pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0090271**
Facility Type	**Industrial**	APS ID	**513263**
Major / Minor	**Minor**	Authorization ID	**1348879**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**Trogon Development LLC**	Facility Name	**Fern Valley Ash Disposal Site**
Applicant Address	PO Box 1636	Facility Address	State Route 837
	Canovanas, PR 00729		Clairton, PA 15025
Applicant Contact	Jesse Froh	Facility Contact	Linda Denison
Applicant Phone	(314) 580-6736	Facility Phone	(614) 565-2297
Client ID	361817	Site ID	237533
SIC Code	4911	Municipality	Jefferson Hills Borough
SIC Description	Electrical Services	County	Allegheny
Date Application Received	March 19, 2004	EPA Waived?	Yes
Date Application Accepted	April 7, 2004	If No, Reason	

Purpose of Application: Renewal of NPDES permit to discharge IW and SW discharges

Summary of Review

The Department received an NPDES permit renewal application from Reliant Energy for its Fern Valley Ash Disposal Site (Fern Valley) on March 19, 2004. Fern Valley is a coal combustion residual (CCR) waste landfill previously operated by Duquesne Light Company (DLC) for their exclusive use to dispose of coal-fired electrical generation waste streams almost exclusively from their Elrama Power Station (Elrama) but was also previously permitted to accept waste from the Phillips Power Station. The disposed waste was composed of stabilized scrubber sludge (a.k.a. “Poz-O-Tec”), fly ash, bottom ash, coal pile runoff sludge and lime grits from Elrama. The Fern Valley facility first accepted wastes circa February 1989 and continued with some interruptions until its closure in the fall of 2003. The prior NPDES renewal permit, issued September 22, 1999, expired September 22, 2004, but is administratively extended. The permit (**PA0090271**) was transferred from DLC to Orion Power Midwest, L.P. on May 1, 2000. In response to their timely renewal request, a draft renewal permit was issued for comment to Orion Power Midwest L. P. on December 28, 2004. Comments were received on this draft from Reliant Energy by the Department on March 1, 2005; however, this permit was not subsequently revised or issued.

On July 31, 2015 the Department received an updated NPDES permit renewal application, prepared by the applicant’s consultant GAI, Consultants, Inc. (GAI). The applicant, then NRG Power Midwest, L.P., their consultant GAI and the Department met and corresponded immediately prior to this submittal. The application notes a SIC Code of 4911 (Electrical Services). It also documents the other applicable permits associated with Fern Valley including Water Quality Management (WQM) Part II permit **0287202 A1-T4** and Solid Waste Management permit **300615**. Subsequently transfer applications were received in 2019 for both the NPDES and WQM Part II permits. Both transfers were subsequently issued. Another set of transfer applications, transmitted via a GenOn letter dated March 5, 2021 and received on March 24, requested transfer of both NPDES and WQM Part II permits to Trogon Development, LLC (Trogon). This latest transfer of this NPDES permit will be issued in conjunction with this renewal.

Approve	Deny	Signatures	Date
X		John L Duryea, Jr., P.E. / Environmental Engineering Specialist	May 19, 2021
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	May 20, 2021

Summary of Review

The facility is defined under 25 Pa. Code § 92a.26 as a minor facility with an applicable Federal Effluent Limit Guideline (ELG). The application notes that the discharge locations include Outfalls 001 through 004, northern and southern stormwater (diversion) ditches and a roadway runoff stormwater drain; as well as, a sedimentation pond, used for treatment. The receiving waters for these discharges are all listed as being to the unnamed tributary (39536) to the Monongahela River. All of these locations are shown on the permit boundary map included below as Figure 1, with an expanded portion included as Figure 2. Additionally, Figure 3 shows the closed landfill drainage and stormwater conveyances which feed the various outfalls.

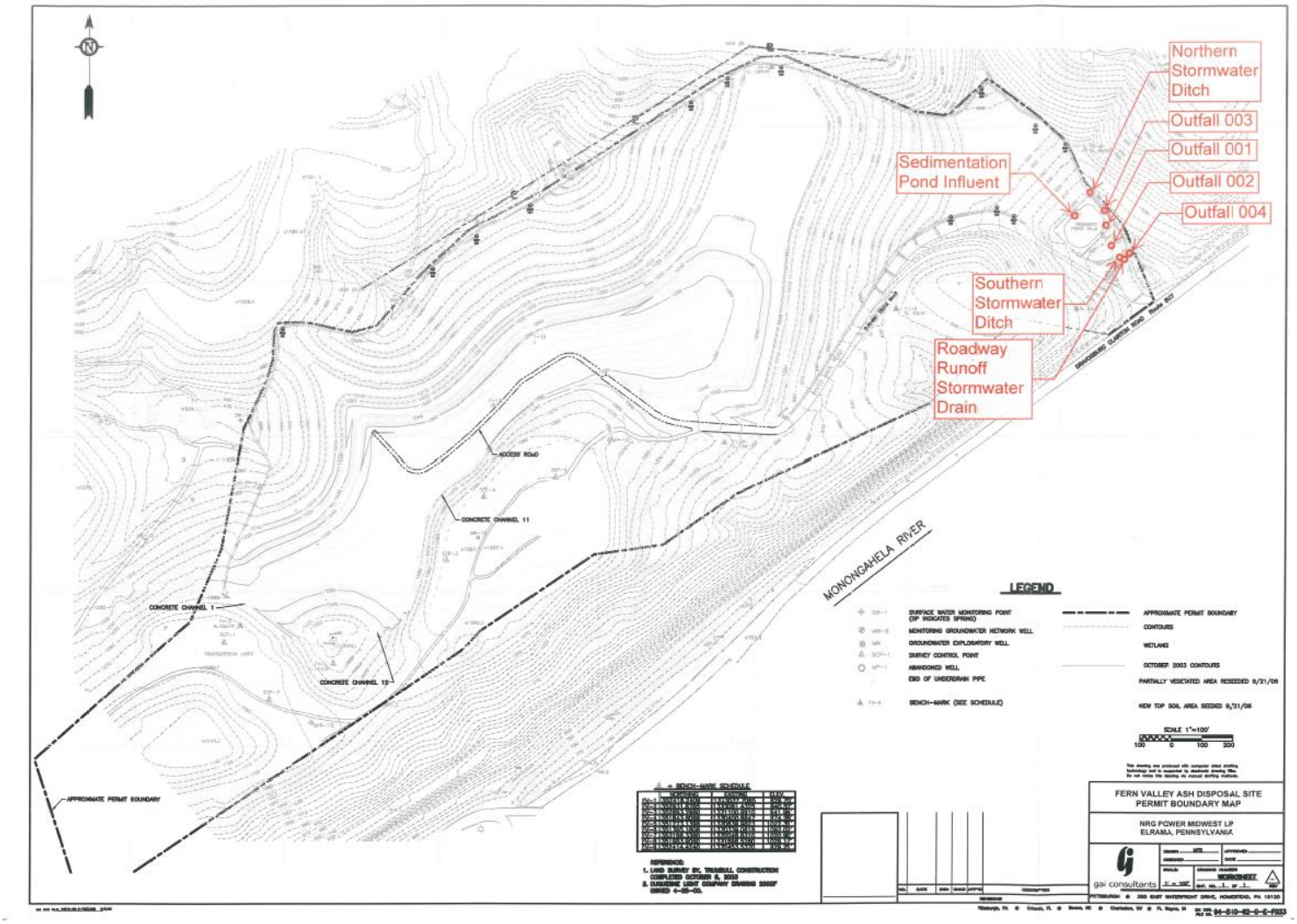


Figure 1: Fern Valley Ash Disposal Site, Permit Boundary Map

Summary of Review

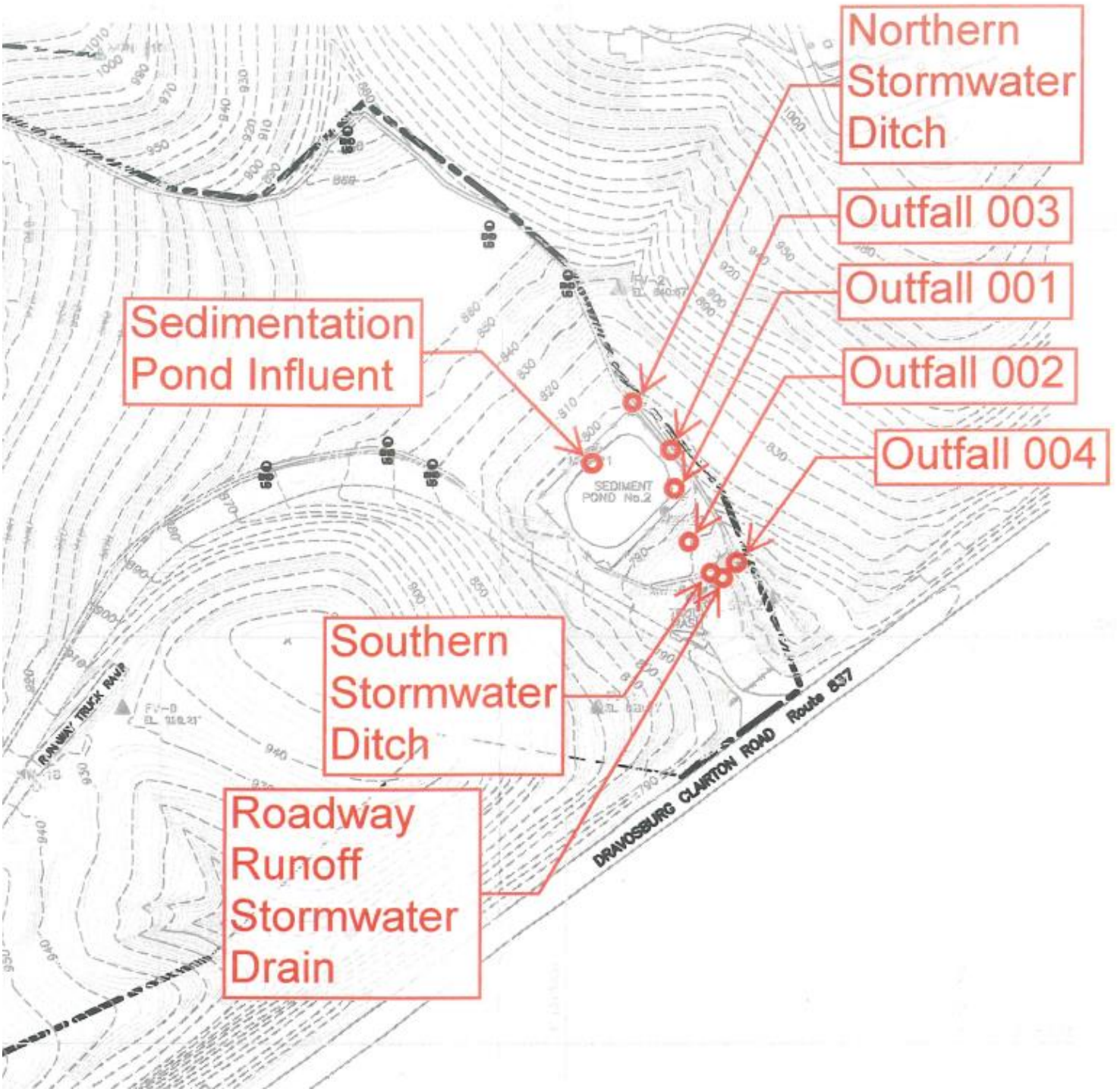


Figure 2: Detail from Fern Valley Ash Disposal Site, Permit Boundary Map

Summary of Review

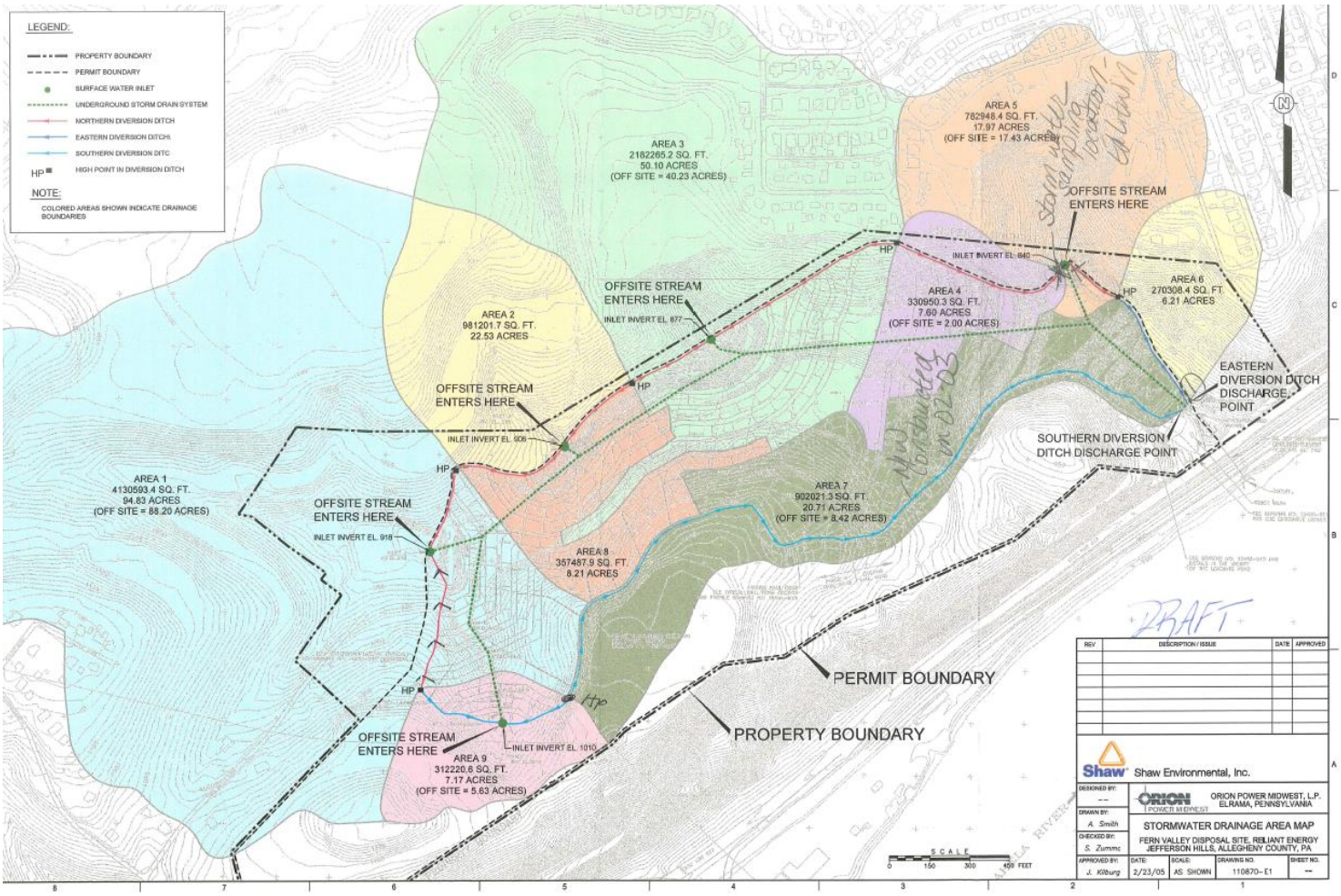


Figure 3: Fern Valley Ash Disposal Site, Stormwater Drainage Area Map

As can be seen from the figures, most storm and ground waters are conveyed toward the eastern boundary of the site where all of the site's outfalls are aggregated in the vicinity of the Sedimentation Pond. The site has been laid out to segregate surface runoff, both from offsite and onsite sources, from the groundwater and leachate which may be impacted in the closed landfill areas with buried pollutants. Such impacted water is collected in the landfill leachate drainage system which discharges into the Sedimentation Pond via the Sedimentation Pond influent shown in Figure 1, and the detail in Figure 2. Wastewater was previously discharged from a larger leachate pond through the Sedimentation Pond (shown as "Sediment Pond No. 2" on Figures 1 and 2) via **Outfall 001**. This discharge is measured and sampled. **Outfall 002** is from the underdrain of the Sedimentation Pond and is designed to only be used when draining the pond for cleaning. However, this Outfall was not used in the recent pond cleanout which was conducted August – September 2020.

Outfall 003 is for an emergency overflow through the overflow spillway from the pond. This outfall was listed in the previous permit as the discharge point for emergency overflows from the Sedimentation Pond. This outfall will be retained in the renewed permit. Although the permittee will still be able to discharge from this installed overflow structure, a Part C condition will be added to require notification to the Department when discharging.

Outfall 004 is designed to discharge stormwater runoff mostly from the onsite stormwater sewer system shown in Figure 3, but it is also in close proximity to the wet weather discharges from the southern stormwater ditch and the access roadway stormwater drainage which are all shown in the figures above. This latter discharge is also near an abandoned-in-place prior truck wash station. Finally, there is the discharge from the northern (with some portions also called eastern) stormwater ditch. All of these latter designed flows are intended to contain uncontaminated stormwater. As these were called out as separate discharges in the renewal application, these will be designated as outfalls with the discharge from the southern stormwater ditch being **005**, the access road stormwater drainage being **006** and the northern stormwater culvert exit being **007**.

Summary of Review

The updated application submittals received July 31, 2015 documented that all outfalls discharge to the unnamed tributary (39536) to the Monongahela River. This receiving waterway of the Commonwealth was previously assessed as supporting aquatic life and has been designated under 25 Pa. Code Chapter 93 as a warm water fishery (WWF).

All outfalls are between one and two tenths of a mile from the Monongahela River. This downstream waterway has a Final Total Maximum Daily Load (TMDL) established by the Department for Polychlorinated Biphenyls (PCBs) and Chlordane. As the Fern Valley facility has no history or facilities known to generate these pathogens, no further consideration is warranted.

