Former Milesburg Ash Disposal Basin
History of Construction

West Penn Power Company
Former Milesburg Power Station
Centre County, Pennsylvania

February 2026

Prepared for:
West Penn Power Company
800 Cabin Hill Drive
Greensburg, PA 15601

Prepared by:
GAI Consultants, Inc.
Pittsburgh Office
385 E. Waterfront Dr.
Homestead, Pennsylvania 15120

Report Authors:

Leigh L. Rounce

Digitally signed by Leigh L. Rounce
DN:
E=L.Rounce@gaiconsultants.com,
CN=Leigh L. Rounce
Date: 2026.02.06 16:30:20-05'00'

Leigh L. Rounce
Technical Specialist 5

Arica L. DiTullio, P.E.
Engineering Director

Table of Contents

1.0 Purpose

This History of Construction Report (Report) is for the former Milesburg Ash Disposal Basin (Ash Disposal Basin) associated with the former Milesburg Power Station (Station), which was located in the borough of Milesburg, Centre County, Pennsylvania (PA). This Report was created in accordance with the requirements at 40 Code of Federal Regulations (CFR) Part 257, Subpart D, *Criteria for Classification of Solid Waste Disposal Facilities and Practices* (CCR Rule).

2.0 Introduction

The former Station was built in 1948 and 1949 and began operating in 1950. The former Station was originally a coal-fired generating station and consisted of two generating units (Units 1 and 2), each having 23 megawatts (MW) capacity. In 1974, the former Station was converted to use oil as the fuel source for power generation. The former Station ceased generating electricity in 1984 and was maintained in cold reserve until 1988. Most of the former Station facilities were demolished in or around 1998 and 1999.

The former Ash Disposal Basin was constructed in 1968. In 1970, the embankment was raised ten feet to provide additional disposal volume (*Reference 5*). The former Ash Disposal Basin was used to manage coal combustion residuals (CCR) from approximately 1968 until 1974 when the fuel source was switched (*Reference 9*). After 1974, the former Ash Disposal Basin was used to manage other wastewaters from the former Station (*Reference 9*). Following shutdown of the facility, the former Ash Disposal Basin was no longer used for management of wastewater or CCR.

An inspection report by GAI Consultants, Inc. (GAI) from 1980 indicates that routine maintenance was completed at the former Ash Disposal Basin at that time, including control of tree growth on the embankment and cleaning of the overflow riser pipe. Portions of the embankments remain in place at the former Ash Disposal Basin. The former Ash Disposal Basin is not currently used for CCR management, and no CCR management at the former Ash Disposal Basin is proposed to occur in the future. The former Ash Disposal Basin is currently vegetated.

3.0 History of Construction

As required by Sections 257.73(c)(1) and 257.100(f)(2)(ii), this Report includes the following items to the extent feasible:

- The name and address of the person(s) owning or operating the CCR unit; the name associated with the CCR unit; and the identification number of the CCR unit if one has been assigned by the state;
- The location of the CCR unit identified on the most recent USGS 7-½ minute or 15 minute topographic quadrangle map, or a topographic map of equivalent scale if a USGS map is not available;
- A statement of the purpose for which the CCR unit is being used;
- The name and size in acres of the watershed within which the CCR unit is located;
- A description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed;
- A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR unit; the method of site preparation and construction of each zone of the CCR unit; and the approximate dates of construction of each successive stage of construction of the CCR unit;
- At a scale that details engineering structures and appurtenances relevant to the design, construction, operation, and maintenance of the CCR unit, detailed dimensional drawings of the CCR unit, including a plan view and cross sections of the length and width of the CCR unit,

showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection, in addition to the normal operating pool surface elevation and the maximum pool surface elevation following peak discharge from the inflow design flood, the expected maximum depth of CCR within the CCR surface impoundment, and any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation;

- A description of the type, purpose, and location of existing instrumentation;
- Area-capacity curves for the CCR unit;
- A description of each spillway and diversion design features and capacities and calculations used in their determination;
- The construction specifications and provisions for surveillance, maintenance, and repair of the CCR unit; and
- Any record or knowledge of structural instability of the CCR unit.

The above requirements are addressed in Sections 3.1 through 3.12 of this Report below.

3.1 Ownership Information

The former Ash Disposal Basin is located approximately 0.25 miles west of the former Station and owned by West Penn Power Company:

West Penn Power Company
800 Cabin Hill Drive
Greensburg, PA 15601
(724) 837-3000
CCR@firstenergycorp.com

The former Station and the former Ash Disposal Basin are no longer in use. Available historic records reviewed indicate that discharge from the former Ash Disposal Basin was monitored as Outfall 002 under National Pollutant Discharge Elimination System (NPDES) Permit No. PA0008052. Available historic records reviewed also indicate that the former Ash Disposal Basin was originally permitted under PA Department of Health Industrial Wate Permit No. 266I013.

3.2 Location Map

The former Ash Disposal Basin is shown on the most recent United States Geological Survey (USGS) 7.5 minute map included as Drawing 001.

3.3 Purpose of Former Ash Disposal Basin

The former Ash Disposal Basin was used for the management, storage, and disposal of CCR from the time it was constructed (1968) until the former Station converted the fuel source from coal to oil in 1974. Following the fuel conversion, the former Ash Disposal Basin was used to manage various wastewaters. Presently, the former Ash Disposal Basin is not in use, and no future plans for CCR management at the site are proposed.

3.4 Watershed

The former Ash Disposal Basin is located in the Lick Run – Bald Eagle Creek Watershed (USGS Hydrologic Unit Code 020502040405) and has an area of 58.70 square miles (USGS National Geospatial Program Mapping).

3.5 Foundation and Abutment Materials

According to the Pennsylvania Department of Conservation and Natural Resources' Interactive Map, the former Ash Disposal Basin is underlain by Devonian aged Onondaga and Old Port Formations, undivided, and the Devonian and Silurian aged Keyser Formation through Mifflintown Formation,

undivided. The Onondaga and Old Port Formations, undivided primarily consists of calcareous shale. The Keyser Formation through Mifflintown Formation, undivided primarily consists of limestone.

According to the United States Department of Agriculture, Natural Resources Conservation Service's Web Soil Survey, the primary surficial soils at the former Ash Disposal Basin are Andover channery silt loam, 0 to 8 percent slopes (AnB), Andover very stony loam, 8 to 15 percent slopes (AoC), and Atkins silt loam, 0 to 3 percent slopes, frequently flooded (At). The surficial soil at the interface between the former Ash Disposal Basin embankment and natural ground (abutment) is expected to be of these types.

Two well logs (MP-1 and MP-2) from the Milesburg Power Station Ash Disposal Site Design Report (Reference 7) show that material at the former Ash Disposal Basin consists of silty sand and gravel to silty clay, sand and gravel. Ground surface elevations at MP-1 and MP-2 were elevation 735 and 705 feet, respectively. MP-1 and MP-2 were terminated at elevation 690 and 685 feet, respectively.

One boring that has been completed to date during GAI's 2026 Structural Assessment investigation shows that the material outside of the former Ash Disposal Basin consists of clay and silt, and gravel with sand. Refusal was encountered at a depth of approximately 38.6 feet below the ground surface, corresponding to an approximate elevation of 689.4 feet.

