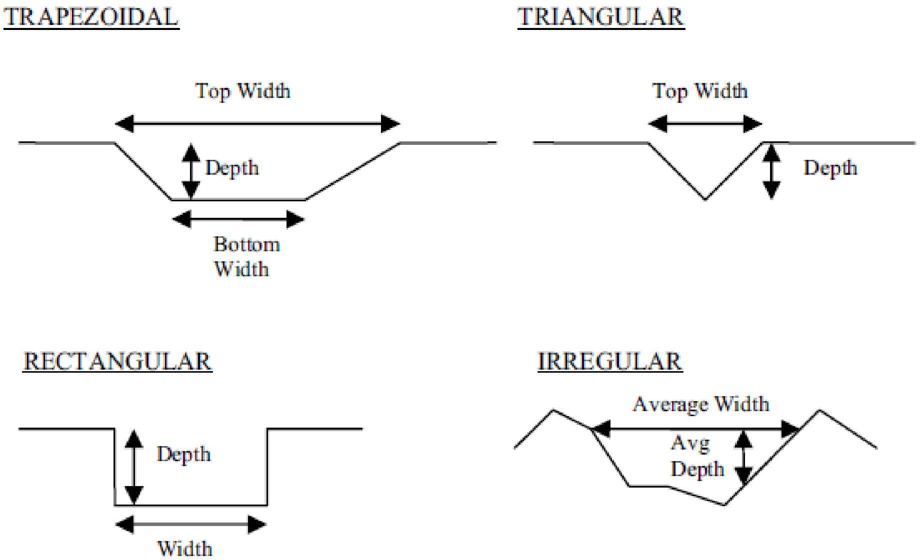
☐ Rectangular

☐ Irregular

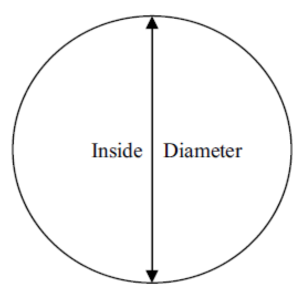
depth (ft)

average bottom width (ft)

top width (ft)



☒ **Outlet**



Material

☐ corrugated metal

☐ welded steel

☐ concrete

☒ plastic (hdpe, pvc, etc.) High Density Polyethylene 24-inch SDR-26 pipe

☐ other (specify):

	Yes	No
Is water flowing through the outlet?	☒	☐

☐ **No Outlet**

☐ **Other Type of Outlet** (specify):

The Impoundment was Designed By Not Known at this time.

	Yes	No
Has there ever been a failure at this site?	☐	☒

If So When?

If So Please Describe :

	Yes	No
Has there ever been significant seepages at this site?	☐	☒
If So When?		

If So Please Describe :

	Yes	No
Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site?	☐	☒

If so, which method (e.g., piezometers, gw pumping,...)?

If So Please Describe :

ADDITIONAL INSPECTION QUESTIONS

Concerning the embankment foundation, was the embankment construction built over wet ash, slag, or other unsuitable materials? If there is no information just note that.

No

Did the dam assessor meet with, or have documentation from, the design Engineer-of-Record concerning the foundation preparation?

No

From the site visit or from photographic documentation, was there evidence of prior releases, failures, or patchwork on the dikes?

No

Coal Combustion Dam Inspection Checklist Form

US Environmental
Protection Agency

Site Name:	Date:
Unit Name:	Operator's Name:
Unit I.D.:	Hazard Potential Classification: High Significant Low
Inspector's Name:	

Inspection Issue #	Comments