A Federal Effluent Limit Guideline (ELG) has been established for effluent from steam electric power plants, with specific limits for captive CCR (including landfill) leachate under 40 CFR § 423, in a final rule published in November 3, 2015. These ELGs may have been considered as applicable to Fern Valley. However, in September 2017, the US Environmental Protection Agency (EPA) announced its intention to conduct new rulemaking for the Steam Electric Power Generation Industry and postponed compliance dates for their 2015 rule. Further, in April 2019, the U.S. Court of Appeals for the Fifth Circuit vacated and remanded regulations pertaining to legacy wastewater and, specifically including, CCR leachate streams back to the US EPA for reconsideration. Not remanded in this circuit court ruling was the separation of CCR leachate from other, "low volume wastes," as had been the case in the prior applicable portions of 40 CFR § 423 (circa November 1982). The 2015 final rule also segregated out applicability of closed facilities by exclusion of these from the data sets considered.

Arguably, the ELGs in force under EPA's 1982 rulemaking could have been imposed in prior permit renewals with the most recent renewal versions being in 1999 and also earlier in 1994; both while the landfill was actively receiving CCR wastes. However, the Department's Fact Sheets and permits did not document or impose these ELGs. Technology based effluent limits documented for these renewals were based on Best Professional Judgement (BPJ). In the applicability portion of the current federal statute 40 CFR § 257.50 (d), "This subpart does not apply to CCR landfills that have ceased receiving CCR prior to October 19, 2015." As Fern Valley stopped receiving waste in 2003 and the site was subsequently closed prior to 2015, this statute is not applicable. Pollutants of concern identified in the 2015 EPA rule (e.g. arsenic and mercury) may be considered for monitoring in subsequent sections of this review under BPJ.

When operating, Fern Valley used a valley/side hill fill system accessed through a single paved haul route road. The base system was comprised primarily of a prepared subgrade and a 2-foot-thick bottom ash layer. Now closed, the landfill area is covered with, at least, 2 feet of vegetated final cover. Today, the bottom ash layer is believed to continue to drain to the underdrain system comprised of perforated corrugated metal piping (CMP). The underdrain system discharges to the Sedimentation Pond (sometimes called the Leachate Pond) at its "Influent" shown in Figures 1 and 2. Now decades after installation, the integrity and status of the CMP and various piping systems is not known.

The remaining Sedimentation Pond (shown as "No. 2" in Figure 2) has a lining system comprised of at least 2 feet of compacted impervious soil on its base and slopes. Further, it has a 1.5-foot protective layer of "DUQrete", a fly ash-based pozzolanic cement which has been placed on the pond base and in other areas to protect the impervious soil during removal of collected sediments. This lining system is intended to retain the pond water within the basin, preventing seepage into the subsurface or through the pond embankment. During operation, it was the expressed plan to combine removed sediment with pozzolanic cement to further build up the Sedimentation Pond walls.

Surface water runoff originating from areas outside the waste placement boundary is managed through diversion channels running around the perimeter and a storm drain system running through the interior. All of this piping is shown as green, red or shades of blue lines in Figure 3. Stormwater impacting the vegetated cover infiltrates or runs off via sheet flow. Stormwater impacting areas of the site in proximity to Route 837 drains via sheet flow off site as also shown in Figure 3.

There have been several ownership changes and amendments over the years to this and associated permits. In brief, the original landfill was constructed under permits to Fern Valley Industries, dating back to the late 1970's. Originally, **PA0090271** was issued on April 19, 1979 along with a Water Quality Management (WQM), Part II permit 0279201, but the latter expired before major construction and the former was amended and transferred to DLC upon the site opening on February 1, 1989. An amended E&S plan, a carbon dioxide neutralization system, the truck wash station with its pumps and piping, the use of pond curtails and the use of Photafloc 1132 chemical additive were all approved by the Department as amendments in the early 1990's, following DLC and the Department entering into a Consent Order and Agreement on December 7, 1990. The site was transferred to Orion Power Midwest, L.P. on May 1, 2000 and its operation taken over by Reliant Energy. **PA0090271** and other permits were transferred to GenOn Power Midwest, LP (GenOn) on May 2, 2011, then to NRG Power Midwest LP in early 2015 and per the transfer application received by the Department on September 19, 2019, and amended on October 4, 2019, the name was changed back to GenOn Power Midwest, LP. As part of this renewal, the site is being transferred to Trogon which is a wholly owned subsidiary of Commercial Limited Partners LLC,

Summary of Review

based in Puerto Rico. By copy of an electronic mail communication on February 4, 2021, GenOn informed the Department of their intention to sell the retired Elrama Power Plant and the Fern Valley Ash Disposal Site to Trogon. By electronic transmission of a letter, dated March 5, 2021, GenOn applied for transfer of all the permits related to Elrama and the Fern Valley site to Trogon.

At this writing, no active use of the CO_2 neutralization system or truck wash is evident. Nor is the prior, upstream leachate collection pond (Sedimentation Pond No. 1), used during the landfill's operation and included in the site permits, evident during the most recent inspections. These systems and structures have been removed, filled-in or abandoned in place. Use of the approved flocculant, which is acrylamide based, has been discontinued. Therefore, no chemical additives are currently in use. No personnel are permanently employed at this site. However, support personnel, when needed are dispatched from the nearby, Elrama site. Deconstruction and remediation of the Elrama site is anticipated under Trogon.

Since the last permit renewal, seven inspections and/or compliance evaluations have occurred. The most recent was on November 15, 2019. This was the only recent inspection that included any violations. A Notice of Violation (NOV) was issued based on both the material condition of the site and an extended period of emergency discharge at **Outfall 003** from September through December 2018. A meeting was held with GenOn at the Department's SWRO on January 15, 2020 to discuss the Department's NOV and the GenOn response in their letter, received by the Department on December 16, 2019. Subsequent to that meeting the Department agreed to revise its inspection report and the NOV. These revised documents were transmitted by the Department on February 10, 2020. This revised NOV was limited to an operation and maintenance violation focused on a build-up of materials restricting the discharge from **Outfall 001** and resulting in a prolonged discharge from **Outfall 003**. GenOn arranged for cleanout of accumulated solids from the Sedimentation Pond in August 2020. This cleanout was completed in September 2020. The NOV was subsequently closed on December 4, 2020.

It is recommended that a draft permit be published for public comment in response to this application.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.342
Latitude	40º 16' 52"	Longitude	-79º 53' 04"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	CCR Landfill Leachate – Sedimentation Pond Supernatant		
Receiving Waters	Unnamed Tributary to Monongahela River (WWF)	Stream Code	39536
NHD Com ID	99408526	RMI	0.13
Drainage Area	0.3565 Sq. Miles	Yield (cfs/mi^2)	0.0194
Q_{7-10} Flow (cfs)	0.0069	Q_{7-10} Basis	StreamStats
Elevation (ft)	798	Slope (ft/ft)	0.106
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use	**Aquatic Life**	Existing Use Qualifier	None
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired for Aquatic Life		
Cause(s) of Impairment	**Habitat Alteration**		
Source(s) of Impairment	**TDS, Specific Conductivity**		
TMDL Status	**Final**	Name	**Monongahela River**
Nearest Downstream Public Water Supply Intake	PA American Water Co. - Pittsburgh		
PWS Waters	Monongahela River	Flow at Intake (cfs)	92.834
PWS RMI	4.6	Distance from Outfall (mi)	18.1

Changes Since Last Permit Issuance: Landfill is now closed. On November 6,2019 a Point of First Use (POFU) survey was conducted by Department biologists on the UNT 39536 to the Monongahela River. The report documenting the result of this survey was issued on April 17, 2020.

Other Comments: The reported maximum flow during production of 0.130 MGD in the application; however, in the last year of eDMR data, the monthly average flow reported is up to 0.342 MGD (Dec. 2018). In December 2018, a daily maximum flow of 0.641 MGD was recorded. The measurement location was used as the outfall location. Since Fern Valley is at the headwaters of this unnamed tributary, the drainage area documented in Figure 3 is also the watershed drainage area. The accumulation of drainage areas shown in Figure 3 is totaled in Table 1 below:

Table 1: Drainage Area at Outfalls - Fern Valley

Area	Acres
1	88.2
2	22.53
3	50.1
4	7.6
5	17.43
6	6.21
7	20.71
8	8.21
9	7.17
	228.16 = **0.3565 sq. miles**

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 16' 52"	Longitude	-79º 53' 04"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	CCR Landfill Leachate - Sedimentation Pond underdrain used to drain pond for cleaning		

Changes Since Last Permit Issuance: See below.

Other Comments: The effluent limits developed for Outfall 001 will also be used for Outfall 002 as this outfall is expected to be used only periodically and discharges are expected to be essentially the same industrial wastewater. Part C conditions are being added to include requirements that apply during cleaning of the Sedimentation Pond and coincident discharges from Outfall 002. However, in the August 2020 cleanout of the Sedimentation Pond, this outfall was not used.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	003	Design Flow (MGD)	0
Latitude	40º 16' 52”	Longitude	-79º 53' 04"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	CCR Landfill Leachate - Emergency Overflow/Spillway for the Sedimentation Pond		

Changes Since Last Permit Issuance: See below.

Other Comments: Outfall 003 was listed in the previous permit as the discharge point for emergency overflows from the Sedimentation Pond. This emergency/overflow outfall will be retained in the renewed permit and the reporting frequency of 1/discharge. However, a Part C condition will be added to require Department notification, when discharging and implementing measures to eliminate the overflow condition. This is intended to foster a timelier review of effluent data and prompt action to address the cause of an overflow condition. The actual relative positions of Outfalls 001, 002, the prior 003 and 004 are shown in Figure 4 below.

Figure 4: Satellite Image of Fern Valley Sedimentation Pond and Outfalls 001 - 004

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	0
Latitude	40º 16' 52"	Longitude	-79º 53' 04"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Captured Stormwater Runoff		
Receiving Waters	Unnamed Tributary to Monongahela River (WWF)	Stream Code	39536
NHD Com ID	99408526	RMI	0.13
Drainage Area	0.3565	Yield (cfs/mi^2)	0.0194
Q_{7-10} Flow (cfs)	0.0069	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	758	Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use	**Aquatic Life**	Existing Use Qualifier	None
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired for Aquatic Life		
Cause(s) of Impairment	**Habitat Alteration**		
Source(s) of Impairment	**TDS, Specific Conductivity**		
TMDL Status	**Final**	Name	**Monongahela River**
Nearest Downstream Public Water Supply Intake	PA American Water Co. - Pittsburgh		
PWS Waters	Monongahela River	Flow at Intake (cfs)	92.834
PWS RMI	4.6	Distance from Outfall (mi)	18.1

Changes Since Last Permit Issuance: The latest (2015) renewal application update lists stormwater outfalls for the "Northern" and "Southern Stormwater" ditches and for the "Roadway Runoff Stormwater Drain." These all discharge through or in the vicinity of Outfall 004 and are all believed to discharge uncontaminated stormwater

Other Comments: The relative location of the outfalls are shown in Figure 2.

Figure 5: Structures at Fern Valley Outfalls 004 (background), 005, 006 and the Receiving Stream

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005	Design Flow (MGD)	0
Latitude	40º 16' 52"	Longitude	-79º 53' 04"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Captured Stormwater Runoff – Southern Stormwater Ditch		
Receiving Waters	Unnamed Tributary to Monongahela River (WWF)	Stream Code	39536
NHD Com ID	99408526	RMI	0.13
Drainage Area	0.3565	Yield (cfs/mi^2)	0.0194
Q_{7-10} Flow (cfs)	0.0069	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	758	Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use	**Aquatic Life**	Existing Use Qualifier	None
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired for Aquatic Life		
Cause(s) of Impairment	**Habitat Alteration**		
Source(s) of Impairment	**TDS, Specific Conductivity**		
TMDL Status	**Final**	Name	**Monongahela River**
Nearest Downstream Public Water Supply Intake	PA American Water Co. - Pittsburgh		
PWS Waters	Monongahela River	Flow at Intake (cfs)	92.834
PWS RMI	4.6	Distance from Outfall (mi)	18.1

Changes Since Last Permit Issuance: The latest (2015) renewal application update lists stormwater outfalls for the "Northern" and "Southern Stormwater" ditches and for the "Roadway Runoff Stormwater Drain." The latter two discharge in the vicinity of Outfall 004. All are believed to discharge uncontaminated stormwater. Outfall 005 was added to cover samples taken in the Southern Stormwater Ditch.

Other Comments: The relative location of the outfalls are shown in Figure 2. This Outfall can be seen in Figure 5.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	006	Design Flow (MGD)	0
Latitude	40º 16' 52"	Longitude	-79º 53' 04"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Captured Stormwater Runoff - Roadway Runoff Stormwater Drain		
Receiving Waters	Unnamed Tributary to Monongahela River (WWF)	Stream Code	39536
NHD Com ID	99408526	RMI	0.13
Drainage Area	0.3565	Yield (cfs/mi^2)	0.0194
Q_{7-10} Flow (cfs)	0.0069	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	758	Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use	**Aquatic Life**	Existing Use Qualifier	None
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired for Aquatic Life		
Cause(s) of Impairment	**Habitat Alteration**		
Source(s) of Impairment	**TDS, Specific Conductivity**		
TMDL Status	**Final**	Name	**Monongahela River**
Nearest Downstream Public Water Supply Intake	PA American Water Co. - Pittsburgh		
PWS Waters	Monongahela River	Flow at Intake (cfs)	92.834
PWS RMI	4.6	Distance from Outfall (mi)	18.1

Changes Since Last Permit Issuance: The latest (2015) renewal application update lists stormwater outfalls for the "Northern" and "Southern Stormwater" ditches and for the "Roadway Runoff Stormwater Drain." The latter two discharge in the vicinity of Outfall 004. All are believed to discharge uncontaminated stormwater. Outfall 006 was added to cover samples taken from the Roadway Runoff Stormwater Drain.

Other Comments: The relative location of the outfalls are shown in Figure 2. This Outfall can be seen in Figure 5.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	007	Design Flow (MGD)	0
Latitude	40º 16' 52"	Longitude	-79º 53' 04"
Quad Name	Glassport	Quad Code	1606
Wastewater Description:	Captured Stormwater Runoff – Northern Stormwater Ditch		
Receiving Waters	Unnamed Tributary to Monongahela River (WWF)	Stream Code	39536
NHD Com ID	99408526	RMI	0.13
Drainage Area	0.3565	Yield (cfs/mi^2)	0.0194
Q_{7-10} Flow (cfs)	0.0069	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	758	Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use	**Aquatic Life**	Existing Use Qualifier	None
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired for Aquatic Life		
Cause(s) of Impairment	**Habitat Alteration**		
Source(s) of Impairment	**TDS, Specific Conductivity**		
TMDL Status	**Final**	Name	**Monongahela River**
Nearest Downstream Public Water Supply Intake	PA American Water Co. - Pittsburgh		
PWS Waters	Monongahela River	Flow at Intake (cfs)	92.834
PWS RMI	4.6	Distance from Outfall (mi)	18.1

Changes Since Last Permit Issuance: The latest (2015) renewal application update lists stormwater outfalls for the "Northern" and "Southern Stormwater" ditches and for the "Roadway Runoff Stormwater Drain." All are believed to discharge uncontaminated stormwater. Outfall 007 was added to cover samples taken from the Northern Stormwater Ditch. This discharge provides headwater for UNT 39536 to the Monongahela River, the receiving surface water for the permitted outfalls from this site.

Other Comments: The relative location of the outfalls are shown in Figure 2.

Treatment Facility Summary

Treatment Facility Name: Fern Valley Ash Disposal Site

WQM Permit No.	Issuance Date
0279201	April 27, 1979, expired 4/27/1981.
0287202	February 1, 1989
0287202 – A1 T1	February 7, 1992

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial		Sedimentation Pond	None	0.13

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
	N/A	No	N/A	N/A

Changes Since Last Permit Issuance: Landfill operations effectively ended in 2003. Site permits were transferred to Orion Power Midwest L.P. in 2000, to GenOn in 2011, to NRG Power Midwest LP in 2015 and back to GenOn in 2021 and now to Trogon as part of this renewal. Until 2018, periodic inspections did not document any violations. In late 2018, an overflow occurred that resulted in an extended discharge through the designed overflow at Outfall 003. In subsequent site inspections and meetings, it became apparent that sedimentation pond operations and maintenance had become an issue. An NOV was issued on November 15, 2019. Cleaning out solids from the remaining sedimentation pond was requested in the Department's meeting with the current permittee on January 15, 2020. The sedimentation pond cleaning started on August 10, 2020 and was completed in September. The NOV was subsequently closed on December 4, 2020.

Other Comments: The treatment originally permitted under WQM Part II permit **0287202** included two sedimentation ponds. Pond 1 was designed to be the primary leachate sedimentation pond, normally holding 0.934 million gallons and with a substantial excess capacity as free board. The design documents Pond 1 as including a total capacity to hold 14,000 cubic feet (per acre of approved landfill). Pond 2 was designed to be the secondary sedimentation pond holding 33,000 cubic feet or 0.25 million gallons. These ponds were designed to be operated as a cascade with flow transiting from the primary to the secondary pond through a 6-inch, valved pipe. The design documented that the secondary pond was intended to retain influent for approximately 10.8 hours (Reference Design Engineer's Report (DER), February 10, 1987).

In the early 1990's, several amendments were made to this site's treatment processes. After entering into a Consent Order and Agreement with the Department, the prior permittee amended the treatment to add neutralization and chemical addition (flocculant) to the treatment process. Documentation of a sealed spring drain and the addition of a sedimentation pond curtain wall was also added. These modifications were focused on mitigating the consequences of a truck wash station that had been installed for use during the landfill's operation. Subsequent permit effluent limit exceedances had prompted these modifications. These changes were incorporated into WQM Part II permit **0287202**, amendment **A1**, issued February 7, 1992.