3.6 Properties and Construction Details

Per available historic documents, construction of the former Ash Disposal Basin began on October 11, 1966, and the initial construction concluded on September 15, 1967 (*Reference 2*). A Design Report written by GAI in 1973 (*Reference 7*) indicates that the constructed embankment is approximately 22 feet above the original ground surface and was constructed with a washed gravel drainage blanket under its outside face. Silt and clay materials are noted to be used, and these materials are said to provide a factor of safety of 1.4 to 1.8 for the outside face of the embankment. A diversion ditch was constructed upstream of the unit to divert surface water runoff from entering the former Ash Disposal Basin, thus preventing cresting of the embankment during extreme runoff periods.

An Engineering Report completed in 1966 (author not indicated, *Reference 1*) describes the then proposed Ash Disposal Basin and indicated that the embankment was to be constructed in four steps by adding additional height to the embankment every five years. The final height of the embankment was planned to be 30 feet above the existing ground surface as indicated in the 1966 Engineering Report (*Reference 1*).

A Site Investigation Report written by GAI in 1980 (*Reference 9*) indicates that the embankment of the former Ash Disposal Basin was raised by ten feet in 1970 to provide additional disposal volume. Drawing GA-59538 (*Reference 3*) indicates various proposed schemes for raising the embankment by ten feet. This drawing indicates a ground surface at elevation 700 feet and a final embankment elevation of 725 feet. The existing embankment was determined to be approximately 724 feet at the site presently, which is generally in line with the available records for the site.

The June 1980 Report by GAI (*Reference 9*) indicates that an outlet structure consisting of a 6-foot corrugated metal pipe (CMP) and skimmer is located in the western portion of the former Ash Disposal Basin. This outlet structure remains in-place today, although it is unclear whether it still functions. See Drawing 002 for the approximate location of the outlet structure. Per the June 1980 Report, no emergency spillway exists. Also, according to the June 1980 Report, a three-foot diameter concrete discharge pipe extends through the embankment and empties into a ditch that leads to Bald Eagle Creek.

The 1973 Design Report by GAI (*Reference 7*) also indicates that areas of the former Ash Disposal Basin that become filled with CCR were to be covered with a minimum of six inches of top soil and seeded on an annual basis until an adequate vegetative cover was established.

3.7 Detailed Drawings

Drawings 002 and 003 of the former Ash Disposal Basin are provided. Available historic records contain few engineering drawings or details of the former Ash Disposal Basin. The provided drawings were developed recently through the use of existing topography and details provided by historic documentation. The provided drawings indicate the assumed extents of CCR both laterally and vertically as well as additional features (apparent berms, *etc.*) that are evident from current existing conditions.

The drawings include:

- Plan View (Drawing 002); and
- Cross Sections (Drawing 003).

Historic drawings that contain details of the former Ash Disposal Basin are also provided and include:

- Ash Disposal Pond Height Additions Proposed Schemes (Drawing GA-59538, *Reference 3*);
- Ash Disposal Basin Discharge Pipe and Cut-off Collar (Drawing GA-59537; *Reference 4*); and
- Topographic Plan of Ash Disposal Area (Drawing 400-516; *Reference 6*).

3.8 Existing Instrumentation

Two historic groundwater monitoring wells were observed at the site on multiple field investigations and are indicated in historic drawing 400-516 (*Reference 6*). The approximate monitoring well locations are also indicated on the attached Drawing 002. The historic groundwater monitoring wells are unusable for current readings. The historic monitoring wells have polyvinyl chloride (PVC) risers that have been damaged over the years, are uncapped and/or unlocked, and are significantly silted in or contain obstructions preventing use of the well as intended.

New monitoring wells will be installed at the former Ash Disposal Basin in the first quarter of 2026 in accordance with the requirements of the CCR Rule at Sections 257.100(f)(4) and 257.91.

A riser structure remains in the former Ash Disposal Basin. An available Site Investigation Report written by GAI from June 1980 (*Reference 9*) recommended that the existing riser structure be lowered to allow stormwater out of the former Ash Disposal Basin, and it appears that this change was made sometime after 1980. It is unclear whether the existing riser structure still functions. Areas of ponded water have been observed recently within the former Ash Disposal Basin.

3.9 Area Capacity Curves

The available historic information reviewed for the former Ash Disposal Basin did not contain information on the stage-storage of the former unit as designed or in operation. The stage-storage for the former Ash Disposal Basin when in operation was estimated using current topography and information estimated from historic drawings. An investigation is currently ongoing at the former Ash Disposal Basin to confirm the depth and the lateral extents of CCR. See Attachment 1 for the estimated Area Capacity Curve for the former Ash Disposal Basin.

3.10 Spillway and Diversion Features

No emergency spillway exists at the former Ash Disposal Basin.

As mentioned previously, a riser (principal spillway) is present within the former Ash Disposal Basin. The discharge riser is located in the western portion of the former Ash Disposal Basin. The discharge riser is a 6-foot diameter CMP and skimmer (1980 Investigation Report). The riser discharges to a 36-inch diameter concrete pipe that flows beneath the embankment (1980 Investigation Report). The concrete pipe daylights on the northern side of the embankment. It is unclear if the riser functions. Areas of ponded water have been observed recently within the former Ash Disposal Basin.

Drawing GA-59538 (1970) indicates a limestone drainage blanket exists through the cross section of the embankment.

The 1973 Design Report by GAI (*Reference 7*) indicates that a diversion ditch was constructed upstream of the former Ash Disposal Basin to divert surface water runoff from entering the former Ash Disposal Basin. The 1973 Design Report contains calculations for sizing of the diversion ditch, and these calculations are included as Attachment 2. This ditch was not observed in the field throughout multiple field visits to the site in 2024 and 2025, and it is unknown whether the ditch still exists.

3.11 Construction Specifications and Provisions for Surveillance, Maintenance, and Repair

Available historic information does not contain construction specifications for the former Ash Disposal Basin. Correspondence at the time of construction of the former Ash Disposal Basin between West Penn Power Company and the Region II Sanitary Engineer for PA (the apparent regulatory authority at the time of construction) includes discussion of some aspects of the project, including acceptable moisture limits of the material to be used for the embankment (*Reference 2*).