In the 1994 NPDES permit **PA0090271** renewal, the fact sheet notes that the site uses two sedimentation ponds. This fact is also documented in the Design Engineer Report (DER), dated April 9, 1991. In the addendum, the Department noted that if the description of two sedimentation ponds is incorrect, then the WQM Part II permit must be amended. The addition of a stormwater-only discharge at Outfall 004 was also included at that time.

In response to a Department inquiry, GenOn offered via email on February 15, 2021, that based on their review of,

> "our 1995 Solids Waste Management Permit Modification (**300615**), there was a 'Temporary Contact Water Retention Area' (formerly identified as Sedimentation Pond 1) that was a depression created in the active area surface. The depression was designed to collect contact storm water runoff, which was then conveyed to the Leachate Pond (formerly referred to as Sedimentation Pond No. 2). The Temporary Contact Water Retention Area was drained by pumping and gravity flow. The configuration and location were changed periodically as a function of the site's development. The Temporary Contact Water Retention Area was only present within the active area of the landfill and would now be filled and under the landfill cap."

In the 1999 NPDES permit renewal, no mention of two ponds was included. A study and a Pollution Reduction Report was required for exceedances of benchmarks at Outfall 004 and quarterly monitoring was added. The Outfall 001 design flow was noted as 0.066 MGD. In the 2015 update to the renewal application the flow was noted as 0.13 MGD.

In the most recent inspection, only one sedimentation pond was observed which appears to correspond to the description of Pond 2 in the 1987 and 1991 DERs. Sedimentation accumulation and encroaching vegetation growth both in and around the lone remaining sedimentation pond appear to have begun to degrade the pond's intended treatment function.

The permittee should revisit the design of the treatment system to confirm that the current design, as operated, can meet the permitted effluent limits. After completing this design review, an WQM, Part II amendment application shall be submitted to the Department to document the "as built" design and its adequacy.

Compliance History	
Summary of DMRs:	A tabulated summary of selected site eDMR data is included as Tables 2 – 4 below.
Summary of Inspections:	Since the last permit renewal, seven inspections and/or compliance evaluations have occurred. These were on Feb. 5, 2002, March 27, 2002, July 1, 2009, July 23, 2013, Oct. 24, 2014, Sept. 13, 2019 and the most recent on November 15, 2019. This last, follow-up inspection was the only one that included a violation. A Notice of Violation (NOV) was issued based on both the material condition of the site and an extended period of emergency discharge at **Outfall 003** from September through December 2018 A meeting was held with GenOn at the Department's SWRO on January 15, 2020 to discuss the Department's NOV and the GenOn response in their letter, received by the Department on December 16, 2019. Subsequent to that meeting the Department agreed to revise its inspection report and the NOV. These revised documents were transmitted by the Department on February 10, 2020. The revised NOV was limited to an operation and maintenance violation focused on a build-up of materials restricting the discharge from **Outfall 001** and resulting in a prolonged discharge from **Outfall 003**. After the Sedimentation Pond cleanout was completed, this NOV was closed.

Other Comments: Since its inception, the Fern Valley discharge at **Outfall 001** has been recognized as going to the previously established UNT 39536 to the Monongahela River. However, it was agreed in a meeting between the Department and representatives from DLC on January 29, 1987 that the first downstream use was the Monongahela River which would be the basis for Water Quality evaluations at that time. The basis of this agreement was DLC's assertion that the stream was "actually a culvert ~ 700' long that is only open on a section of energy dissipation." This agreement was followed by the Department for several decades and through the closure of the landfill.

On November 6, 2019, the Department performed a Point of First Use (POFU) survey of the previously unassessed UNT 39536 to the Monongahela River. The survey results were reported on April 17, 2020. The survey found the UNT to be a high gradient perennial stream in a forested, herbaceous area before it was conveyed through a culvert under State Route 837 and under a railroad right-of-way, to the Monongahela River. Rather than the "Revetment Lined Channel" shown in DLC drawing 2778410H, the stream appears to be a natural section of the historic stream, which was found to support aquatic life, but to be impaired by an altered habitat. Measurements indicated an elevated specific conductivity which may be indicative of dissolved solids. The Osmotic Pressure of the stream was measured at 47 Mos/Kg which approached but did not exceed the Commonwealth's established Water Quality Criteria of 50 Mos/Kg. This report required that the following parameters be included in the permit as monitor and report: boron, lithium, bromide, osmotic pressure, strontium, sulfates and Total Dissolved Solids (TDS).

Compliance History

Table 2a: DMR Data for Outfall 001 (from August 1, 2018 to July 31, 2019)

Parameter	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18	AUG-18
Flow (MGD) Average Monthly	0.096	0.079	0.168	0.213	0.240	0.292	0.247	0.342	0.029	0.155	0.145	0.068
Flow (MGD) Daily Maximum	0.193	0.108	0.622	0.265	0.300	0.382	0.592	0.641	0.093	0.389	0.534	0.088
pH (S.U.) Minimum	7.2	7.28	7.3	7.4	7.0	7.4	7.2	7.2	7.0	7.3	7.1	7.1
pH (S.U.) Maximum	7.3	7.37	7.4	7.6	7.4	7.4	7.3	7.4	7.6	7.6	7.2	7.2
TSS (mg/L) Average Monthly	< 9.5	< 3	< 4	< 4	< 4	< 4	25	7	< 3	< 3	< 3	3
TSS (mg/L) Daily Maximum	16	< 3	4	4	4	5	32	11	< 3	3	< 3	3
Oil and Grease (mg/L) Average Monthly	< 6	< 5.0	< 5.0	< 5.0	< 5	< 5	< 5.0	< 5	< 7.25	< 5	< 14	< 5
Oil and Grease (mg/L) Instantaneous Maximum	7	< 5.0	< 5.0	< 5.0	< 5	< 5	< 5.0	< 5	9.5	< 5	**23**	< 5
Total Aluminum (mg/L) Average Monthly	0.2	< 0.1	0.1	< 0.1	< 0.1	< 0.2	0.2	< 0.1	< 0.1	< 0.2	< 0.1	< 0.1
Total Aluminum (mg/L) Daily Maximum	0.2	< 0.1	0.1	0.1	< 0.1	0.2	0.3	< 0.1	< 0.1	0.2	0.2	< 0.1
Total Iron (mg/L) Average Monthly	0.4	0.16	0.2	0.4	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.2
Total Iron (mg/L) Daily Maximum	0.4	0.19	0.3	0.4	0.5	0.6	0.5	0.4	0.4	0.5	0.4	0.2

Table 2b: DMR Data for Outfall 001 (from November 1, 2019 to October 31, 2020)

Parameter	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19
Flow (MGD) Average Monthly	0.045	0.088	0.048	0.063	0.071	0.085	0.096	0.088	0.18	0.079	0.272	0.156
Flow (MGD) Daily Maximum	0.088	0.598	0.061	0.075	0.077	0.112	0.145	0.232	0.7	0.291	0.369	0.421
pH (S.U.) Minimum	7.1	7.2	7.3	7.1	7.4	7.4	7.4	7.6	7.4	7.5	7.4	7.5
pH (S.U.) Maximum	7.2	7.3	7.4	7.2	7.4	7.6	7.4	7.6	7.8	7.5	7.5	7.7
TSS (mg/L) Average Monthly	8	5	17	< 13	16	< 3	< 3	15	10	15	11	20
TSS (mg/L) Daily Maximum	12	6	21	22	16	< 3	4	16	11	19	18	26
Oil and Grease (mg/L) Average Monthly	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Oil and Grease (mg/L) Instantaneous Maximum	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Total Aluminum (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1
Total Aluminum (mg/L) Daily Maximum	< 0.1	0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	0.1
Total Iron (mg/L) Average Monthly	0.4	0.8	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.8	0.5
Total Iron (mg/L) Daily Maximum	0.4	1.0	0.2	0.3	0.2	0.1	0.2	0.1	0.2	0.2	1.1	0.6

Table 3: DMR Data for Outfall 003 (from August 1, 2018 to July 31, 2019)

Parameter	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18	AUG-18
Flow (MGD) Average Monthly								FF	0.0144	FF	0.179	
Flow (MGD) Daily Maximum								FF	0.0144	FF	0.179	
pH (S.U.) Minimum								FF	7.4	FF	7.57	
pH (S.U.) Maximum								FF	7.5	FF	7.57	
TSS (mg/L) Average Monthly								FF	< 3	FF	4	
TSS (mg/L) Instantaneous Maximum								FF	< 3	FF	4	
Oil and Grease (mg/L) Average Monthly								FF	< 5	FF	< 5	
Oil and Grease (mg/L) Instantaneous Maximum								FF	< 5	FF	< 5	
Total Aluminum (mg/L) Average Monthly								FF	< 0.1	FF	0.1	
Total Aluminum (mg/L) Instantaneous Maximum								FF	< 0.1	FF	0.1	
Total Iron (mg/L) Average Monthly								FF	0.4	FF	0.3	
Total Iron (mg/L) Instantaneous Maximum								FF	0.5	FF	0.3	

Table 4: DMR Data for Outfall 004 (from November 1, 2019 to October 31, 2020)

Parameter	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19
Flow (MGD) Average Monthly		0.1961			0.1961			0.0095			0.0064	
Flow (MGD) Daily Maximum		0.1961			0.1961			0.0095			0.0064	
Total Aluminum (mg/L) Average Monthly		13.6			14.9			< 0.10			< 0.10	
Total Aluminum (mg/L) Daily Maximum		13.6			14.9			< 0.10			< 0.10	
Total Iron (mg/L) Average Monthly		35.1			66.9			0.30			0.27	
Total Iron (mg/L) Daily Maximum		35.1			66.9			0.30			0.27	

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .066
Latitude 40º 16' 52" **Longitude** -79º 53' 04"
Wastewater Description: CCR Landfill Leachate – Sedimentation Pond Supernatant

Technology-Based Limitations (TBELs)

Federal Effluent Limitation Guidelines (ELGs)

Federal ELGs have been established for effluent from steam electric power plants. Previously under the NPDES permit for the Elrama Generating Station, PA0001571, the associated Fern Valley site should have been subject to Federal ELGs pursuant to 40 CFR § 423.12(b)(3) (Steam Electric Power Generating Point Source Category for low volume waste sources) and should have been required to achieve the limits for total suspended solids (TSS) and oil and grease according to Table 5 below.

Table 5: Federal ELGs (40 CFR Part 423)

Parameter	Monthly Avg. (mg/L)	Maximum Daily (mg/L)
TSS	30	100
Oil and Grease	15	20

In addition, a Federal ELG had been established with specific limits for captive CCR leachate under 40 CFR Part 423, in a final rule published in November 3, 2015. However, ERG Memo (EPA-HQ-OW-2009-0819-6347): Pollutants of Concern Analysis Methodology for FGD Wastewater, Combustion Residual Leachate, and Gasification Wastewater (p.6) states: "Upon further review of the data, EPA excluded samples that represented retired combustion residual leachate management units (49 samples) because the data are not representative of the waste stream regulated by the final rule." This most recent version of these ELGs is therefore not applicable to Fern Valley. This also renders subsequent developments related to the 2015 final rule moot. Further, in the prior renewals of this permit; both in 1999 and also in 1994, the promulgated ELGs were not imposed. In the renewal in 1987, the ELGs were noted, but since the landfill was not yet receiving ash at that time, were also not imposed. Both in the 1999 and in the 1994 renewals, TBELs were established based on BPJ focused on the performance of the onsite system.

As it stands today, Federal ELGs promulgated, and applicable, have not been strictly applied to Fern Valley's NPDES permit. Although prior versions of Federal ELGs promulgated, arguably should have applied, the fact remains, that these were not. However, the 1982 vintage (and prior) ELGs remains relevant as an applicable reference.

Regulatory Effluent Standards and Monitoring Requirements

In addition to considering federal limits, the following Commonwealth regulations pursuant to enacting the Commonwealth's Clean Streams Laws are also applicable.

The pH effluent range for all Industrial waste process and non-process discharges pursuant of 25 Pa. Code § 92a.48(a)(2) and 25 Pa. Code § 95.2 is indicated in Table 6 below. Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) and 25 Pa. Code § 95.2(1) as indicated in Table 6 below. Pursuant to 25 Pa. Code § 95.2(4) effluent standards for industrial wastes may not contain more than 7 mg/L of dissolved iron as indicated in Table 6 below.

Also, 25 Pa. Code § 95.2(ii) effluent standards for Oil and Grease are shown in Table 6 below, although less restrictive for oil and grease than the reference, prior ELGs, shown in Table 5, above.

Table 6: Regulatory Effluent Standards

Parameter	Monthly Avg.	Daily Max	IMAX	Units
Flow	Monitor/Report		----	MGD
Iron, Dissolved	----	7.0	----	mg/L
pH	6.0 – 9.0 at all times			S.U.
Oil and Grease	15.0	30.0	----	mg/L
TSS	30.0	100.0	----	mg/L

Integral to the implementation of 25 Pa. Code § 95.10 is the principle that existing, authorized mass loadings of TDS are exempt from any treatment requirements under these provisions. Existing mass loadings of TDS up to and including the maximum daily discharge loading for any existing discharge, provided that the loading was authorized prior to August 21, 2010 are exempt. Discharge loadings of TDS authorized by the Department are typically exempt from the treatment requirements of Chapter 95.10 until the net TDS loading is increased, an existing discharge proposes a hydraulic expansion or a change in the waste stream. If there are existing mass or production-based TDS effluent limits, then these are used as the basis for the existing mass loading. As this is a renewal application and this facility is neither new nor expanding waste loading of TDS, the facility may be exempt from 25 Pa. Code § 95.10 treatment requirements. However, the level of treatment provided appears to have been reduced regarding onsite sedimentation pond capacity. Also, the site's prior use of chemical additives as flocculants and for pH adjustment has been discontinued. In addition, the POFU study identified TDS as a source of stream impairment. Therefore, monitoring of TDS related pollutants may be considered.

The renewal application submittal noted that the discharge sample contained 3,570 mg/L of TDS. The treatment system influent sample for the 2015 update submittal contained 3,380 mg/L of TDS. Under the provisions of 25 Pa. Code § 95.10(c) "New and expanding mass loadings of TDS … may not contain more than 2,000 mg/L of TDS as a monthly average…." The TDS discharge sample result noted above is higher than both the limit set in 25 Pa. Code § 95.10(c) and may benefit from the application of treatment technology. However, under the provisions of 25 Pa. Code § 95.10(a)(7) as this discharge is not new, does not discharge more than 5,000 lbs of solids per day, nor can it be demonstrated that it is increasing, therefore, this discharge is exempt under 25 Pa. Code § 95. There is, however, indication of elevated and possibly increasing levels of TDS in the discharge. Therefore, monitoring for TDS will be required.

Best Professional Judgment (BPJ) Effluent Limitations – Outfall 001

To the extent that Federal ELGs are not directly applicable to Outfall 001's discharges, TBELs, if warranted, are developed based on BPJ. Applicable regulatory effluent standards and monitoring requirements may also be imposed.

Where Federal ELGs do not apply, 40 CFR § 125.3 requires a BPJ determination. This determination evaluates the treatability of pollutants and performance of available treatment technologies. For imposition of effluent limitations based on Best Available Technology Economically Achievable (BAT) requirements, the statute requires consideration of the following factors:

(i) The age of equipment and facilities involved;
(ii) The process employed;
(iii) The engineering aspects of the application of various types of control techniques;
(iv) Process changes;
(v) The cost of achieving such effluent reduction; and
(vi) Non-water quality environmental impact (including energy requirements).

In addition, Technology-based treatment requirements may be imposed in an NPDES permit "on a case-by-case basis under Section 402(a)(1) of the Clean Water Act; to the extent that EPA-promulgated effluent limitations are inapplicable. When effluent guidelines are available for an industrial category, but no effluent guideline requirements are available for a particular pollutant of concern, the permit writer should make sure that the pollutant of concern is not already controlled by the effluent guidelines and was not considered by EPA when the Agency developed the effluent guidelines.

In considering the application of BPJ, the Department reviewed both the basis of US EPA's initial applicable rule in the 1974 Development Document for the Steam Electric Power Generating Point Source Category and the later rule (that may have applied) which is in the 1982 Development Document for Final Effluent Limitations Guidelines. Note that Chromium VI was not considered in these development documents. Relative to this promulgated 1982 ELG, Fern Valley began receiving ash in 1989 and should have been considered a new source and subject to New Source Performance Standards (NSPS) under 40 CFR § 423.15. This, however, was still equivalent to the limits shown in Table 5. The 1982 Development Document does also include its conclusion that:

> For low volume wastes, the BAT limits for conventional pollutants are withdrawn because they will be covered by BCT (Best Conventional Pollutant Control Technology).

In this case, the prior BCT was the use of surface impoundments, and Fern Valley was previously equipped with a cascade of two sedimentation ponds, one still remaining. In addition, the site was approved for, and has previously used approved chemical additives, employed as flocculants; as well as, innovative treatments (CO2 addition) to control pH. The infrastructure for this latter treatment has subsequently been removed. Given this history, it would not be unreasonable to

consider chemical precipitation in the remaining sedimentation pond as a baseline for CCR leachate treatment at this site. However, no chemical addition has recently been used at this site.

Pursuant to identifying a focus of the BPJ analysis a review of the 2015 renewal application submittal treatment influent was made compared to the Department's Treatability Table to determine if any pollutants are documented to be present in concentrations that would benefit from further treatment. This comparison is summarized in the Table 7 below:

Table 7: Comparison of Treatment Pond Influent vs. Treatability Tables (all units in $^{\mu g}/_{L}$)

Pollutant	Influent Conc.	BPJ for BAT	Q.L.	Considered in ELG?	BAT Treatment Methodology
Aluminum	58.7	2,000	10.0	Yes	Precipitation as Al(OH)3.
Arsenic	9.2	200	3.0	Yes	Arsenite oxidized to arsenate; lime precipitation, or iron or alum co-precipitation; gravity clarification
Barium	36.0	1,000	2.0	Yes	Sulfite precipitation; coagulation; barium sulfate precipitate; gravity clarification
Cadmium	< 0.1	0.1	0.2	Yes	Chemical precipitation; high pH (10 – 11) precipitation co-ppt Fe(OH)3; and then gravity clarification for lime
Chromium	< 2.0	500	4.0	Yes	Chemical precipitation; (OH ppt); and then gravity clarification for lime
Hexavalent Chromium	< 10.0	50	1.0	No	Acidic reduction for trivalent chromium or iron exchange at pH below 6.0; pH 2-3
Copper	1.5	400	4.0	Yes	Precipitation (OH ppt); pH 8.5; sulfide ppt 10 ug/L; gravity clarification
Fluoride	100.	10,000.	200.	Yes	High pH lime precipitation, gravity clarification
Iron	152.	1,500	20.0	Yes	Oxidation at neutral pH of ferrous to ferric iron; precipitation; gravity clarification or filtration.
Lead	0.2	150	1.0	Yes	High-pH precipitation (OH ppt); pH 11.5; sulfide 10 ug/L; gravity clarification
Manganese	306.	2,000	2.0	Yes	Chemical oxidants used to convert manganese ion to insoluble MnO_2 or manganese hydroxides and coagulation, filtration.
Mercury	< 0.1	3.0	0.2	Yes	Ion exchange or coagulation plus filtration
Nickel	2.5	750	4.0	Yes	High-pH precipitation (OH ppt); pH 9-12; lime and sulfide, 40 ug/L; gravity clarification and/or filtration.
Silver	< 0.1	100	5.0	Yes	Ion exchange or ferric chloride co-precipitation plus filtration
Zinc	31.	500	5.0	Yes	Precipitation at optimized pH; Zn(OH)2 with lime or caustic; pH 9.0-9.5 and 11; gravity clarification and/or filtration.
TDS	3,380,000	2,000,000	2000	Yes	Chapter 95 Ch. 95.10

As can be seen in Table 7 above, the treatment system influent sample for the 2015 update submittal contained 3,380 mg/L of TDS. As noted in the prior section; however, TDS cannot be conclusively demonstrated as increasing. Further, a more general comparison of influent sample values to the Department's treatability table shows that no other pollutant approached the starting point for BAT treatability. This comparison included arsenic and mercury which have been identified as being of interest for CCR landfill leachate. Therefore, the focus of the BPJ will be solely on the inclusion of the prior ELG (Table 5) lower value for the daily maximum effluent limit for oil and grease.

BPJ Analysis – [Oil & Grease]

A stated above, a review of the most recent 2015 application update submittal information suggests that the sedimentation pond treatment influent demonstrated generally better water quality than the treatment discharge. A review of DMR and eDMR data prior to 2015 was conducted, including available data from 2011 through 2014. A review of this data set indicated that the pollutant loading in the leachate has moderated with time since the landfill closure, but also that the effectiveness of the treatment had diminished with the accumulation of sediment. After the 2020 sedimentation pond

cleaning, treatment effectiveness is expected to improve. The focus of this analysis will be confined to consideration of incorporating the prior ELG lower daily maximum effluent limit for the oil and grease shown in Table 5. There were no other pollutants identified at treatable discharge concentrations to justify a BPJ treatability evaluation.

There are now no applicable ELGs for discharges from closed CCR landfills and the leachate these produce. In the absence of any ELG's, technology limitations are developed based on BPJ. In establishing effluent limitations on a case-by-case basis, the appropriate technology for the applicant is considered. When evaluating appropriate BPJ limits for a permittee, the Department considers six factors as required by 40 CFR § 125.3. These six factors are: (1) the age of the equipment and facility, (2) the process employed, (3) the engineering aspects of the application of various types of control technique, (4) process changes, (5) the cost of achieving such effluent reduction and, (6) non-water quality environmental impact (including energy requirements). Factors specific to each level of control technology include costs, pollutant reduction benefits and economic achievability. Each of these factors are discussed below as they relate to Fern Valley.

1. Equipment and Facility Age – The remaining sedimentation pond in use at the Fern Valley site has been recently cleaned and should therefore now be in good working order. The vintage of the facility is that it was conceived in the late 1970's, redesigned and implemented in the 1980's and then operated from 1989 through 2003. Fern Valley has now been closed for well over a decade. The site has no full-time staff. The site has limited or no installed electrical power supply but does currently have sampling and monitoring installed. It appears unlikely that GenOn (or its successor) will need to invest resources into specialized pollution control equipment such as an oil/water separator (OWS) or rope skimmers. The site has been historically able to meet its effluent limits and is expected to be successful in the future using the existing treatment system.

2. The Process Employed – As mentioned in the previous paragraph, the Department anticipates compliance with the proposed effluent limitations through use of the existing Sedimentation Pond and implementation of BMPs and housekeeping. As such, required changes should be minimal. However, until the recent Sedimentation Pond cleaning, GenOn had failed to adequately invest in the operation and maintenance of the site's pollutant controls for some years. To address the daily maximum limit of 20 mg/L for Oil and Grease included in Table 5. this should be achievable based on the review of prior discharge report data. Over the last twenty years, the proposed limit would only have been exceeded once. This was in September 2018 and is shown in bold in Table 2a. This was a month before the overflow incident. The lower limit may have prompted action to investigate the cause prior to this unusual occurrence.

3. Engineering Aspects of Control Techniques – The addition of an OWS, chemical infrastructure or even additional BMPs appears to be unnecessary for the facility to meet its proposed effluent limitations. However, given the Design Engineer's Report no longer describing the onsite treatment process of today, a review of the adequacy is requested. If any treatment system changes are is necessary to meet GenOn's effluent limits or otherwise desired, the Department and the permittee will evaluate the engineering aspects of the project at that time.

4. Process Changes – In order to meet the lower daily maximum oil and grease effluent limitation no changes to operations at the site are expected. Therefore, sample analysis results submitted with the NPDES permit application are expected to be in compliance now and in the future. Implementation of any required measures should have minimal impact on the passive processes employed at the facility. As such, process changes are not expected to significantly add to the overall cost of operating the facility. However, if any changes to the site infrastructure are required, then this would incur implementation costs and also increase maintenance and associated operating expenses.

5. Non-Water Quality Environmental Impacts (Including Energy Requirements) – As no further measures are foreseen, there are no known non-water quality environmental impacts or energy requirements associated with meeting the lower daily maximum effluent limitations for oil and grease. The proposed effluent limits are appropriate and believed to be attainable using the installed technology. No OWS or rope skimmers are required or expected. If in the future this situation changes, as noted above, this would incur a cost impact.

In order to monitor the operation and maintenance of the installed Sedimentation Pond, the Department proposes TBELs based upon BPJ for Outfall 001. These limits are imposed consistent with the more stringent of prior Federal ELGs shown in Table 5, now applied as BPJ, and the Department's TBELs in Table 6 above derived from applicable PA regulations. Implied with the former is also a prohibition of discharge of PCBs and total residual or free chlorine. Since there is; however, no history of discharge for either PCBs or chlorine from Fern Valley, these are not proposed to be monitored.

Note that BAT limits have not been imposed, rather the basis for the Table 5 values is BCT. The factors required to be considered, in this case, may lessen the need of an explicit cost analysis, never-the less, minimal process changes are

expected. After consideration the 2015 submittal data, compared with treatability information, no monitoring for arsenic or mercury was imposed as a TBEL at this time.

In the future, TBELs could be considered in line with the performance of the site's Sedimentation Pond treatment. A review of available eDMR data going back to early 2011 indicates that a statistical analysis could be used to establish appropriate effluent limitations; however, with the 2020 Sedimentation Pond maintenance only recently accomplished, this study is deferred until a future permit renewal cycle

These recommendations for TBELs are included in Table 8 below.

Table 8: Recommended TBELs for Outfall 001

Parameter	Monthly Avg.	Daily Max	IMAX	Units
Flow	Monitor/Report		----	MGD
TSS	30.0	60.0	----	mg/L
TDS	Monitor/Report	Monitor/Report	----	mg/L
pH	6.0 – 9.0 at all times			S.U.
Oil and Grease	15.0	20.0	----	mg/L
Iron, Dissolved	---	7.0	----	mg/L

Water Quality-Based Limitations

Total Dissolved Solids Considerations

Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, establish a monitoring requirement for TDS, sulfate, chloride, and bromide. For discharges of 0.1 MGD or less establish a monitoring requirement for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L. At Fern Valley the average discharge flowrate is 0.066 MGD (Outfall 001) and reported maximum TDS concentration of 3,570 mg/L. Therefore, TDS monitoring requirements are not imposed as a WQBEL under this provision.

Toxics Screening Analysis – Procedures for Evaluating Reasonable Potential and Developing WQBELs

DEP's procedures for evaluating reasonable potential are as follows:

1. For IW discharges, the design flow to use in modeling is the average flow during production or operation and may be taken from the permit application.

2. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants whose maximum concentrations, as reported in the permit application or on DMRs, are greater than the most stringent applicable water quality criterion are pollutants of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion]. List all toxic pollutants of concern in a Toxics Screening Analysis section of the fact sheet (refer to Attachment C).

3. For any outfall with an applicable design flow, perform PENTOXSD modeling for all pollutants of concern. Use the maximum reported value from the application form or from DMRs as the input concentration for the PENTOXSD model run.

4. Compare the actual WQBEL from PENTOXSD with the maximum concentration reported on DMRs or the permit application. Use WQN data or another source to establish the existing or background concentration for naturally occurring pollutants, but generally assume zero background concentration for non-naturally occurring pollutants.

    - Establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL. Use the average monthly and maximum daily limits for the permit as recommended by PENTOXSD. Establish an IMAX limit at 2.5 times the average monthly limit.

    - For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.

    - For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

The information described above including the maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are collected on a spreadsheet titled "Toxics Screening Analysis." (refer to Attachment C).

Water Quality Modeling Programs

PENTOXSD Version 2.0 for Windows is a single discharge, mass-balance water quality modeling program that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. Required input data including stream code, river mile index, elevation, drainage area, discharge name, NPDES permit number and discharge flow rate are entered into PENTOXSD to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also be entered to further characterize the conditions of the discharge and receiving water. Pollutants are then selected for analysis based on those present or likely to be present in a discharge at levels that may cause, have the reasonable potential to cause, or contribute to excursions above state water quality standards (i.e., a reasonable potential analysis). Discharge concentrations for the selected pollutants are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). PENTOXSD then evaluates each pollutant by computing a Waste Load Allocation for each applicable criterion, determining a recommended maximum WQBEL and comparing that recommended WQBEL with the input discharge concentration to determine which is more stringent. Based on this evaluation, PENTOXSD recommends average monthly and maximum daily WQBELs.

The Toxics Management Spreadsheet (TMS) was developed, tested and later approved for use in the second half of 2020. Version 1.1 was an upgrade, rolled out in October 2020 and Version 1.2 was issued in February 2021. TMS incorporates the functionality of both PENTOXSD and the prior Toxics Screening Analysis spreadsheet into one spreadsheet.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Discharges from Outfall 001 were evaluated based on concentrations reported on the application. The PENTOXSD model was initially run for Outfall 001 using the modeled discharge and receiving stream characteristics shown in Table 9. The pollutants selected for analysis are those identified as candidates for modeling by the Toxics Screening Analysis (see Attachment B). In February 2021, TMS was rerun using the modeled discharge and receiving stream characteristics shown in Table 9. Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease, etc.) were excluded from the water quality modeling.

PENTOXSD and TMS use a mass balance approach. The initial bases for this stream flow at the point of discharge was flagged as outside the statistical parameters for the USGS StreamStats error analysis (see Attachment A). Therefore, a revised value was determined using as its bases a point on nearby Peter's Creek near its confluence with the Monongahela River. The yield from this node (0.01942 cubic feet/sec per square mile) was then used to model $Q_{7\text{-}10}$ for the discharge node for the receiving stream (UNT 39536 to the Monongahela River) using the drainage area calculated in Table 1 (0.3565 square miles). The calculated inputs were then used to model the stream and discharge flows and loads in the models. The model inputs for the final runs are shown in Attachment D (for PENTOXSD) and Attachment E (for TMS).

Table 9: PENTOXSD Inputs

Parameter	Value
River Mile Index	0.13
Discharge Flow (MGD)	0.13
Basin/Stream Characteristics	
Parameter	**Value**
Area (mi^2)	0.36
$Q_{7\text{-}10}$ (cfs)	0.0069
Low-flow yield (cfs/mi^2)	0.0194
Elevation (ft.)	798
Slope	0.106

The WQBELs calculated using PENTOXSD (see Attachment D) are compared to the maximum reported effluent concentrations, as described in the Toxics Screening Analysis section above, to evaluate the need to impose WQBELs or monitoring requirements in the permit. Based on the recommendations of the Toxics Screening Analysis, the WQBELs and monitoring requirements shown in Table 9 are applicable at Outfall 001.

PENTOXSD model allowed for 100% Partial Mix Factor for CFC, THH and CRL. Although typically the Model is then revised to force the Partial Mix Factor to 70% or other appropriate percentage, to allow the river to accommodate additional discharges downstream of the facility. However, given the captured nature of this stream, this was not done in this case.

The Toxics Screening Analysis's recommended effluent limits and/or reporting requirements for the parameters shown in Table 9. For some parameters, only monitoring is required as the results did not exceed the most stringent WQBEL value, but the reported results were too high to rule out the possibility that discharges will result in excursions above Pennsylvania's water quality standards.

Also included in Table 10 for reference are the target Quantitation Limits (QLs) specified in DEP's most recent *Application for Permit to Discharge Industrial Wastewater*. The target QLs are the means by which DEP is implementing EPA's September 18, 2014 revisions to 40 CFR Parts 122 and 136 requiring applicants and permittees to use "sufficiently sensitive" EPA-approved analytical methods that are capable of detecting and measuring the pollutants at, or below, the applicable water quality criteria or permit limits.

Table 10. Outfall 001 WQBELs and Monitoring Requirements (with Most Stringent Criteria and Target QLs)

Parameter	Concentration (µg/L)		Most Stringent Criterion (µg/L)	Target QL (µg/L)
	Monthly Avg	Maximum Daily		
Arsenic, Total	10.3	16.1	10.0	3.0
Boron, Total	1654.9	2581.9	1600.0	200.0
Cadmium, Total	0.28	0.44	0.27	0.2
Hexavalent Chromium	*10.8*	*16.8*	*5.5*	*1.0*
Copper, Total	9.3	14.1	9.3	4.0
Manganese, Total	1034.3	1575.7	1000.0	2.0
Selenium, Total	5.2	7.9	5.0	5.0
Zinc, Total	119.8	121.0	119.8	5.0
Total Dissolved Solids (TDS)	Report	Report	500000.0	2000.0
Chloride	Report	Report	250000.0	500.0
Bromide	Report	Report	N/A	200.0
Sulfate	Report	Report	250000.0	1000.0

In Table 10 above, the WQBEL for Hexavalent Chromium is included; however, the application reported that this pollutant was not detected. Inclusion is because the lab MDL did not meet the Department's target QL, therefore this pollutant was selected for modeling by the TSA screening and the modeling indicated the need to implement an effluent limit. To indicate this, this information was shown in italics in Table 10. The permittee may opt to resample with analysis provided that meets the target QL and submit this information for reconsideration of inclusion of this pollutant.

Toxics Management Spreadsheet (TMS), Versions 1.0, 1.1 & 1.2

During review of the Effluent Limits for Outfall 001, the historic limits set for Aluminum and Iron were noted as being excessively high. The Reasonable Potential analysis was therefore rerun with the newly released Toxics Management Spreadsheet, version 1.0 which was released in July 2020 and then rerun again with versions 1.1 and 1.2 in February 2021. The prior limits for the Monthly Average (AML) were used as substitute inputs for the supplied discharge samples for Aluminum and Iron to evaluate appropriate effluent limits. As noted above, the technical approach and basis of the TMS is analogous to the Toxics Screening Analysis and PENTOXSD evaluation, described above, but combined into one spreadsheet. The inputs and results of the final TMS run is included as Attachment E.

Table 11: Outfall 001 TMS WQBELs and Monitoring Requirements (with Most Stringent Criteria and Target QLs)

Parameter	Concentration (µg/L)		Governing WQBEL (µg/L)	Target QL (µg/L)
	Monthly Avg	Maximum Daily		
Aluminum, Total	750	776	750	3.0
Arsenic, Total	10.3	16.1	10.3	3.0
Boron, Total	1656	2583	1656	200.0
Cadmium, Total	0.28	0.44	0.28	0.2
Hexavalent Chromium	*10.8*	*16.8*	*10.8*	*1.0*
Copper, Total	9.65	14.5	9.65	4.0
Iron, Total	1552	2422	1552	20.0
Manganese, Total	1035	1614	1035	2.0
Nickel, Total	Report	Report	54.0	4.0
Selenium, Total	5.16	8.05	5.16	5.0
Zinc, Total	120	124	120	5.0

Similar to Table 10, in Table 11 above the WQBEL for Hexavalent Chromium is included despite the fact that the application reported that this pollutant was not detected. Inclusion is because the lab MDL did not meet the Department's target QL, therefore this pollutant was selected for modeling by TMS and the modeling indicated the need to implement an

effluent limit. To indicate this, this information was shown in italics in Table 11. The permittee may opt to resample with analysis provided that meets the target QL and submit this information for reconsideration of inclusion of this pollutant.