3.12 Record or Knowledge of Structural Instability

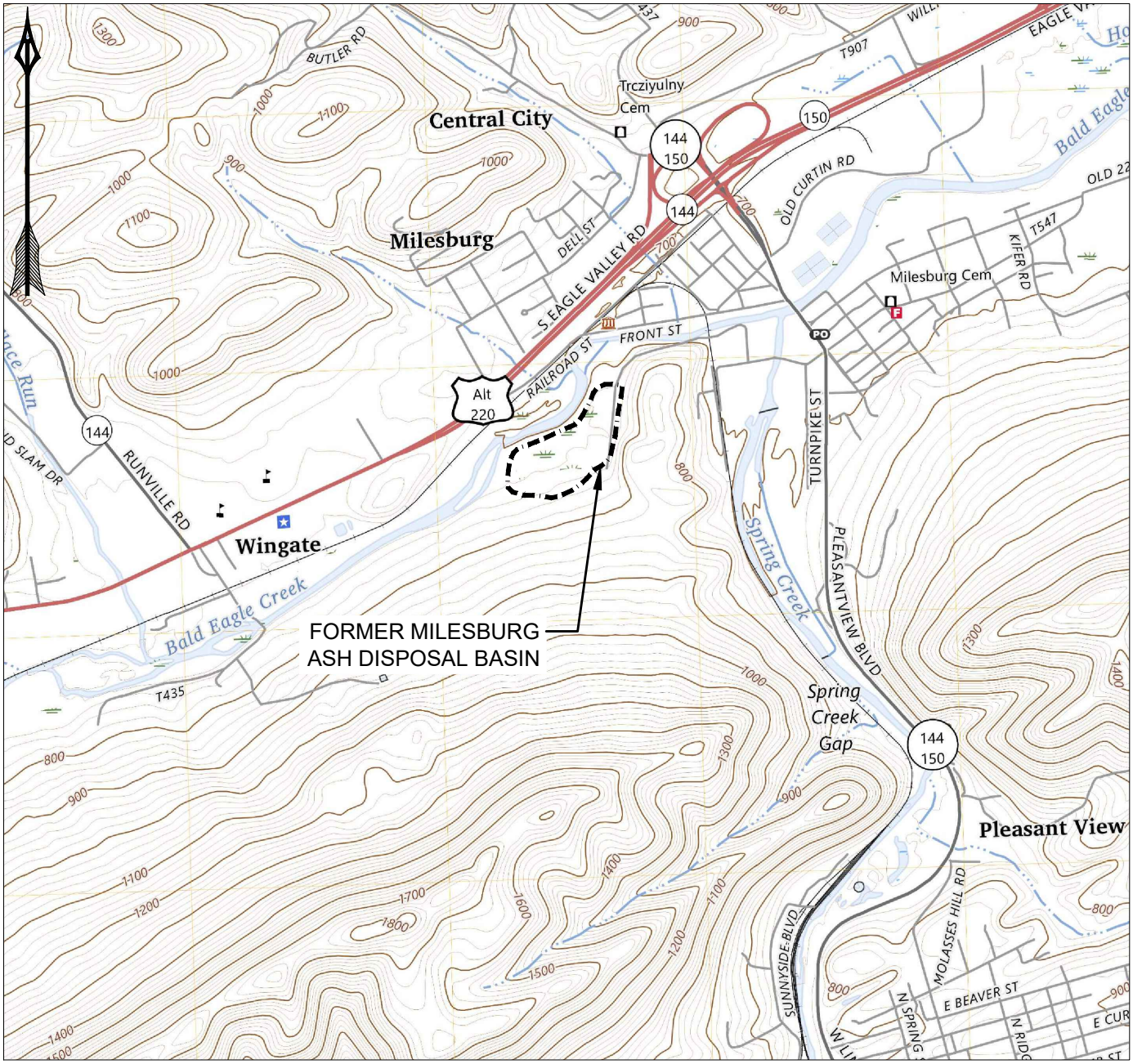
There is no record or knowledge at this time that would suggest structural instability at the former Ash Disposal Basin. Historic records of inspections conducted by the PA Department of Environmental Resources (the permitting authority at the time) quarterly from 1980 through 1985 do not indicate any structural instability concerns (*Reference 10*).

4.0 References

1. *Wet Ash Disposal System Engineering Report.* July 20, 1966.
2. Marlin E. Wilt, P.E. and J.E. Davis. Correspondence – *Industrial Waste Permit No. 266I013.* Transmitted between February 3, 1967 and September 13, 1967.
3. West Penn Power Company. *Ash Disposal Pond – Height Additions Proposed Schemes.* Drawing GA-59538. April 20, 1970.
4. West Penn Power Company. *Ash Disposal Basin – Discharge Pipe and Cutoff Collar.* Drawing GA-59537. July 1, 1970.
5. Robert K. Rehm. Correspondence – *Embankment Construction.* April 28, 1970.
6. West Penn Power Company. *Topographic Plan of Ash Disposal Area.* Drawing 400-516. September 8, 1971.
7. GAI Consultants, Inc. *Milesburg Power Station Ash Disposal Site Design Report.* June 1973.
8. George Burns. Correspondence – *West Penn Power Co. Milesburg Power Station DER Permit No. 266I013*. March 28, 1977.
9. GAI Consultants, Inc. *Milesburg Ash Disposal Area Site Investigation.* June 1980.
10. Pennsylvania Department of Environmental Protection, Bureau of Water Quality Management. *Waste Discharge Inspection Report.* April 4, 1979. May 8, 1980. December 2, 1980. June 8, 1981. September 14, 1981. December 2, 1981. December 3, 1981. April 21, 1983. September 15, 1983. July 25, 1984. September 5, 1984. December 11, 1985.
11. T. James Flaherty. *Internal Report – Milesburg Power Station Demolition.* Allegheny Power. September 21, 1999.
12. United States Geological Survey, National Geospatial Program Map Services and Data. https://apps.nationalmap.gov/viewer/. Accessed December 2025.

DRAWINGS

gai consultants
transforming ideas into reality®



MAP REFERENCE:
BELLEFONTE, PA 7.5 MINUTE
QUADRANGLE DATED 2023

SCALE: 1" = 2000'

2000 0 2000 4000

DRAWING TITLE: **SITE LOCATION MAP**		GAI DRAWING NUMBER: **001**
PROJECT: **FORMER MILESBURG ASH DISPOSAL BASIN HISTORY OF CONSTRUCTION**	gai consultants	GAI FILE NUMBER: **C150917-65-002-001-A2-001**
CLIENT: **WEST PENN POWER COMPANY GREENSBURG, PA**		DRAWN BY: **HULLRA** / CHECKED BY: **ROUNCLL** / APPROVED BY: **DITULAL**
		SHEET NO.: **1 OF 1** / SCALE: **AS SHOWN** / ISSUE DATE: **01/29/2026**

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ISSUING OFFICE: Pittsburgh | 385 E. Waterfront Drive, Homestead, PA 15120

PLOTTED ON: 1/29/2026 6:24:03 PM PLOTTED BY: Claire Olmsted PLOT FILE: GAI.stb

GAI CAD FILE PATH: Z:\Energy\2015\C150917.65 - FE Milesburg CCR Rule Leg\CAD\ACAD\Production DWGs\C150917-65-002-001-A2-001.dwg

APPROXIMATE LOCATION OF HISTORIC MONITORING WELL MP-2 (DOWNGRADIENT)

APPROXIMATE LOCATION OF EXISTING RISER STRUCTURE DISCHARGE PIPE

APPROXIMATE LOCATION OF EXISTING RISER STRUCTURE

APPROXIMATE LOCATION OF HISTORIC MONITORING WELL MP-1 (UPGRADIENT)

NOTE:
1. THE EXTENT OF THE FORMER ASH DISPOSAL BASIN IS APPROXIMATE AND BASED ON EXISTING TOPOGRAPHY. ADDITIONAL INVESTIGATION IS NEEDED TO CONFIRM THE BOUNDARY.