WQM 7.0 Model

The computer model WQM 7.0 is run to determine wasteload allocations and effluent limitations for $CBOD_5$, NH_3-N and Dissolved Oxygen for single and multiple point source discharge scenarios. In general, WQM 7.0 is run if the maximum BOD_5/$CBOD_5$ concentrations exceeds 30/25 mg/L respectively in the permit application or the DMRs. The permit application reports BOD_5 concentrations of between 1 - 2 mg/L, therefore, the WQM 7.0 Model is not required to be run.

Total Residual Chlorine (TRC)

This facility does not use public drinking water as a supply source and, it does not currently use chlorination for treatment. In addition, chlorine was not detected in the discharge samples, therefore, no TRC limits are proposed.

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard or water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR § 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

The facility is not seeking to revise the previously permitted effluent limits. These limits are included in Table 12 below.

Table 12: Prior NPDES Permit Effluent Limits

Parameter	Monthly Avg.	Daily Max	IMAX	Units
Flow	Monitor/Report		----	MGD
TSS	30.0	60.0	75.0	mg/L
pH	6.0 – 9.0 at all times			S.U.
Oil and Grease	15.0	----	30.0	mg/L
Iron, Total	7.0	8.75	8.75	mg/L
Aluminum	5.0	10.0	12.5	mg/L

Aquatic Life Use Assessment Survey

As noted earlier, a survey was conducted in late 2019 as documented by a report issued on April 17, 2020. This report required that the following parameters be included in this permit as monitor and report: boron, lithium, bromide, osmotic pressure, strontium, sulfates and Total Dissolved Solids (TDS).

Effluent Limitations and Monitoring Requirements for Outfall 001

Effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 13. The applicable limits and monitoring requirements provided below are based on the most stringent limits from those listed in Tables 6, 8, 11 and 12 in the prior sections of this Fact Sheet.

Table 13: Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass (pounds)		Concentration (µg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
Oil and Grease	—	—	15000	**20000**	—	40 CFR § 423 & 125.3
Total Suspended Solids	—	—	30000	60000	75000(1)	40 CFR § 125.3
Iron (total)	—	—	**1552**	**2422**	**3880**(1)	WQBELs, Reasonable Pot.
Aluminum (total)	—	—	**750**	**776**	**776**(1)	WQBELs, Reasonable Pot.
Manganese (total)	—	—	**1035**	**1614**	—	WQBELs, Reasonable Pot.
Arsenic (total)	—	—	**10.3**	**16.1**	—	WQBELs, Reasonable Pot.
Boron (total)	—	—	**1656**	**2583**	—	WQBELs, Reasonable Pot.
Cadmium (total)	—	—	**0.28**	**0.44**	—	WQBELs, Reasonable Pot.
Hexavalent Chromium	—	—	***10.8***	***16.8***	—	*WQBELs, Reasonable Pot.*
Copper (total)	—	—	**9.65**	**14.5**	—	WQBELs, Reasonable Pot.
Selenium (total)	—	—	**5.16**	**8.05**	—	WQBELs, Reasonable Pot.
Zinc (total)	—	—	**120**	**124**	—	WQBELs, Reasonable Pot.
Nickel	—	—	Report	Report	—	WQBELs, Reasonable Pot.
Total Dissolved Solids	—	—	Report	Report	—	25 Pa. § Code 95.10?
Bromide	—	—	Report	Report	—	Aquatic Life Assessment
Sulfate	—	—	Report	Report	—	Aquatic Life Assessment
Lithium	—	—	Report	Report	—	Aquatic Life Assessment
Osmotic Press. (mOs/kg)	—	—	Report	Report	—	Aquatic Life Assessment
Strontium	—	—	Report	Report	—	Aquatic Life Assessment
pH (S.U.)	Within the range of 6.0 to 9.0					25 Pa. Code § 95.2

(1) IMAX values only supplied for use by Water Quality Specialist during inspections.

Items displayed in **bold** in **Table 13** are more restrictive than effluent limits enforced in Fern Valley's previous permit. Coincident with issuance of the draft of this renewal, a survey will be issued to inquire if the permittee believes current controls are sufficient to meet these new limits. Monitoring requirements for the prior and added parameters of interest were set to match those of the previous permit's requirements for frequency/type and are displayed in Table 14 below.

Table 14. Monitoring Requirements for Outfall 001

Parameter	Sample Type	Minimum Sample Frequency
Flow (MGD)	Measured	2/Month
Oil and Grease	Grab	2/Month
Total Suspended Solids	8-hour Composite	2/Month
Iron (total)	8-hour Composite	2/Month
Aluminum (total)	8-hour Composite	2/Month
Manganese (total)	Grab	2/Month
Arsenic (total)	Grab	2/Month
Boron (total)	Grab	2/Month
Cadmium (total)	Grab	2/Month
Hexavalent Chromium	*Grab*	*2/Month*
Copper (total)	Grab	2/Month
Selenium (total)	Grab	2/Month
Zinc (total)	Grab	2/Month
Total Dissolved Solids	Grab	2/Month
Bromide	Grab	2/Month
Nickel	Grab	2/Month
Sulfate	Grab	2/Month
Lithium	Grab	2/Month
Osmotic Pressure	Grab	2/Month
Strontium	Grab	2/Month
pH (S.U.)	Grab	2/Month

The WQBEL for Hexavalent Chromium is shown in italics in Tables 13 and 14 to indicate its inclusion is because the lab MDL did not meet the Department's Target QL. The permittee may opt to resample and provide information that meets the Department's Target QL. The Department could then reconsider inclusion of this pollutant in the final NPDES permit.

Effluent Limitation Compliance Schedule

Whenever the Department proposes the imposition of water quality based effluent limitations on existing sources, the NPDES permit may include a schedule of compliance to achieve the WQBELs. Any compliance schedule contained in an NPDES permit must be an "enforceable sequence of actions or operations leading to compliance with the water quality-based effluent limitations ("WQBELs"). In accordance with 40 CFR § 122.47(a)(3) and PA Code, Chapter 92a.51, compliance schedules that are longer than one year in duration must set forth interim requirements and dates for their achievement. In order to grant a compliance schedule in an NPDES permit, the permitting authority has to make a reasonable finding, adequately supported by the administrative record and described in the fact sheet, that a compliance schedule is "appropriate" and that compliance with the final WQBEL is required "as soon as possible".

In this case, with the imposition of WQBELs based on the newly determined POFU on UNT 39536, the need for a compliance schedule will be presumed to give the facility time to implement any required changes to be able to achieve the new WQBELs. This determination will be confirmed via the return of a Pre-Draft Permit Survey for Toxic Pollutants based on the permittee's survey responses. This survey, included as Attachment F, will be sent out concurrently with the draft permit for comment. During this period, Trogon may also decide to perform a limited resample and analyze this to determine if sampling for Hexavalent Chromium is actually required. The draft permit will include a compliance schedule of 3 years with interim limits and milestones to guide the permittee's discovery and subsequent responses to come into compliance. Interim limits will be in line with the prior limits shown in Table 12 with monitoring added in line with Table 14 for newly required pollutants. Final limits and monitoring will be in line with those shown in Table 13.

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	0
Latitude	40º 16' 52"	**Longitude**	-79º 53' 04"
Wastewater Description:	CCR Landfill Leachate - Sedimentation Pond underdrain (designed for use during pond cleanout)		

The development of limits for Outfall 002 is identical to that of Outfall 001. The effluent limits and monitor and report parameters identified for Outfall 002 are the same as those shown in Tables 13 and 14 above.

Development of Effluent Limitations

Outfall No.	003	**Design Flow (MGD)**	.066
Latitude	40º 16' 52"	**Longitude**	-79º 53' 04"
Wastewater Description:	CCR Landfill Leachate - Emergency Overflow		

The development of limits for Outfall 003 is identical to that of Outfall 001. The effluent limits and monitor and report parameters identified for Outfall 003 are the same as those shown in Tables 13 and 14 above.

Development of Effluent Limitations

Outfall No.	004	**Design Flow (MGD)**	0
Latitude	40º 16' 52"	**Longitude**	-79º 53' 04"
Wastewater Description:	Captured Stormwater		

Storm Water Outfalls

The Department's policy for stormwater discharges is to either (1) require that the stormwater be uncontaminated, (2) impose "Monitor and Report", to establish effluent goals and require the permittee to submit a Stormwater Pollution Prevention Plan (SWPPP), or (3) impose effluent limits. In all cases, a storm water special condition is placed in the permit in Part C.

If stormwater effluent data is reported in the application, it can be compared to stream criteria, EPA's Multi-Sector General Permit (MSGP) "benchmark values" (excerpt in Attachment G), ELGs and other references while considering site specific conditions such as stream flow and location to determine if actual discharge concentrations of various pollutants in stormwater warrant further controls. If there is insufficient data available, or if pollutant levels are excessive, monitoring for specific pollutants and/or a SWPPP are required in the permit. In the case of the stormwater outfalls for the Fern Valley site, stormwater data was contained in the applicant's submittal from 2015. Further, in their transmittal letter of the 2015 updated application, the permittee requested that the Department consider all of the storm water outfalls as "no exposure, as there are no industrial sources of pollutants in the drainage areas of these outfalls."

Consistent with 25 Pa. Code § 92a.61(h) and DEP's policy for permitting storm water discharges associated with industrial activities, minimum standards described in DEP's PAG-03 General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity will be applied to the Fern Valley site's storm water discharges. Based on GenOn's Fern Valley SIC Code of 4911, this facility could be classified under Appendix H – Steam Electric Generating Facilities of the PAG-03 General Permit. Therefore, for the permit term, Appendix H requirements may be applied to this Outfall, as shown in Table 15.

Table 15. PAG-03 Appendix H – Minimum Monitoring Requirements

Discharge Parameter	Units	Sample Type	Appendix H Measurement Frequency	Appendix H Benchmark Values (mg/L)
Total Suspended Solids	mg/L	1 Grab	1/6 months	100
Oil and Grease	mg/L	1 Grab	1/6 months	30
Iron, Total	mg/L	1 Grab	1/6 months	-
pH	S.U.	1 Grab	1/6 months	Between 6.0 and 9.0

To the extent that effluent limits would be necessary to ensure that storm water BMPs are adequately implemented, DEP's Permit Writers' Manual recommends that effluent limits be developed for industrial storm water discharges based on a determination of Best Available Technology (BAT) using Best Professional Judgment (BPJ). However, pollutant concentrations reported for Outfall 004 discharges (see Table 16) were not initially significant enough to impose effluent limits based on reasonable thresholds for identifying parameters of concern in storm water.

Table 16. Analytical Results Reported for Storm Water at the Fern Valley Site – Outfall 004

Parameter	Conc. Reported on 2015 Application (mg/L)	Parameter	Conc. Reported on 2015 Application (mg/L)
Total Suspended Solids	10	pH (S.U.)	7.7
Oil and Grease	<2.1	Nitrate+Nitrite Nitrogen	0.048
BOD_5	5.1	Phosphorus	0.13
COD	**47**	Total Kjeldahl Nitrogen	1.5

Values shown in Table 16 in **bold** exceeded the "No Exposure" benchmarks. Note that these benchmarks are not applied relative to a background value but are rather assessed in absolute terms. Therefore, the benchmark exceedances do not qualify for the "No Exposure" designation.

In contrast, a review of recent eDMR values (see Table 4) reveals a peak value, in June 2020, for aluminum of 14.9 mg/L and a peak value of iron of 66.9 mg/L. These values are well in excess of the benchmarks from the General Permit shown in Table 15 and/or the benchmarks from EPA's MSGP shown in Attachment G. These results indicate that coverage under the General Permit benchmarks and monitoring may not be sufficient to be protective of the receiving stream.

In response to a Department inquiry, GenOn informed the Department that they had initiated a study of pollutant levels at the various inlets to the onsite stormwater collection system On February 3, 2021, GenOn supplied a table of recent samples for Outfall 004 and an annotated map of the site, showing some of the acquired results from this study. The table of values correlates peak precipitation events with outfall flow and pollutant levels for aluminum and iron. This information is included as Table 17 below:

Table 17: Fern Valley Stormwater Sampling, 2020 Summary

	Date Collected	Precipitation Rate (in/hour)	Total Precipitation	Flow (MGD)	Aluminum (mg/L)	Iron (mg/L)
Q1 2020	1/24/2020	0.06 - 0.18	0.11 inches in 1.5 hours	0.0095	<0.10	0.3
Q2 2020	6/4/2020	0.12 - 0.78	0.39 inches in 2 hours	0.1961	14.9	66.9
Q3 2020	7/21/2020	0.12 - 0.90	0.25 inches in 35 minutes	0.1961	13.6	35.1
Q4 2020	11/11/2020	0.06 - 0.54	0.59 inches in 4 hours	0.0064	<0.10	0.41

From the table above, there is an indication that the site's stormwater collection system may be subject to elevated, entrained pollutant levels during seasonal peak precipitation events. Pursuant to identifying specific areas of concern, GenOn contracted their consultant to assemble the annotated site map which is included as Figure 6 below:

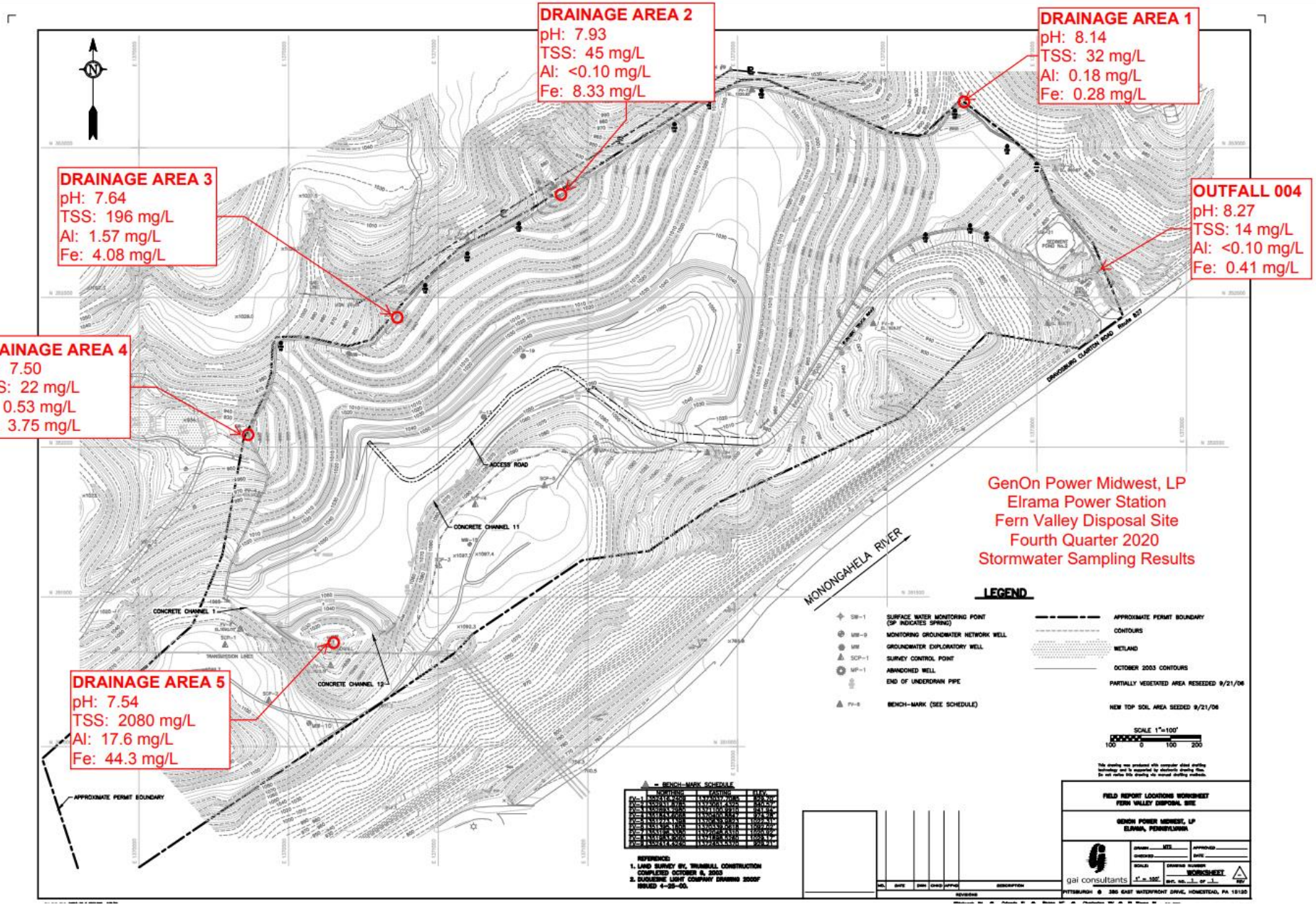


Figure 6: Fern Valley Fourth Quarter 2020 Stormwater Sampling Results

The data displayed in Figure 6 above indicates that drainage area 5 has elevated levels of TSS, aluminum and iron when compared to the benchmarks in the General Permit in Table 15 or the MSGP benchmark thresholds included as Attachment G. Note that other drainage areas shown in Figure 6 are also exceeding these benchmarks, including TSS and aluminum in area 3. In response, Trogon should prepare an updated SWPPP with measures to control these pollutants. A reference to consider is the "Pennsylvania Stormwater Best Management Practices Manual" (363-0300-002). Alternately, a portion of the onsite stormwater collection system could be redirected to the site's Sedimentation Pond for treatment.

As it stands with the evidence that pollutants of concern are being discharged to UNT 39536, effluent limits must be established pursuant to 25 Pa. Code § 92a.61(h) (see Table 6). No other data was available for other pollutants to determine if any may be present at concentrations that warrant the development of TBELs. The level of exceedance indicates that monitoring frequency should be increased, as well. The new frequency is set to match the collection frequency at Outfall 001.

Water Quality-Based Effluent Limitations (WQBELs)

No mathematical modeling was performed for toxic pollutants at Outfalls 004. Storm water is only discharged intermittently and generally not at times when the receiving stream is flowing at the Q_{7-10} design flow conditions modeled.

Monitoring Requirements for Outfall 004

Since recent eDMR reports from this outfall indicate that pollutants of concern may be present, TBELs are being imposed as effluent limits, along with other parameters established to monitor the effectiveness of control measures implemented. These are shown in Table 18 below:

Table 18: Permit Effluent Limits and Monitoring Requirements for Outfall 004

Parameter	Mass (pounds)		Concentration (mg/L)			Monitoring Requirements
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Total Suspended Solids	—	—	30.0	100.0	—	Grab sample; 2/month
Oil and Grease	—	—	15.0	30.0	—	Grab sample; 2/month
Iron (total)	—	—	Report	7.0	—	Grab sample; 2/month
Aluminum (total)	—	—	Report	Report	—	Grab sample; 2/month
pH (S.U.)	Between 6.0 and 9.0 at all times					Grab sample; 2/month

Effluent Limitation Compliance Schedule

Whenever the Department proposes the imposition of WQBELs on existing sources, the NPDES permit may include a schedule of compliance to achieve the WQBELs. However, for Outfall 004, effluent limits are imposed based on TBELs. Therefore, no compliance schedule can be implemented.

Anti-Backsliding:

Anti-backsliding does not apply.

Development of Effluent Limitations

Outfall No.	005	**Design Flow (MGD)**	0
Latitude	40º 16' 52"	**Longitude**	-79º 53' 04"

Wastewater Description: Captured Stormwater - Southern Stormwater Ditch

Storm Water Outfalls

The Department's policy for stormwater discharges is to either (1) require that the stormwater be uncontaminated, (2) impose "Monitor and Report", to establish effluent goals and require the permittee to submit a Stormwater Pollution Prevention Plan (SWPPP), or (3) impose effluent limits. In all cases, a storm water special condition is placed in the permit in Part C.

If stormwater effluent data is reported in the application, it can be compared to stream criteria, EPA's Multi-Sector General Permit (MSGP) "benchmark values", ELGs and other references while considering site specific conditions such as stream flow and location to determine if actual discharge concentrations of various pollutants in stormwater warrant further controls. If there is insufficient data available, or if pollutant levels are excessive, monitoring for specific pollutants and/or a SWPPP are required in the permit. In the case of the stormwater outfalls for the Fern Valley site, stormwater data was contained in the applicant's submittal from 2015. Further, in their transmittal letter of the 2015 updated application, the permittee requested that the Department consider all of these outfalls as "no exposure, as there are no industrial sources of pollutants in the drainage areas of these outfalls."

Consistent with 25 Pa. Code § 92a.61(h) and DEP's policy for permitting storm water discharges associated with industrial activities, minimum standards described in DEP's PAG-03 General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity will be applied to the Fern Valley site's storm water discharges. Based on GenOn's Fern Valley SIC Code of 4911, this facility could be classified under Appendix H – Steam Electric Generating Facilities of the PAG-03 General Permit. Therefore, for the permit term, Appendix H requirements may be applied to this Outfall, as shown in Table 15.

To the extent that effluent limits would be necessary to ensure that storm water BMPs are adequately implemented, DEP's Permit Writers' Manual recommends that effluent limits be developed for industrial storm water discharges based on a determination of Best Available Technology (BAT) using Best Professional Judgment (BPJ). However, no pollutant concentrations or sampling results were reported for Outfall 005 discharges in either the original application or in the 2015 update. In this case, results from the northern stormwater ditch will be considered representative and monitoring will be set consistent with Outfall 007.

Anti-Backsliding:

Anti-backsliding does not apply.

Development of Effluent Limitations

Outfall No.	006	**Design Flow (MGD)**	0
Latitude	40º 16' 52"	**Longitude**	-79º 53' 04"

Wastewater Description: Captured Stormwater - Roadway Runoff Stormwater Drain

Storm Water Outfalls

The Department's policy for stormwater discharges is to either (1) require that the stormwater be uncontaminated, (2) impose "Monitor and Report", to establish effluent goals and require the permittee to submit a Stormwater Pollution Prevention Plan (SWPPP), or (3) impose effluent limits. In all cases, a storm water special condition is placed in the permit in Part C.

If stormwater effluent data is reported in the application, it can be compared to stream criteria, EPA's Multi-Sector General Permit (MSGP) "benchmark values", ELGs and other references while considering site specific conditions such as stream flow and location to determine if actual discharge concentrations of various pollutants in stormwater warrant further controls. If there is insufficient data available, or if pollutant levels are excessive, monitoring for specific pollutants and/or a SWPPP are required in the permit. In the case of the stormwater outfalls for the Fern Valley site, stormwater data was contained in the applicant's submittal from 2015. Further, in their transmittal letter of the 2015 updated application, the permittee requested that the Department consider all of these outfalls as "no exposure, as there are no industrial sources of pollutants in the drainage areas of these outfalls."

Consistent with 25 Pa. Code § 92a.61(h) and DEP's policy for permitting storm water discharges associated with industrial activities, minimum standards described in DEP's PAG-03 General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity will be applied to the Fern Valley site's storm water discharges. Based on GenOn's Fern Valley SIC Code of 4911, this facility could be classified under Appendix H – Steam Electric Generating Facilities of the PAG-03 General Permit. Therefore, for the permit term, Appendix H requirements may be applied to this Outfall, as shown in Table 15.

To the extent that effluent limits would be necessary to ensure that storm water BMPs are adequately implemented, DEP's Permit Writers' Manual recommends that effluent limits be developed for industrial storm water discharges based on a determination of Best Available Technology (BAT) using Best Professional Judgment (BPJ). However, pollutant concentrations reported for Outfall 006 discharges (see Table 19) are not significant enough to impose effluent limits based on reasonable thresholds for identifying parameters of concern in storm water.

Table 19. Analytical Results Reported for Storm Water at the Fern Valley Site – Outfall 006

Parameter	Conc. Reported on 2015 Application (mg/L)	Parameter	Conc. Reported on 2015 Application (mg/L)
Total Suspended Solids	<5.0	pH (S.U.)	8.5
Oil and Grease	<2.0	Nitrate+Nitrite Nitrogen	**2.34**
BOD_5	1	Phosphorus	0.156
COD	22	Total Kjeldahl Nitrogen	1.4

Values shown in Table 19 in **bold** exceeded the "No Exposure" benchmarks. In addition, the reported results for fecal coliform in the 2015 updated submittal all were reported as 2000/100ml or greater. This result is in excess of typical discharge effluent limits allowed under NPDES permits. Note that these benchmarks are not applied relative to a background value but are rather assessed in absolute terms. Although the benchmark exceedances do not qualify for the "No Exposure" designation, these values indicate that coverage under the General Permit benchmarks and monitoring should prove sufficient, absent an overflow and discharge of captured leachate. Should benchmark exceedances indicate that parameters of concern are identified for Outfall 001 limits, this could be imposed in the future pursuant to Appendix H of the PAG-03 General Permit and 25 Pa. Code § 92a.61(h). As noted, fecal coliform was also present at concentrations that warrant monitoring.

Water Quality-Based Effluent Limitations (WQBELs)

No mathematical modeling was performed for toxic pollutants at Outfalls 004. Analytical data submitted with the permit renewal application do not indicate that toxics are present in the discharge. Storm water is only discharged intermittently and generally not at times when the receiving stream is flowing at the Q_{7-10} design flow conditions modeled.

Monitoring Requirements for Outfall 006

These monitor and report parameters identified above are shown in Table 20 below.

Table 20: Monitoring Requirements and Benchmarks for Fern Valley Outfall 006

Discharge Parameter	Units	Sample Type	Measurement Frequency	Benchmark Values (mg/L)
Total Suspended Solids	mg/L	1 Grab	1/6 months	100
Oil and Grease	mg/L	1 Grab	1/6 months	30
Iron, Total	mg/L	1 Grab	1/6 months	-
pH	S.U.	1 Grab	1/6 months	Between 6.0 and 9.0
Fecal Coliform	No./ 100 ml	1 Grab	1/6 months	-

Anti-Backsliding:

Anti-backsliding does not apply.

Development of Effluent Limitations

Outfall No.	007	**Design Flow (MGD)**	0
Latitude	40º 16' 52"	**Longitude**	-79º 53' 04"

Wastewater Description: Captured Stormwater - Northern Stormwater Ditch

Storm Water Outfalls

The Department's policy for stormwater discharges is to either (1) require that the stormwater be uncontaminated, (2) impose "Monitor and Report", to establish effluent goals and require the permittee to submit a Stormwater Pollution Prevention Plan (SWPPP), or (3) impose effluent limits. In all cases, a storm water special condition is placed in the permit in Part C.

If stormwater effluent data is reported in the application, it can be compared to stream criteria, EPA's Multi-Sector General Permit (MSGP) "benchmark values", ELGs and other references while considering site specific conditions such as stream flow and location to determine if actual discharge concentrations of various pollutants in stormwater warrant further controls. If there is insufficient data available, or if pollutant levels are excessive, monitoring for specific pollutants and/or a SWPPP are required in the permit. In the case of the stormwater outfalls for the Fern Valley site, stormwater data was contained in the applicant's submittal from 2015. Further, in their transmittal letter of the 2015 updated application, the permittee requested that the Department consider all of these outfalls as "no exposure, as there are no industrial sources of pollutants in the drainage areas of these outfalls."

Consistent with 25 Pa. Code § 92a.61(h) and DEP's policy for permitting storm water discharges associated with industrial activities, minimum standards described in DEP's PAG-03 General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity will be applied to the Fern Valley site's storm water discharges. Based on GenOn's Fern Valley SIC Code of 4911, this facility could be classified under Appendix H – Steam Electric Generating Facilities of the PAG-03 General Permit. Therefore, for the permit term, Appendix H requirements may be applied to this Outfall, as shown in Table 15.

To the extent that effluent limits would be necessary to ensure that storm water BMPs are adequately implemented, DEP's Permit Writers' Manual recommends that effluent limits be developed for industrial storm water discharges based on a determination of Best Available Technology (BAT) using Best Professional Judgment (BPJ). However, pollutant concentrations reported for Outfall 007 discharges (see Table 21) are not significant enough to impose effluent limits based on reasonable thresholds for identifying parameters of concern in storm water.

Table 21. Analytical Results Reported for Storm Water at the Fern Valley Site – Outfall 007

Parameter	Conc. Reported on 2015 Application (mg/L)	Parameter	Conc. Reported on 2015 Application (mg/L)
Total Suspended Solids	11	pH (S.U.)	8.25
Oil and Grease	< 5	Nitrate+Nitrite Nitrogen	0.16
BOD_5	< 2	Phosphorus	0.05
COD	19	Total Kjeldahl Nitrogen	< 1.0

No values shown in Table 21 exceeded the "No Exposure" benchmarks. In addition, none of the other reported results in the 2015 application update indicated a cause for concern. Therefore, this outfall will be required to be uncontaminated. A condition will be added to Part C of the permit in this regard. Since this outfall is considered representative of the Outfall 005, it will receive the same Part C condition.

Water Quality-Based Effluent Limitations (WQBELs)

No mathematical modeling was performed for toxic pollutants at Outfalls 004. Analytical data submitted with the permit renewal application do not indicate that toxics are present in the discharge. Storm water is only discharged intermittently and generally not at times when the receiving stream is flowing at the Q_{7-10} design flow conditions modeled.

Monitoring Requirements for Outfall 007

No monitoring is required.

Tools and References Used to Develop Permit	
☐	WQM for Windows Model
☒	PENTOXSD for Windows Model (see Attachment D)
☐	TRC Model Spreadsheet
☐	Temperature Model Spreadsheet
☒	Toxics Screening Analysis Spreadsheet (see Attachments B and F)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☒	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☒	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☒	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: SOP No. BCW-PMT-003, Revised May 17, 2019, Version 1.8; New and Reissuance Industrial Waste and Individual Stormwater Individual NPDES Permit Applications, SOP No. BPNPSM-PMT-001, Revised October 11, 2013, Version 1.5., Establishing Effluent Limitations for Individual Industrial Permits, SOP No. BPNPSM-PMT-032, Revised February 15, 2017, Version 1.4
☒	Other: Aquatic Life Use Assessment Survey, UNT 39536 to the Monongahela River, State Water Plan 19C, WWF, HUC Code 05020005, Stream Code 39536, GenOn Power Midwest, LP, Fern Valley Fly Ash Disposal Site, Jefferson Hills Borough, Allegheny County

ATTACHMENTS

ATTACHMENT A: USGS STREAMSTATS DATA

ATTACHMENT B: TOXICS SCREENING ANALYSIS SPREADSHEET

ATTACHMENT C: Q_{7-10} FLOWS OF MAJOR RIVERS – MONONGAHELA RIVER

ATTACHMENT D: PENTOXSD MODELING RESULTS

ATTACHMENT E: TOXICS MANAGEMENT SPREADSHEET RESULTS AND INPUTS

ATTACHMENT F: PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

ATTACHMENT G: MULTI-SECTOR GENERAL PERMIT BENCHMARK VALUES

ATTACHMENT A

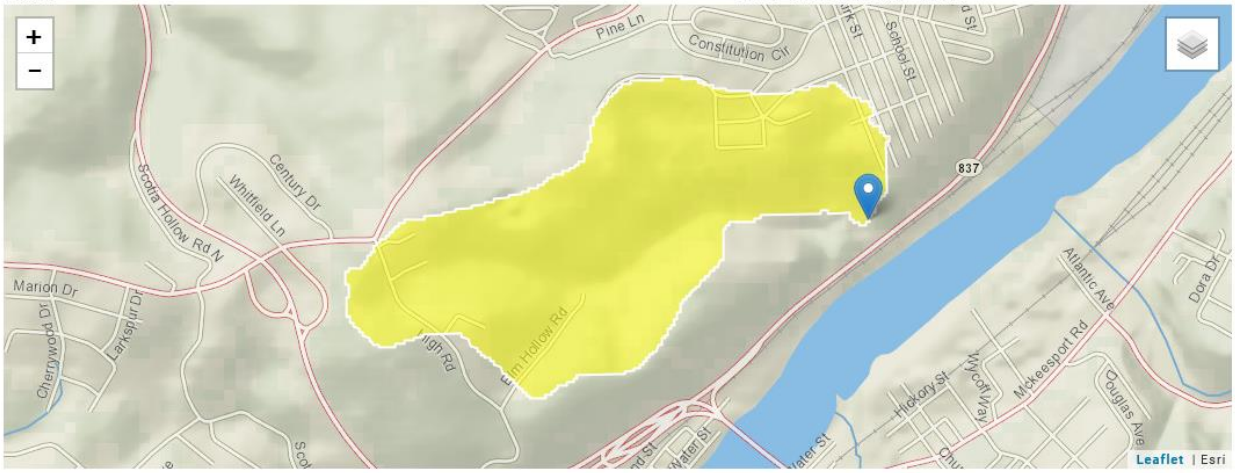
USGS STREAMSTATS DATA

A.) UNT 39536 TO MONONGAHELA RIVER
B.) PETERS CREEK (CONSIDERED REPRESENTATIVE**)**
C.) MONONGAHELA RIVER

A. UNT 39536 TO MONONGAHELA RIVER

StreamStats Report: UNT 39536 to Mon. Riv. @ Fern Valley Ash Disp. Outfalls

Region ID:	PA
Workspace ID:	PA20191009160616669000
Clicked Point (Latitude, Longitude):	40.28155, -79.88412
Time:	2019-10-09 12:06:33 -0400



PA0090271

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.34	square miles
ELEV	Mean Basin Elevation	1035.8	feet
PRECIP	Mean Annual Precipitation	37	inches
CARBON	Percentage of area of carbonate rock	0	percent
FOREST	Percentage of area covered by forest	53	percent
URBAN	Percentage of basin with urban development	30	percent

Low-Flow Statistics Parameters[Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.34	square miles	2.26	1400
ELEV	Mean Basin Elevation	1035.8	feet	1050	2580

Low-Flow Statistics Disclaimers[Low Flow Region 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00727	ft^3/s
30 Day 2 Year Low Flow	0.0146	ft^3/s
7 Day 10 Year Low Flow	0.002	ft^3/s
30 Day 10 Year Low Flow	0.00458	ft^3/s
90 Day 10 Year Low Flow	0.00955	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

Low-Flow Statistics Parameters[Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.34	square miles	2.26	1400
ELEV	Mean Basin Elevation	1035.8	feet	1050	2580

Low-Flow Statistics Disclaimers[Low Flow Region 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00727	ft^3/s
30 Day 2 Year Low Flow	0.0146	ft^3/s
7 Day 10 Year Low Flow	0.002	ft^3/s
30 Day 10 Year Low Flow	0.00458	ft^3/s
90 Day 10 Year Low Flow	0.00955	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

Annual Flow Statistics Parameters[Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.34	square miles	2.26	1720
ELEV	Mean Basin Elevation	1035.8	feet	130	2700
PRECIP	Mean Annual Precipitation	37	inches	33.1	50.4
FOREST	Percent Forest	53	percent	5.1	100
URBAN	Percent Urban	30	percent	0	89
CARBON	Percent Carbonate	0	percent	0	99

Annual Flow Statistics Disclaimers[Statewide Mean and Base Flow]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Annual Flow Statistics Flow Report[Statewide Mean and Base Flow]

Statistic	Value	Unit
Mean Annual Flow	0.413	ft^3/s
Harmonic Mean Streamflow	0.0624	ft^3/s

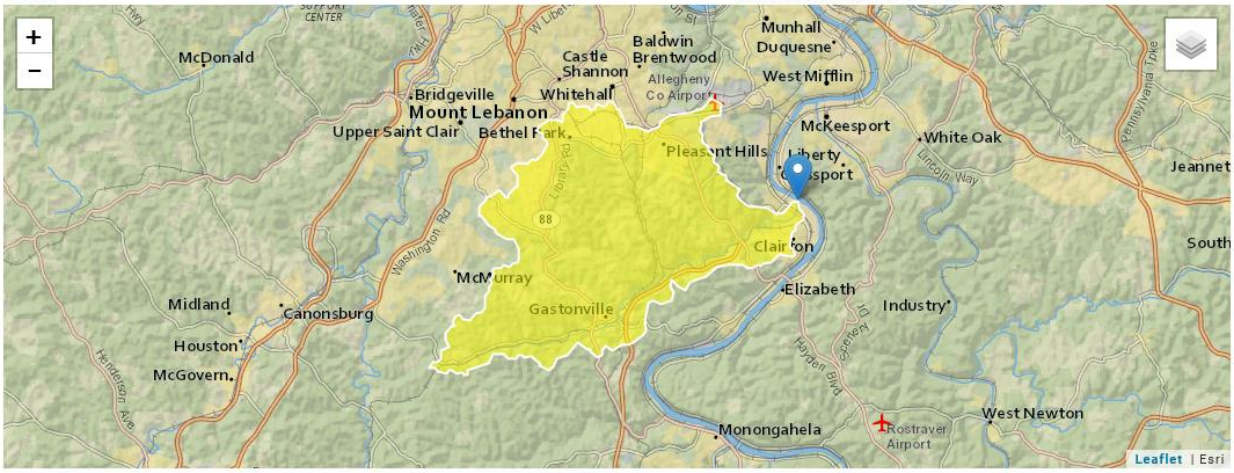
Annual Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

B. **Peters Creek**, an adjacent watershed and considered representative of the UNT 39536.

StreamStats Report: Peters Creek, Representative of 39536 & Conforming

Region ID:	PA
Workspace ID:	PA20200204175554334000
Clicked Point (Latitude, Longitude):	40.30990, -79.88138
Time:	2020-02-04 12:56:11 -0500



Considered representative of UNT 39536 and conforming with USGS StreamStats model limitations.