REFERENCE: AERIAL IMAGERY WAS ACCESSED IN JULY 2024 FROM THE AUTOCAD CIVIL 3D GEOLOCATION MAP FEATURE (BING 2021 MICROSOFT CORPORATION, 2021, MAXAR, 2021 CNES DISTRIBUTION ARIBUS DS)
LIDAR FROM PASDA (PENNSYLVANIA SPATIAL DATA ACCESS) DATED 2024
APPROXIMATE LOCATIONS OF MP-1, MP-2, EXISTING RISER STRUCTURE, AND EXISTING OUTLET PIPE FOR RISER STRUCTURE WERE APPROXIMATED FROM WEST PENN POWER COMPANY DRAWING 400-516 AND FIELD OBSERVATIONS.

FORMER MILESBURG ASH DISPOSAL BASIN
SCALE: 1" = 100'

LEGEND
- APPROXIMATE BOUNDARY OF LEGACY CCR SURFACE IMPOUNDMENT
- EXISTING TOPOGRAPHY (MAJOR)
- EXISTING TOPOGRAPHY (MINOR)
- A — A CROSS SECTIONS
- EXISTING STRUCTURES

SCALE: 1" = 100'
100 0 100 200

DRAWING TITLE
PLAN VIEW

CLIENT
WEST PENN POWER COMPANY
800 CABIN HILL DRIVE
GREENSBURG, PA 15601

gai consultants

PROJECT
FORMER MILESBURG ASH DISPOSAL BASIN HISTORY OF CONSTRUCTION

GAI DRAWING NUMBER: **002**
ALT. /CLIENT DRAWING NUMBER:
GAI FILE NUMBER: **C150917-65-000-00-MIL002**

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REVISION △	SHEET NO.: 002 OF 003

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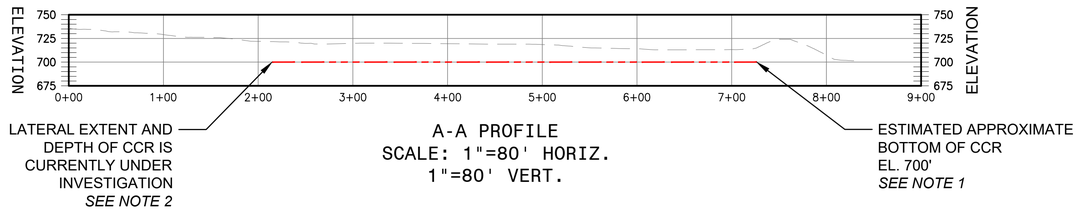

A-A PROFILE
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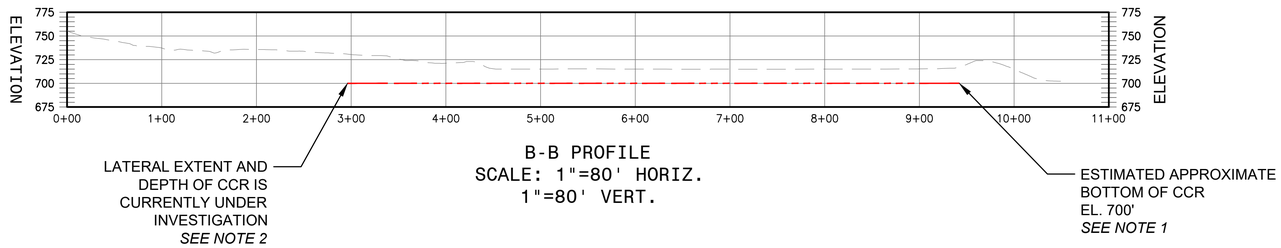

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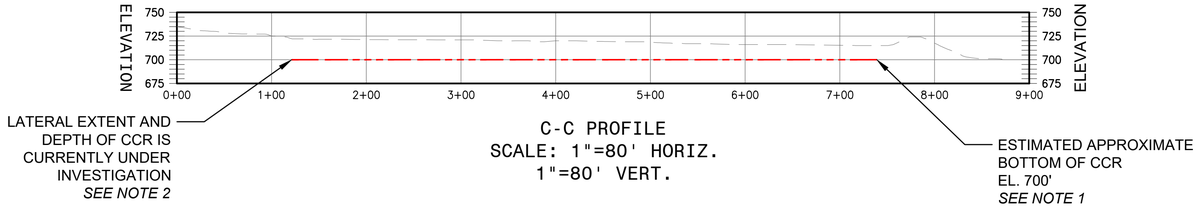

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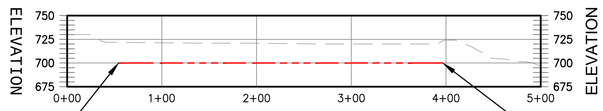

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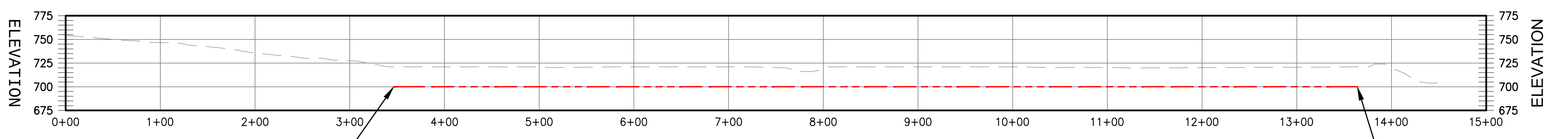

E-E PROFILE
SCALE: 1"=80' HORIZ.
1"=80' VERT.

NOTES:
1. THE BOTTOM OF CCR IS ESTIMATED AS ELEVATION 700' BASED ON HISTORIC REFERENCE DOCUMENTS AND INFORMATION SHOWN ON WEST PENN POWER COMPANY DRAWING GA-59538.
2. AN INVESTIGATION IS CURRENTLY ONGOING AT THE SITE TO CONFIRM THE DEPTH OF CCR AND THE LATERAL EXTENTS OF CCR WITHIN THE FORMER ASH DISPOSAL BASIN. THE INFORMATION PRESENTED HEREIN IS AN ESTIMATE AND MAY NOT REPRESENT ACTUAL CONDITIONS AT THE SITE.

SCALE: 1" = 80'
80 0 80 160

NO.	DATE:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DESCRIPTION:

REVISION RECORD

No drawing was produced with computer aided drafting technology and is supported by electronic drawing files. Do not relate this drawing to manual drafting methods.

DRAWING TITLE
CROSS SECTIONS

gai consultants

CLIENT
WEST PENN POWER COMPANY
800 CABIN HILL DRIVE
GREENSBURG, PA 15601

PROJECT
FORMER MILESBURG
ASH DISPOSAL BASIN
HISTORY OF CONSTRUCTION

GAI DRAWING NUMBER: **003**
ALT. /CLIENT DRAWING NUMBER:
GAI FILE NUMBER: **C150917-65-000-00-MIL002**

ISSUING OFFICE: Pittsburgh | 385 E. Waterfront Drive, Homestead, PA 15120

ISSUE DATE:	DRAWN BY:
02/04/2026	**HULLRA**
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AS SHOWN	**ROUNCLL**
DWG TYPE:	APPROVED BY:
	DITULAL
REVISION	SHEET NO.:
	003 OF **003**