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	51.5	square miles
ELEV	Mean Basin Elevation	1087.6	feet
PRECIP	Mean Annual Precipitation	39	inches
CARBON	Percentage of area of carbonate rock	0	percent
FOREST	Percentage of area covered by forest	42	percent
URBAN	Percentage of basin with urban development	37	percent

Low-Flow Statistics Parameters[Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	51.5	square miles	2.26	1400
ELEV	Mean Basin Elevation	1087.6	feet	1050	2580

Low-Flow Statistics Flow Report[Low Flow Region 4]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	2.31	ft^3/s	43	43
30 Day 2 Year Low Flow	3.68	ft^3/s	38	38
7 Day 10 Year Low Flow	1	ft^3/s	66	66
30 Day 10 Year Low Flow	1.58	ft^3/s	54	54
90 Day 10 Year Low Flow	2.62	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

Base Flow Statistics Parameters[Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	51.5	square miles	2.26	1720
PRECIP	Mean Annual Precipitation	39	inches	33.1	50.4
CARBON	Percent Carbonate	0	percent	0	99
FOREST	Percent Forest	42	percent	5.1	100
URBAN	Percent Urban	37	percent	0	89

Base Flow Statistics Flow Report[Statewide Mean and Base Flow]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
Base Flow 10 Year Recurrence Interval	22.1	ft^3/s	21	21
Base Flow 25 Year Recurrence Interval	19.6	ft^3/s	21	21
Base Flow 50 Year Recurrence Interval	18.1	ft^3/s	23	23

Base Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

Annual Flow Statistics Parameters[Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	51.5	square miles	2.26	1720
ELEV	Mean Basin Elevation	1087.6	feet	130	2700
PRECIP	Mean Annual Precipitation	39	inches	33.1	50.4
FOREST	Percent Forest	42	percent	5.1	100
URBAN	Percent Urban	37	percent	0	89
CARBON	Percent Carbonate	0	percent	0	99

Annual Flow Statistics Flow Report[Statewide Mean and Base Flow]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
Mean Annual Flow	71.4	ft^3/s	12	12
Harmonic Mean Streamflow	16.4	ft^3/s	38	38

Annual Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

C. Monongahela River

StreamStats Report: Alt. Basin Mon. River @ Confluence with UNT 39536 (FVAD)

Region ID:	PA
Workspace ID:	PA20191009183321799000
Clicked Point (Latitude, Longitude):	40.28007, -79.88176
Time:	2019-10-09 14:33:42 -0400

PA0090271 Fern Valley Ash Disposal site NPDES

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	5350	square miles
ELEV	Mean Basin Elevation	1822.8	feet
PRECIP	Mean Annual Precipitation	47.1	inches
CARBON	Percentage of area of carbonate rock	1.6	percent
FOREST	Percentage of area covered by forest	76.1	percent
URBAN	Percentage of basin with urban development	2.6	percent

Low-Flow Statistics Parameters[100 Percent (5340 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	5350	square miles	2.26	1400
ELEV	Mean Basin Elevation	1822.8	feet	1050	2580

Low-Flow Statistics Disclaimers[100 Percent (5340 square miles) Low Flow Region 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[100 Percent (5340 square miles) Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	704	ft^3/s
30 Day 2 Year Low Flow	932	ft^3/s
7 Day 10 Year Low Flow	412	ft^3/s
30 Day 10 Year Low Flow	481	ft^3/s
90 Day 10 Year Low Flow	712	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

Base Flow Statistics Parameters[100 Percent (5340 square miles) Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	5350	square miles	2.26	1720
PRECIP	Mean Annual Precipitation	47.1	inches	33.1	50.4
CARBON	Percent Carbonate	1.6	percent	0	99
FOREST	Percent Forest	76.1	percent	5.1	100
URBAN	Percent Urban	2.6	percent	0	89

Base Flow Statistics Disclaimers[100 Percent (5340 square miles) Statewide Mean and Base Flow]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Base Flow Statistics Flow Report[100 Percent (5340 square miles) Statewide Mean and Base Flow]

Statistic	Value	Unit
Base Flow 10 Year Recurrence Interval	4330	ft^3/s
Base Flow 25 Year Recurrence Interval	3900	ft^3/s
Base Flow 50 Year Recurrence Interval	3640	ft^3/s

Base Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

Annual Flow Statistics Parameters[100 Percent (5340 square miles) Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	5350	square miles	2.26	1720
ELEV	Mean Basin Elevation	1822.8	feet	130	2700
PRECIP	Mean Annual Precipitation	47.1	inches	33.1	50.4
FOREST	Percent Forest	76.1	percent	5.1	100
URBAN	Percent Urban	2.6	percent	0	89
CARBON	Percent Carbonate	1.6	percent	0	99

Annual Flow Statistics Disclaimers[100 Percent (5340 square miles) Statewide Mean and Base Flow]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Annual Flow Statistics Flow Report[100 Percent (5340 square miles) Statewide Mean and Base Flow]

Statistic	Value	Unit
Mean Annual Flow	11200	ft^3/s
Harmonic Mean Streamflow	4390	ft^3/s

Annual Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

ATTACHMENT B

TOXICS SCREENING ANALYSIS SPREADSHEET (TSA)

A.) UNT 39536 TO MONONGAHELA RIVER

A. TSA FOR THE UNT 39536 TO MONONGAHELA RIVER

TOXICS SCREENING ANALYSIS
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.7

CLEAR FORM

Facility: GenOn Fern Valley Ash Disposal Site
NPDES Permit No.: PA0090271
Outfall: 001
Analysis Hardness (mg/L): 100
Discharge Flow (MGD): 0.13
Analysis pH (SU): 7
Stream Flow, Q_{7-10} (cfs): 0.0069

	Parameter		Maximum Concentration in Application or DMRs (µg/L)	Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Group 1	Total Dissolved Solids		3570000	500000	Yes		Monitor
	Chloride		596000	250000	Yes		Monitor
	Bromide		8900	N/A	No		Monitor
	Sulfate		1580000	250000	Yes		Monitor
	Fluoride		400	2000	No		
Group 2	Total Aluminum		32.6	750	No		
	Total Antimony	<	0.5	5.6	No (Value < QL)		
	Total Arsenic		34.2	10	Yes	10.343	Establish Limits
	Total Barium		40	2400	No		
	Total Beryllium	<	0.5	N/A	No		
	Total Boron		2140	1600	Yes	1654.895	Establish Limits
	Total Cadmium		0.4	0.271	Yes	0.28	Establish Limits
	Total Chromium	<	2	N/A	No		
	Hexavalent Chromium	<	10	10.4	Yes	10.752	Establish Limits
	Total Cobalt		0.6	19	No		
	Total Copper		8.3	9.3	Yes	9	Establish Limits
	Total Cyanide		10	N/A	No		
	Total Iron		139	1500	No		
	Dissolved Iron		31	300	No		
	Total Lead	<	0.2	3.2	No (Value < QL)		
	Total Manganese		621	1000	Yes	1034.31	Establish Limits
	Total Mercury	<	0.1	0.05	No (Value < QL)		
	Total Molybdenum		11	N/A	No		
	Total Nickel		19.9	52.2	No		
	Total Phenols (Phenolics)		10	5	Yes		
	Total Selenium		10.2	5.0	Yes	5.16	Establish Limits
	Total Silver	<	0.1	3.8	No (Value < QL)		
	Total Thallium	<	0.1	0.24	No (Value < QL)		
	Total Zinc		142	119.8	Yes	119.8	Establish Limits

Phenols guidelines for freshwater aquatic life is 600 µg/l as a 24-hr average. The discharge is not as potable water, therefore, the drinking water criteria do not apply for this limit. Distance to the next downstream PWS intake is > 18 miles. Therefore, Phenols will not be included with the WQBELs.

ATTACHMENT C

ARMY CORPS OF ENGINEERS
Q_{7-10} FLOWS OF MAJOR RIVERS – MONONGAHELA RIVER

Q_{7-10} Flows of Major Rivers

Nicolas Lazzaro, P.E.
U.S. Army Corp of Engineers
Pittsburgh District Water Management
December 1, 2017

UPPER OHIO BASIN LOW FLOWS		
Location		Q7, 10 Flow (cfs)
Monongahela River		
Point Marion L&D (RMI 90.8; Upper Pool El. 797.0)	Cheat River enters at RMI 89.68 Dunkard Creek enters at RMI 87.18	420
Grays Landing L&D (RMI 82.0; Upper Pool El. 778.0)	Tenmile Creek enters at RMI 65.62	530
Maxwell L&D (RMI 61.2; Upper Pool El. 763.0)	Redstone Creek enters at RMI 54.90	530
L&D 4 at Charleroi (RMI 41.5; Upper Pool El. 743.5)		550
L&D 3 at Elizabeth (RMI 23.8; Upper Pool El. 726.9)		550
McKeesport downstream of the Youghiogheny River (RMI 15.53)		1,060
Braddock L&D (RMI 11.2; Upper Pool El. 718.7)		1,230

ATTACHMENT D

PENTOXSD MODELING RESULTS

PENTOXSD Analysis Results

Recommended Effluent Limitations

SWP Basin	Stream Code:	Stream Name:
19C	39536	Trib 39536 to Monongahela River

RMI	Name	Permit Number	Disc Flow (mgd)
0.13	Fern Valley ADS	PA0090271	0.1300

Parameter	Effluent Limit (µg/L)	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent WQBEL (µg/L)	Most Stringent WQBEL Criterion
ARSENIC	10.343	THH	16.137	10.343	THH
BORON	1654.895	CFC	2581.903	1654.895	CFC
CADMIUM	0.28	CFC	0.437	0.28	CFC
CHLORIDE (PWS)	9990000	INPUT	1.56E+07	NA	NA
CHROMIUM, VI	10.752	CFC	16.774	10.752	CFC
COPPER	9.281	AFC	14.479	9.281	AFC
MANGANESE	1034.31	THH	1613.689	1034.31	THH
MERCURY	0.052	THH	0.081	0.052	THH
PHENOLICS (PWS)	9990000	INPUT	1.56E+07	NA	NA
SELENIUM	5.16	CFC	8.051	5.16	CFC
SULFATE (PWS)	9990000	INPUT	1.56E+07	NA	NA
TOTAL DISSOLVED SOLIDS (PWS	9990000	INPUT	1.56E+07	NA	NA
ZINC	79.432	AFC	123.927	79.432	AFC

PENTOXSD

Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
39536	0.13	798.00	0.36	0.00000	0.00	☑

Stream Data

	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	Tributary pH	Stream Hard	Stream pH	Analysis Hard	Analysis pH
	(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.1	0.0069	0	0	3	1	0	0	100	7	0	0	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard (mg/L)	Disc pH
Fern Valley ADS	PA0090271	0.13	0	0	0	0	0	0	0	100	7

Parameter Data

Parameter Name	Disc Conc (µg/L)	Trib Conc (µg/L)	Disc Daily CV	Disc Hourly CV	Steam Conc (µg/L)	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc (µg/L)
ARSENIC	9999999	0	0.5	0.5	0	0	0	0	1	0
BORON	9999999	0	0.5	0.5	0	0	0	0	1	0
CADMIUM	9999999	0	0.5	0.5	0	0	0	0	1	0
CHLORIDE (PWS)	9999999	0	0.5	0.5	0	0	0	0	1	0
CHROMIUM, VI	9999999	0	0.5	0.5	0	0	0	0	1	0
COPPER	9999999	0	0.5	0.5	0	0	0	0	1	0
MANGANESE	9999999	0	0.5	0.5	0	0	0	0	1	0
MERCURY	9999999	0	0.5	0.5	0	0	0	0	1	0
PHENOLICS (PWS)	9999999	0	0.5	0.5	0	0	0	0	1	0
SELENIUM	9999999	0	0.5	0.5	0	0	0	0	1	0
SULFATE (PWS)	9999999	0	0.5	0.5	0	0	0	0	1	0
TOTAL DISSOLVED SOLIDS (PWS)	9999999	0	0.5	0.5	0	0	0	0	1	0
ZINC	9999999	0	0.5	0.5	0	0	0	0	1	0

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
39536	0.00	725.00	5350.00	0.00000	0.00	☑

Stream Data

	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	Tributary pH	Stream Hard	Stream pH	Analysis Hard	Analysis pH
	(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.1	0	550	0	679	25	0	0	100	7	0	0	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard (mg/L)	Disc pH
		0	0	0	0	0	0	0	0	100	7

Parameter Data

Parameter Name	Disc Conc (µg/L)	Trib Conc (µg/L)	Disc Daily CV	Disc Hourly CV	Steam Conc (µg/L)	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc (µg/L)
ARSENIC	0	0	0.5	0.5	0	0	0	0	1	0
BORON	0	0	0.5	0.5	0	0	0	0	1	0
CADMIUM	0	0	0.5	0.5	0	0	0	0	1	0
CHLORIDE (PWS)	0	0	0.5	0.5	0	0	0	0	1	0
CHROMIUM, VI	0	0	0.5	0.5	0	0	0	0	1	0
COPPER	0	0	0.5	0.5	0	0	0	0	1	0
MANGANESE	0	0	0.5	0.5	0	0	0	0	1	0
MERCURY	0	0	0.5	0.5	0	0	0	0	1	0
PHENOLICS (PWS)	0	0	0.5	0.5	0	0	0	0	1	0
SELENIUM	0	0	0.5	0.5	0	0	0	0	1	0
SULFATE (PWS)	0	0	0.5	0.5	0	0	0	0	1	0
TOTAL DISSOLVED SOLIDS (PWS)	0	0	0.5	0.5	0	0	0	0	1	0
ZINC	0	0	0.5	0.5	0	0	0	0	1	0

PENTOXSD Analysis Results

Hydrodynamics

SWP Basin	Stream Code:	Stream Name:
19C	39536	Trib 39536 to Monongahela River

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	CMT (min)
Q7-10 Hydrodynamics											
0.130	0.0069	0	0.0069	0.2011	0.1064	1	3	3	0.0693	0.1146	0
0.000	550	0	550	NA	0	0	0	0	0	0	NA
Qh Hydrodynamics											
0.130	0.096	0	0.096	0.2011	0.1064	1.1698	3	2.5646	0.0847	0.0938	.003
0.000	1845.3	0	1845.3	NA	0	0	0	0	0	0	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
0.13	**Fern Valley ADS**	**PA0090271**

AFC

Q7-10: CCT (min) 0 **PMF** 1 **Analysis pH** 7 **Analysis Hardness** 100

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
ARSENIC	0	0	0	0	340	340	351.665
	Dissolved WQC. Chemical translator of 1 applied.						
BORON	0	0	0	0	8100	8100	8377.907
CADMIUM	0	0	0	0	2.014	2.133	2.206
	Dissolved WQC. Chemical translator of 0.944 applied.						
CHLORIDE (PWS)	0	0	0	0	NA	NA	NA
CHROMIUM, VI	0	0	0	0	16	16.293	16.852
	Dissolved WQC. Chemical translator of 0.982 applied.						
COPPER	0	0	0	0	13.439	13.999	14.479
	Dissolved WQC. Chemical translator of 0.96 applied.						
MANGANESE	0	0	0	0	NA	NA	NA
MERCURY	0	0	0	0	1.4	1.647	1.704
	Dissolved WQC. Chemical translator of 0.85 applied.						
PHENOLICS (PWS)	0	0	0	0	NA	NA	NA
SULFATE (PWS)	0	0	0	0	NA	NA	NA
SELENIUM	0	0	0	0	NA	NA	NA
TOTAL DISSOLVED SOLIDS (PWS)	0	0	0	0	NA	NA	NA
ZINC	0	0	0	0	117.18	119.816	123.927
	Dissolved WQC. Chemical translator of 0.978 applied.						