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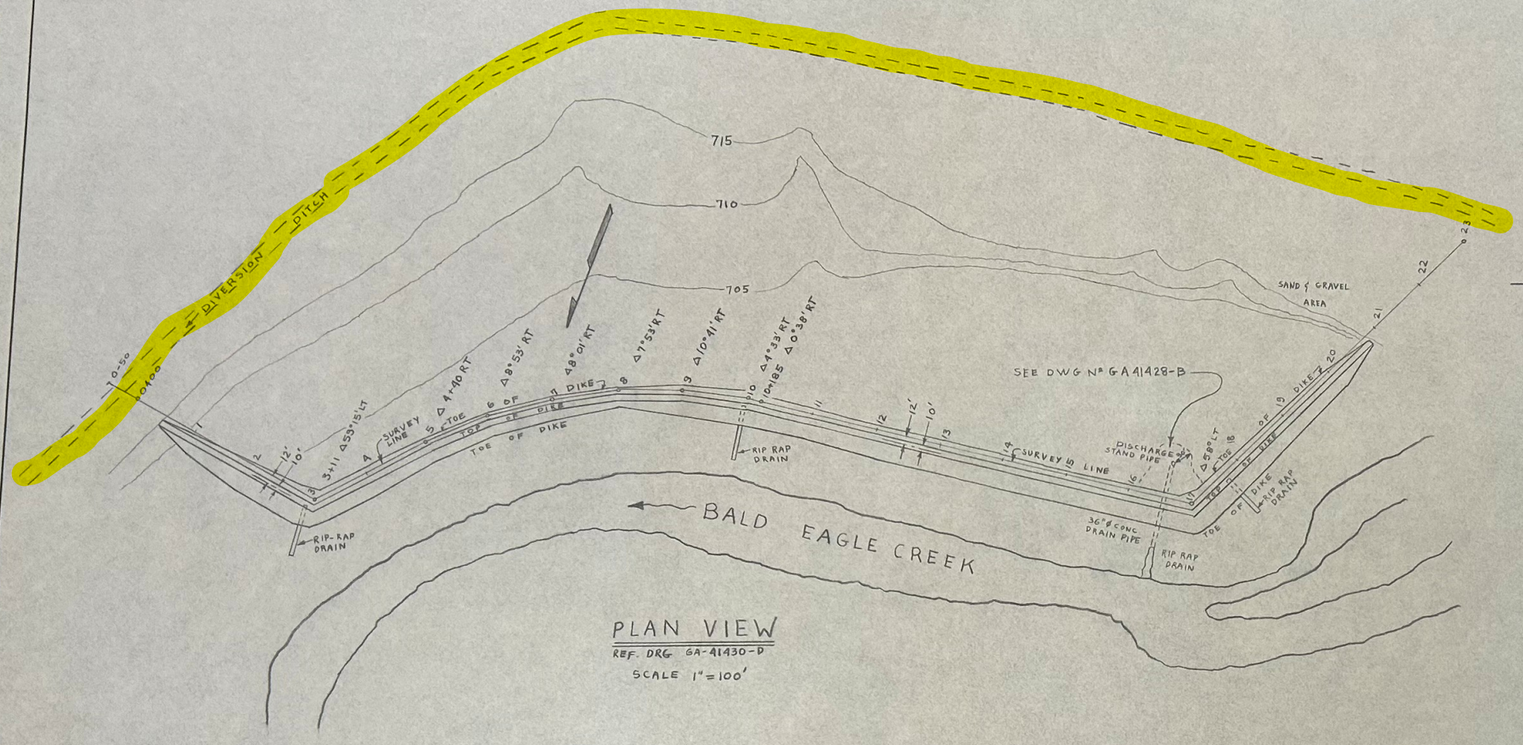
DRAWING NO.	FILE
GA-59538	D

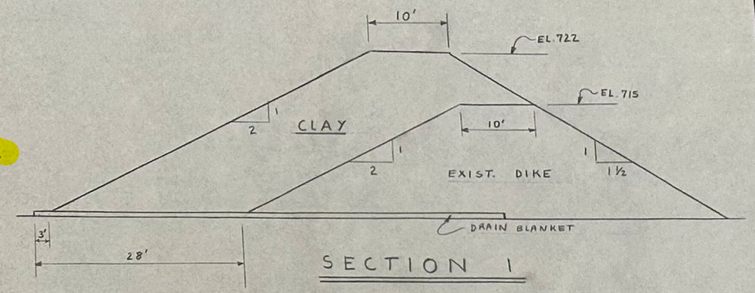
DRAWING NO.	REFERENCE DRAWING
GA-41436	PROPOSED DIKE ALONG BALD EAGLE CREEK
GA-41404	ASH DISPOSAL POND LOCATION & DETAIL



PLAN VIEW

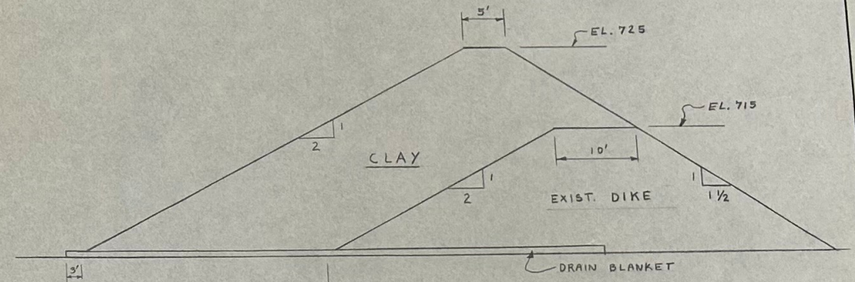
REF. DRG GA-41430-D

SCALE 1"=100'



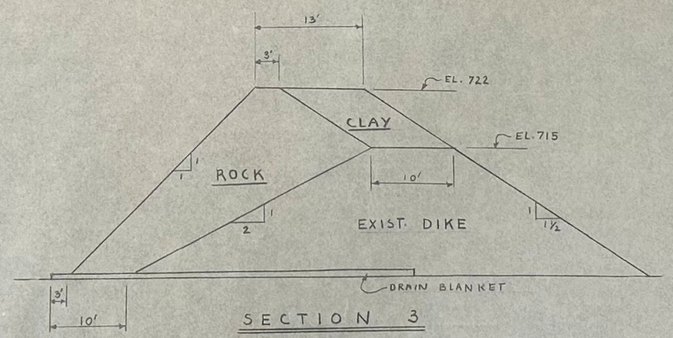
SECTION 1

1. CLAY — 41,000 yd³
2. STRIPPING — 150,255 ft²
3. DRAINAGE BLANKET (LIMESTONE) — 58,800 ft³
4. CLEARING & GRUBBING — 222,000 ft²
5. TOPSOIL & SEEDING — 129,320 ft²



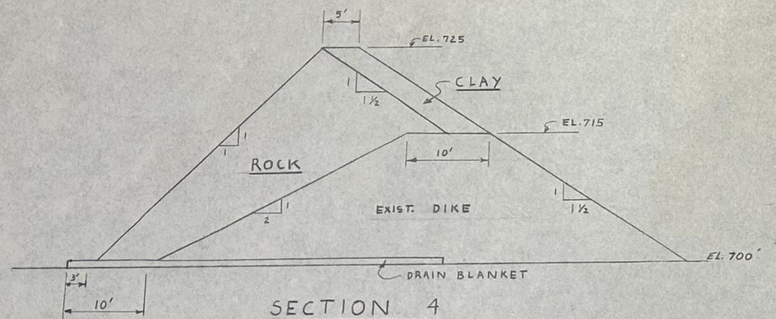
SECTION 2

1. CLAY — 52,600 yd³
2. STRIPPING — 160,650 ft²
3. DRAINAGE BLANKET (LIMESTONE) — 69,300 ft³
4. CLEARING & GRUBBING — 283,920 ft²
5. TOPSOIL & SEEDING — 128,100 ft²



SECTION 3

1. CLAY — 5500 yd³
2. ROCK — 21,600 yd³
3. STRIPPING — 112,350 ft²
4. DRAINAGE BLANKET (LIMESTONE) — 21,000 ft³
5. CLEARING & GRUBBING — 29,700 ft²
6. TOPSOIL & SEEDING — 21,000 ft²



SECTION 4

1. CLAY — 4,000 yd³
2. ROCK — 24,300 yd³
3. STRIPPING — 112,350 ft²
4. DRAINAGE BLANKET (LIMESTONE) — 21,000 ft³
5. CLEARING & GRUBBING — 21,600 ft²
6. TOPSOIL & SEEDING — 10,500 ft²

DATE	4-20-70
SCALE IN./ FT.	
AUTH.	
SOURCE	R.K.R.
DR.	E.H.
CKD.	
APPROVED	

WEST PENN POWER CO.

MILESBURG POWER STATION

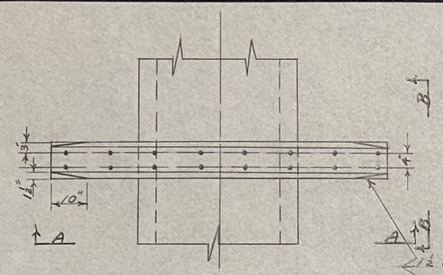
ASH DISPOSAL POND HEIGHT ADDITIONS PROPOSED SCHEMES

LOCATION MILESBURG, PA.

DRAWING NO.	SIZE	REVISIONS
GA-59538	D	

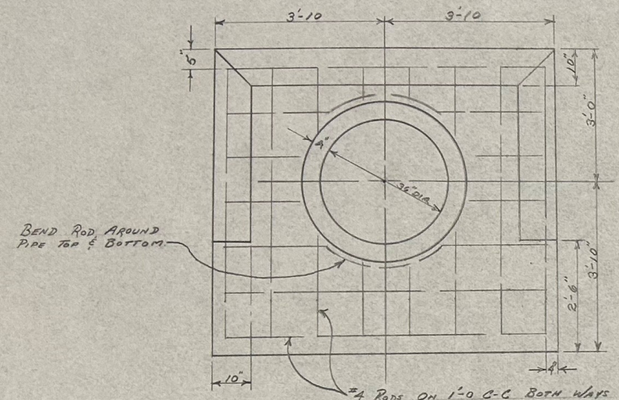
DRAWING NO.	FILE
GA 59537	B

DRAWING NO.	REFERENCE DRAWING
GA91428	Fly Ash & Bottom Ash Disposal Area- Drainage Silo & Drainage Pipe
	Engineering For Dams Vol. III
	By Justin Hinds Creager.

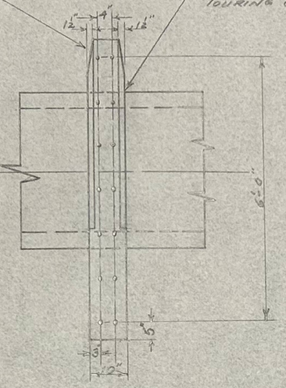


Material For The Cut-Off Collar Shall Be 1:2:4 Mix Concrete.

Plan



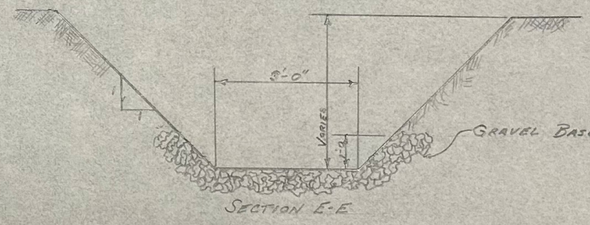
Section A-A
Scale ½"=1'



Section B-B

Note:
Upon Competion of the Cut-Off Collar the Pipe Trench Shall Be Carefully Refilled; the Earth Being Deposited in Layers 3 or 4 in. Thick And Rammed Thoroughly, With Compresed Air Power Tampers Before the Next Layer is Placed.

Cut-Off Collar



Section E-E

Dike Cross Section At Station 16+50
Scale 1"=10'

DATE	7-1-70
SCALE As marked IN.= FT.	
AUTH.	
SOURCE	
DR.	RKR
CKD.	
APPROVED	

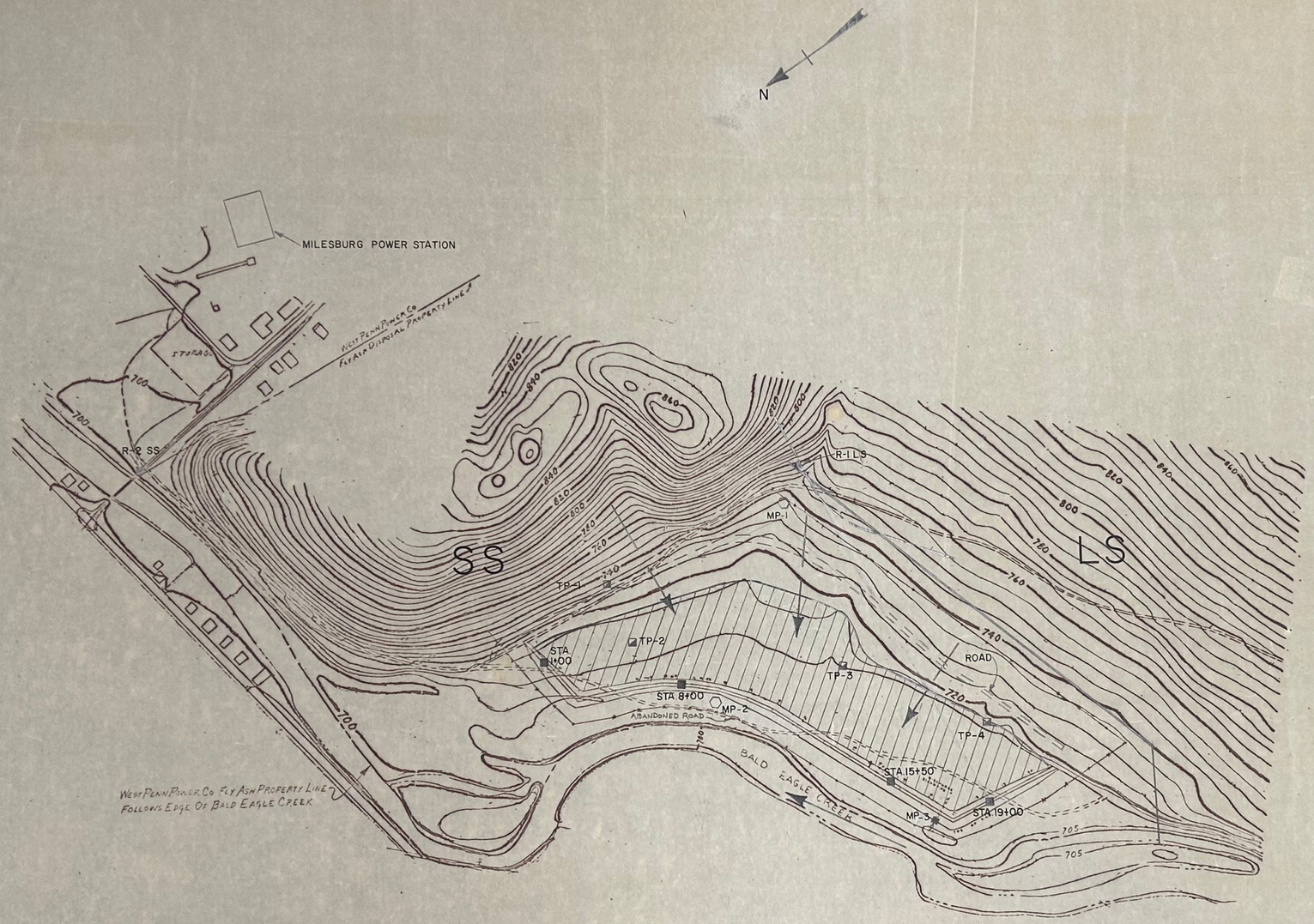
WEST PENN POWER CO.

Milesburg Power Station

Ash Disposal Basin – Discharge Pipe and Cut-Off Collar

LOCATION Milesburg Penna.

DRAWING NO.	SIZE	REVISIONS
GA 59537	B	



LEGEND

- DWELLINGS
- DIRT ROAD
- FENCE LINE
- DIVERSION DITCH
- EMBANKMENT
- TP-1 / STA 1+00 — TEST PITS
- FLY ASH POND
- OVERFLOW DISCHARGE PIPE
- R-1 — ROCK OUTCROP
- LS — LIMESTONE
- SS — SANDSTONE
- DIRECTION OF STREAM FLOW
- DIRECTION OF GROUND WATER MOVEMENT
- APPROX. CONTACT BETWEEN LIMESTONE AND SANDSTONE
- MP-1 — WATER QUALITY MONITORING POINT (PROPOSED)
- WELL (PROPOSED)

BY: GEWL	GENERAL ANALYTICS, INC. CONSULTING ENGINEERS MONROEVILLE, PA.	Allegheny Power Service Corporation West Penn Power Company
DATE: 9-8-71	71-236	71-236-E3

DRAWN L R 8-24-71 | CHKD | DTG APPD | SOURCE | REVIEWED | APPROVED WRC DATE

MILESBURG POWER STATION
TOPOGRAPHICAL PLAN OF ASH DISPOSAL AREA

AUTHORIZATION | SCALE 1" = 200' | DRAWING NUMBER 400-516 | REV

APSC SERIES 4

ATTACHMENT 1

gai consultants
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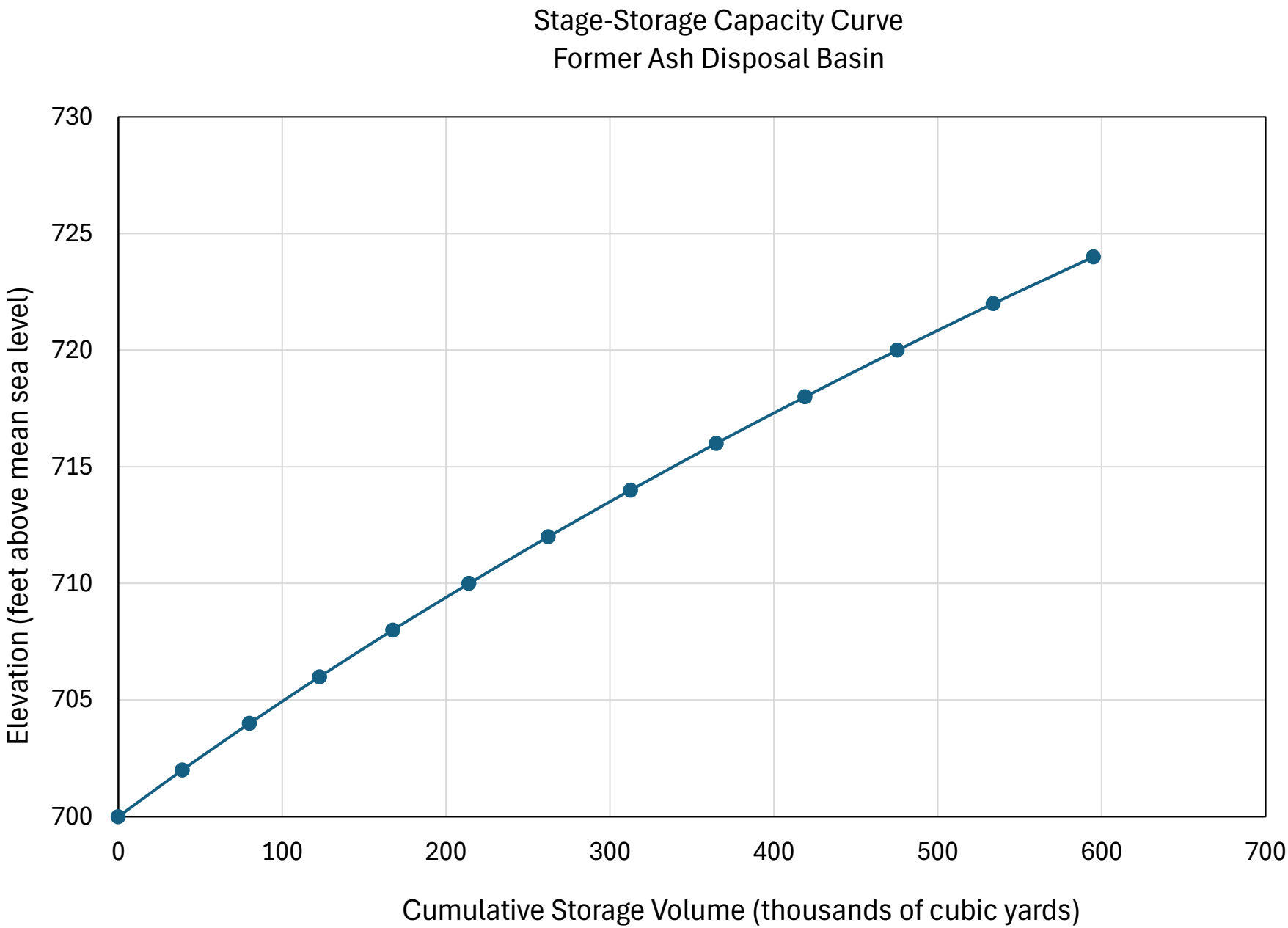

Note: The stage-storage information shown is based on limited available information from historic references and existing topography.
An investigation is currently ongoing at the former Ash Disposal Basin to confirm the depth of CCR and lateral extent of CCR.

ATTACHMENT 2

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Silica, SiO_2, %	49.82
Alumina, Al_2O_2, %	24.92
Iron Oxide, Fe_2O_3, %	14.70
Calcium Oxide, CaO, %	1.70
Magnesium Oxide, MgO, %	0.90
Sulfur Trioxide, SO_3, %	2.40
Phosphate, P_2O_5, %	0.22
Sodium Oxide, Na_2O, %	0.07
Titanium Oxide, TiO_2, %	1.90
Potassium Oxide, K_2O, %	2.70

6. Design Information

Basic Plant Data

Assume: 20% of coal is ash
20% of total ash is bottom ash
80% of total ash is fly ash

Fuel Burned (Tons per day)

1961 $\frac{146,896 \text{ Ton}}{16,902 \text{ Hr.}} \times 24 = 208$ T/Day

1962 $\frac{160,552 \text{ Ton}}{16,992 \text{ Hr.}} \times 24 = 227$ T/Day

1963 $\frac{193,542 \text{ Ton}}{15,152 \text{ Hr.}} \times 24 = 306.5$ T/Day

1964 $\frac{202,684 \text{ Ton}}{16,649 \text{ Hr.}} \times 24 = 292$ T/Day

1965 $\frac{173,896 \text{ Ton}}{16,221 \text{ Hr.}} \times 24 = 257$ T/Day

Average amount of coal burned in Ton/Day = 258

Average amount of coal burned in Ton/Month = 7,847 say 8,000

Total ash - 8,000 x .20% ash = 1,600 T/Ash/Month

Total bottom ash - 1,600 x .20 = 320 T/Bottom Ash/Month

Total fly ash - 1,600 x .80 = 1,280 T/Fly Ash/Month

Sizing of Diversion Ditch

Using the Bellefonte, Pennsylvania Quadrangle to establish the water shed (drainage) which will deposit water into ash disposal basin.

1. Size of drainage area = 1.17 sq. in. on Quadrangle

$1.17 \text{ Sq. In.} \times \frac{4,000,000 \text{ Sq. Ft.}}{\text{Sq. In.}} = 4,680,000 \text{ Sq. Ft.}$

2. Assuming one-hour rainfall to be expected once in 100 years to be 3 in./hr. and 100% runoff.

3. Therefore, for a two-hour rain the water to be diverted is:

   4,680,000 sq. ft. x .25 ft./hr. x 2 hr. = 2,340,000 cu. ft.

   or $\frac{2,340,000 \text{ sq. ft.}}{120 \text{ min.}}$ = 19,500 cfm or 325 cfs

4. Using "Handbook of Applied Hydraulics" by Davis to determine the size of open channel diversion ditch

   Assume: 10 ft. drop in 1,236 ft. 8.1 ft./1,000 ft. and a channel lining of earth, stone and weeds.

   $R = \frac{36}{21.2}$ = 1.698 Area = 36 sq. ft.

   Wet Perimeter = 21.2 ft.

   n = .025

   Velocity from Davis Page 2 = 10.3 ft./sec.

   Q = 36 sq. ft. x 10.3 ft./sec. = 370.8 cfs

   Q Actual 325, Q of Diversion Ditch 370

   Therefore, size is all right.

Sizing of Ash Pond Discharge Overflow

1. Using the enlarged section of Bellefonte, Pennsylvania Quadrangle, we established that the dike area is 1,021,858 square feet or 23.5 acres.

   (Planimeter area = 24.08 sq. in., 1 sq. in. = 206 ft. x 206 ft. or 42,436 sq. ft.)

2. Assuming one-hour rainfall to be expected once in 100 years to be 3 in./hr. and 100% runoff, a two-hour rain would deposit 1,021,858 sq. ft. x .25 ft./hr. x 2 hr. = 510,930 cu. ft. of water in disposal basin. This is $\frac{510,930}{120}$ = 4,256 cfm or 71 cfs.

3. The water flowing into the disposal basin due to pumping is

   1,600 gal./min. x $\frac{\text{Cu. Ft.}}{7.48 \text{ Gal.}}$ = 214 cfm or 3.56 cfs

4. Therefore, total flow of water into dike is:

Rain Runoff	71 cfs
Pumping	3.56 cfs
Total	74.56 cfs

5. Sizing of an overflow tunnel:

Assuming: A slope of 1 ft./100 ft., n = 0.015 (conc. in bad condition) (Davis Page 868)

Using Kutter's formula Fig. 22, Davis Page 868
Velocity in feet per sec. = 8.5 ft./sec.
Dia. of discharge pipe = 39 in.

Note: Will use a 36" dia. pipe and allow the water to back up behind the dike 1-1/4"

$$\frac{14.5 \text{ cfs} \times 60 \text{ sec./min.} \times 60 \text{ min./hr.} \times 2 \text{ hr.}}{1{,}021{,}858 \text{ sq. ft.}} = .102 \text{ ft. or } 1\text{-}1/4"$$

Effluent Velocity of Overflow

1. Using "Handbook of Applied Hydraulics" by Davis for a sharp-crested weir with free discharge

$$Q = C1 \left[(h + hr)^{1.5} - hr^{1.5}\right]$$
$$= 3.33 \ (16.23^{ft}) \ \left[(.125 + .108)^{1.5} - .108^{1.5}\right]$$
$$= 4.2 \text{ cfs}$$

Q = discharge, cfs
l = length of crest
h = head on crest
hr = velocity of approach
c = coef. 3.33

2. The water flowing into the disposal basin due to pumping is:

$$1{,}600 \text{ gal./min.} \times \frac{\text{cu. ft.}}{7.48 \text{ gal.}} = 214 \text{ cfm or } 3.56 \text{ cfs}$$

Assume a flow of 4.2 to account for normal precipitation

3. Velocity of overflow

62" standpipe has a circum. of 16.23^{ft}
height of crest over standpipe is 1-1/2"

$$\frac{4.2 \text{ cfs}}{16.23^{ft} \times .125^{ft}} = 2.08 \ \frac{\text{Ft.}}{\text{Sec.}}$$

Flood Elevation Calculations

We have talked to several elderly residents of Milesburg in an attempt to establish the flood height at the ash disposal property. We were unsuccessful in obtaining this information. However, our canvassing shown that the flood elevation at the Pennsylvania Railroad bridge was just below the tracks. This is approximately an elevation of 701 feet above mean sea level, and correlates closely with Department of Forests and Water pamphlet "The Floods of March 1936 in Pennsylvania" which shows that the flood elevation at Milesburg was 695.5 ft. (It is assumed that this was taken at the highway bridge.)

We have taken a conservative approach in determining flood elevations at the ash disposal property by running stream bed levels from the highway bridge to the property and adding this change in elevation to the 1936 flood elevation. We feel that these are conservative because:

1. Only 45 percent of the total flow at the gaging station is from Bald Eagle Creek.

2. The flood stage at the highway bridge would necessarily be higher than at the ash property due to the flow constriction at the bridge by piers.

Calculations

1. From the Department of Forests and Waters, "The Floods of March 1936 in Pennsylvania" indicates that North Bald Eagle Creek elevation was 695.5 ft.

2. We have established by running levels that the change in stream bed elevation from the highway bridge to the eastern tip of an island in Bald Eagle opposite the ash property is 13.06 ft.

3. Flood elevation at the ash property is therefore:

695.5 ft.	1936 flood elevation
13.06 ft.	Stream bed elevation change
708.56 ft.	
- 3.0	Dredging of stream bed by Corp of Engineers in 1959
705.56 ft.	Flooding at ash property

4. Elevations from a recent aerial photograph show that the lowest elevation at the ash property is 705.5 ft.