CFC

Q7-10: CCT (min) 0 **PMF** 1 **Analysis pH** 7 **Analysis Hardness** 100

Parameter	Stream Conc. (µg/L)	Stream CV	Trib Conc. (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
ARSENIC	0	0	0	0	150	150	155.146
	Dissolved WQC. Chemical translator of 1 applied.						
BORON	0	0	0	0	1600	1600	1654.895
CADMIUM	0	0	0	0	0.246	0.271	0.28
	Dissolved WQC. Chemical translator of 0.909 applied.						
CHLORIDE (PWS)	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number							
0.13	**Fern Valley ADS**	**PA0090271**							
	CHROMIUM, VI		0	0	0	0	10	10.395	10.752
			Dissolved WQC. Chemical translator of 0.962 applied.						
	COPPER		0	0	0	0	8.956	9.329	9.649
			Dissolved WQC. Chemical translator of 0.96 applied.						
	MANGANESE		0	0	0	0	NA	NA	NA
	MERCURY		0	0	0	0	0.77	0.906	0.937
			Dissolved WQC. Chemical translator of 0.85 applied.						
	PHENOLICS (PWS)		0	0	0	0	NA	NA	NA
	SULFATE (PWS)		0	0	0	0	NA	NA	NA
	SELENIUM		0	0	0	0	4.6	4.989	5.16
			Dissolved WQC. Chemical translator of 0.922 applied.						
	TOTAL DISSOLVED SOLIDS (PWS)		0	0	0	0	NA	NA	NA
	ZINC		0	0	0	0	118.139	119.816	123.927
			Dissolved WQC. Chemical translator of 0.986 applied.						

THH

Q7-10: **CCT (min)** 0 **PMF** 1 **Analysis pH** NA **Analysis Hardness** NA

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
ARSENIC	0	0	0	0	10	10	10.343
BORON	0	0	0	0	3100	3100	3206.36
CADMIUM	0	0	0	0	NA	NA	NA
CHLORIDE (PWS)	0	0	0	0	250000	250000	NA
CHROMIUM, VI	0	0	0	0	NA	NA	NA
COPPER	0	0	0	0	NA	NA	NA
MANGANESE	0	0	0	0	1000	1000	1034.31
MERCURY	0	0	0	0	0.05	0.05	0.052
PHENOLICS (PWS)	0	0	0	0	5	5	NA
SULFATE (PWS)	0	0	0	0	250000	250000	NA
SELENIUM	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
0.13	**Fern Valley ADS**	**PA0090271**						
TOTAL DISSOLVED SOLIDS (PWS)			0	0	0	0	500000	500000	NA
ZINC			0	0	0	0	NA	NA	NA

CRL

Qh: **CCT (min)** 0.003 **PMF** 1

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
ARSENIC	0	0	0	0	NA	NA	NA
BORON	0	0	0	0	NA	NA	NA
CADMIUM	0	0	0	0	NA	NA	NA
CHLORIDE (PWS)	0	0	0	0	NA	NA	NA
CHROMIUM, VI	0	0	0	0	NA	NA	NA
COPPER	0	0	0	0	NA	NA	NA
MANGANESE	0	0	0	0	NA	NA	NA
MERCURY	0	0	0	0	NA	NA	NA
PHENOLICS (PWS)	0	0	0	0	NA	NA	NA
SULFATE (PWS)	0	0	0	0	NA	NA	NA
SELENIUM	0	0	0	0	NA	NA	NA
TOTAL DISSOLVED SOLIDS (PWS)	0	0	0	0	NA	NA	NA
ZINC	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
0.13	**Fern Valley ADS**	**PA0090271**

ATTACHMENT E

TOXICS MANAGEMENT SPREADSHEET RESULTS AND INPUTS

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.2, February 2021

Stream / Surface Water Information

Fern Valley Ash Disposal, NPDES Permit No. PA0090271, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Trib 39536 to Monongahela River**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	039536	0.13	798	0.3565			Yes
End of Reach 1	039536	0.01	725	0.4			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	0.13	0.01942	0.00699			4	0.5					100	7		
End of Reach 1	0.01	0.02				4.29	0.6								

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	0.13		0.114												
End of Reach 1	0.01														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.2, February 2021

Model Results

Fern Valley Ash Disposal, NPDES Permit No. PA0090271, Outfall 001

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☑ ***Hydrodynamics***

$Q_{7\text{-}10}$

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.13	0.01		0.01	0.201	0.115	0.5	4.	8.	0.104	0.07	0.00021
0.01	0.01		0.008								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
0.13	0.11		0.11	0.201	0.115	0.6	4.	6.665	0.131	0.056	0.018
0.01	0.108		0.11								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	776	
Total Antimony	0	0		0	1,100	1,100	1,138	
Total Arsenic	0	0		0	340	340	352	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	21,730	
Total Boron	0	0		0	8,100	8,100	8,382	
Total Cadmium	0	0		0	2.014	2.13	2.21	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	569.763	1,803	1,866	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	16.9	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	98.3	
Total Copper	0	0		0	13.439	14.0	14.5	Chem Translator of 0.96 applied

Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.581	81.6	84.5	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1.7	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.236	469	485	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.217	3.78	3.92	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	67.3	
Total Zinc	0	0		0	117.180	120	124	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	228	
Total Arsenic	0	0		0	150	150	155	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	4,243	
Total Boron	0	0		0	1,600	1,600	1,656	
Total Cadmium	0	0		0	0.246	0.27	0.28	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.115	86.2	89.2	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	10.8	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	19.7	
Total Copper	0	0		0	8.956	9.33	9.65	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,552	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	3.29	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	0.94	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.007	52.2	54.0	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	5.16	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	13.5	
Total Zinc	0	0		0	118.139	120	124	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.000 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments

Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	5.79	
Total Arsenic	0	0		0	10	10.0	10.3	
Total Barium	0	0		0	2,400	2,400	2,483	
Total Boron	0	0		0	3,100	3,100	3,208	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	310	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,035	
Total Mercury	0	0		0	0.050	0.05	0.052	
Total Nickel	0	0		0	610	610	631	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.25	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.018 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	

Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

Pollutants	*Mass Limits* AML (lbs/day)	*Mass Limits* MDL (lbs/day)	*Concentration Limits* AML	*Concentration Limits* MDL	*Concentration Limits* IMAX	*Concentration Limits* Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	0.81	0.84	750	776	776	µg/L	750	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Arsenic	0.011	0.018	10.3	16.1	25.9	µg/L	10.3	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Boron	1.8	2.8	1,656	2,583	4,139	µg/L	1,656	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Cadmium	0.0003	0.0005	0.28	0.44	0.7	µg/L	0.28	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Hexavalent Chromium	0.012	0.018	10.8	16.8	26.9	µg/L	10.8	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	0.01	0.016	9.65	14.5	14.5	µg/L	9.65	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	1.68	2.63	1,552	2,422	3,880	µg/L	1,552	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Manganese	1.12	1.75	1,035	1,614	2,587	µg/L	1,035	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Nickel	Report	Report	Report	Report	Report	µg/L	54.0	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	0.006	0.009	5.16	8.05	12.9	µg/L	5.16	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	0.13	0.13	120	124	124	µg/L	120	AFC	Discharge Conc ≥ 50% WQBEL (RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Barium	2,483	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Chromium (III)	89.2	µg/L	Discharge Conc < TQL

Total Cobalt	19.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	310	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	3.29	µg/L	Discharge Conc < TQL
Total Mercury	0.052	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Silver	3.78	µg/L	Discharge Conc < TQL
Total Thallium	0.25	µg/L	Discharge Conc < TQL

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.2, February 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Fern Valley Ash Disposal** NPDES Permit No.: **PA0090271** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Coal Combustion Residual Leachate**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.13	100	7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		3570000									
	Chloride (PWS)	mg/L		596000									
	Bromide	mg/L		8900									
	Sulfate (PWS)	mg/L		1580000									
	Fluoride (PWS)	mg/L		400									
Group 2	Total Aluminum	µg/L		5000									
	Total Antimony	µg/L	<	0.5									
	Total Arsenic	µg/L		34.2									
	Total Barium	µg/L		40									
	Total Beryllium	µg/L	<	0.5									
	Total Boron	µg/L		2140									
	Total Cadmium	µg/L		0.4									
	Total Chromium (III)	µg/L	<	2									
	Hexavalent Chromium	µg/L	<	10									
	Total Cobalt	µg/L		0.6									
	Total Copper	µg/L		8.3									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		10									
	Dissolved Iron	µg/L		31									
	Total Iron	µg/L		7000									
	Total Lead	µg/L	<	0.2									
	Total Manganese	µg/L		621									
	Total Mercury	µg/L	<	0.1									
	Total Nickel	µg/L		19.9									
	Total Phenols (Phenolics) (PWS)	µg/L	<	10									
	Total Selenium	µg/L		10.2									
	Total Silver	µg/L	<	0.1									
	Total Thallium	µg/L	<	0.1									
	Total Zinc	µg/L		142									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<											
	Chlorobenzene	µg/L												
	Chlorodibromomethane	µg/L	<											
	Chloroethane	µg/L	<											
	2-Chloroethyl Vinyl Ether	µg/L	<											
	Chloroform	µg/L	<											
	Dichlorobromomethane	µg/L	<											
	1,1-Dichloroethane	µg/L	<											
	1,2-Dichloroethane	µg/L	<											
	1,1-Dichloroethylene	µg/L	<											
	1,2-Dichloropropane	µg/L	<											
	1,3-Dichloropropylene	µg/L	<											
	1,4-Dioxane	µg/L	<											
	Ethylbenzene	µg/L	<											
	Methyl Bromide	µg/L	<											
	Methyl Chloride	µg/L	<											
	Methylene Chloride	µg/L	<											
	1,1,2,2-Tetrachloroethane	µg/L	<											
	Tetrachloroethylene	µg/L	<											
	Toluene	µg/L	<											
	1,2-trans-Dichloroethylene	µg/L	<											
	1,1,1-Trichloroethane	µg/L	<											
	1,1,2-Trichloroethane	µg/L	<											
	Trichloroethylene	µg/L	<											
	Vinyl Chloride	µg/L	<											
Group 4	2-Chlorophenol	µg/L	<											
	2,4-Dichlorophenol	µg/L	<											
	2,4-Dimethylphenol	µg/L	<											
	4,6-Dinitro-o-Cresol	µg/L	<											
	2,4-Dinitrophenol	µg/L	<											
	2-Nitrophenol	µg/L	<											
	4-Nitrophenol	µg/L	<											
	p-Chloro-m-Cresol	µg/L	<											
	Pentachlorophenol	µg/L	<											
	Phenol	µg/L	<											
	2,4,6-Trichlorophenol	µg/L	<											
Group 5	Acenaphthene	µg/L	<											
	Acenaphthylene	µg/L	<											
	Anthracene	µg/L	<											
	Benzidine	µg/L	<											
	Benzo(a)Anthracene	µg/L	<											
	Benzo(a)Pyrene	µg/L	<											
	3,4-Benzofluoranthene	µg/L	<											
	Benzo(ghi)Perylene	µg/L	<											
	Benzo(k)Fluoranthene	µg/L	<											
	Bis(2-Chloroethoxy)Methane	µg/L	<											
	Bis(2-Chloroethyl)Ether	µg/L	<											
	Bis(2-Chloroisopropyl)Ether	µg/L	<											
	Bis(2-Ethylhexyl)Phthalate	µg/L	<											
	4-Bromophenyl Phenyl Ether	µg/L	<											
	Butyl Benzyl Phthalate	µg/L	<											
	2-Chloronaphthalene	µg/L	<											
	4-Chlorophenyl Phenyl Ether	µg/L	<											
	Chrysene	µg/L	<											
	Dibenzo(a,h)Anthrancene	µg/L	<											
	1,2-Dichlorobenzene	µg/L	<											
	1,3-Dichlorobenzene	µg/L	<											
	1,4-Dichlorobenzene	µg/L	<											
	3,3-Dichlorobenzidine	µg/L	<											
	Diethyl Phthalate	µg/L	<											
	Dimethyl Phthalate	µg/L	<											
	Di-n-Butyl Phthalate	µg/L	<											
	2,4-Dinitrotoluene	µg/L	<											

	2,6-Dinitrotoluene	µg/L	<											
	Di-n-Octyl Phthalate	µg/L	<											
	1,2-Diphenylhydrazine	µg/L	<											
	Fluoranthene	µg/L	<											
	Fluorene	µg/L	<											
	Hexachlorobenzene	µg/L	<											
	Hexachlorobutadiene	µg/L	<											
	Hexachlorocyclopentadiene	µg/L	<											
	Hexachloroethane	µg/L	<											
	Indeno(1,2,3-cd)Pyrene	µg/L	<											
	Isophorone	µg/L	<											
	Naphthalene	µg/L	<											
	Nitrobenzene	µg/L	<											
	n-Nitrosodimethylamine	µg/L	<											
	n-Nitrosodi-n-Propylamine	µg/L	<											
	n-Nitrosodiphenylamine	µg/L	<											
	Phenanthrene	µg/L	<											
	Pyrene	µg/L	<											
	1,2,4-Trichlorobenzene	µg/L	<											
Group 6	Aldrin	µg/L	<											
	alpha-BHC	µg/L	<											
	beta-BHC	µg/L	<											
	gamma-BHC	µg/L	<											
	delta BHC	µg/L	<											
	Chlordane	µg/L	<											
	4,4-DDT	µg/L	<											
	4,4-DDE	µg/L	<											
	4,4-DDD	µg/L	<											
	Dieldrin	µg/L	<											
	alpha-Endosulfan	µg/L	<											
	beta-Endosulfan	µg/L	<											
	Endosulfan Sulfate	µg/L	<											
	Endrin	µg/L	<											
	Endrin Aldehyde	µg/L	<											
	Heptachlor	µg/L	<											
	Heptachlor Epoxide	µg/L	<											
	PCB-1016	µg/L	<											
	PCB-1221	µg/L	<											
	PCB-1232	µg/L	<											
	PCB-1242	µg/L	<											
	PCB-1248	µg/L	<											
	PCB-1254	µg/L	<											
	PCB-1260	µg/L	<											
	PCBs, Total	µg/L	<											
	Toxaphene	µg/L	<											
	2,3,7,8-TCDD	ng/L	<											
Group 7	Gross Alpha	pCi/L												
	Total Beta	pCi/L	<											
	Radium 226/228	pCi/L	<											
	Total Strontium	µg/L	<											
	Total Uranium	µg/L	<											
	Osmotic Pressure	mOs/kg												

ATTACHMENT F

PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

VIA ELECTRONIC MAIL

May 19, 2021

Jesse Froh
Trogon Development LLC
P. O. Box 1636
Canovanas, PR 00729

Re: Pre-Draft Survey NPDES Permit- Industrial Waste
Trogon Development LLC – Fern Valley Ash Disposal Site
Application No. PA090271
Authorization ID No. 1348879
Jefferson Hills Borough, Allegheny County

Dear Mr. Froh:

The Department of Environmental Protection (DEP) has reviewed your NPDES permit application and has reached a preliminary finding that new or more stringent water quality-based effluent limitations (WQBELs) for toxic pollutant(s) should be established in the permit. This finding is based on modeling results that new WQBELs are required at Outfalls 001 and alternate Outfalls 002 and 003 (when discharging) to support aquatic life downstream of the plant. These more stringent WQBELs are detailed in the proposed effluent limits as follows:

Outfall No.	Pollutant	Average (mg/L)	Maximum Daily (mg/L)	IMAX (mg/L)
001, 002 and 003	Iron (total)	1552	2422	3880(1)
001, 002 and 003	Aluminum (total)	750	776	776(1)
001, 002 and 003	Manganese (total)	1035	1614	—
001, 002 and 003	Arsenic (total)	10.3	16.1	—
001, 002 and 003	Boron (total)	1656	2583	—
001, 002 and 003	Cadmium (total)	0.28	0.44	—
001, 002 and 003	*Hexavalent Chromium**	*10.8*	*16.8*	—

Southwest Regional Office
400 Waterfront Drive | Pittsburgh, PA 15222-4745 | 412.442.4000 | Fax 412.442.5885
www.dep.pa.gov

Outfall No.	Pollutant	Average (µg/L)	Maximum Daily (µg/L)	IMAX (µg/L)
001, 002 and 003	Copper (total)	9.65	14.5	—
001, 002 and 003	Selenium (total)	5.16	8.05	—
001, 002 and 003	Zinc (total)	120	124	—

Please note that the pollutants marked with an Asterix (*) were included although reported as "none detected" on the basis of chemical analyses MDLs that exceeded the Department's target Quantitation Limits. Also note that IMAX limits marked with the superscript (1) are only supplied for use by Water Quality Specialist during inspections.

Attached are separate surveys for each category of the pollutants of concern noted in the tables above. The Department requests that you complete and return these surveys to DEP within 30 days. Completion of these surveys will help DEP develop the draft NPDES permit and allow DEP to understand your current capabilities or plans to treat or control these pollutant(s). If you decide not to complete and return the survey, DEP will proceed with developing the draft NPDES permit based on all available information and certain assumptions. Your response to this notice does not constitute an official comment for DEP response but will be taken under consideration. When the draft NPDES permit is formally noticed in the *Pennsylvania Bulletin*, you may make official comments for DEP's further consideration and response.

Please contact me at 412.442.4183 if you have any questions about this information or the attached survey.

Sincerely,

John L. Duryea, Jr., P.E.
Environmental Engineering Specialist
Clean Water Program

Enclosures

cc:
Aton Environmental

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Clean Water

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **GenOn Power Midwest, L.P. (GenOn), Fern Valley Ash Disposal Site (BAPL), Allegheny County** Permit No.: **PA0090271**

Pollutant(s) identified by DEP that may require WQBELs: **Outfalls 001/002/003 – Iron**

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☐ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☐ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☐ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: _____ ☐ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☐ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **GenOn, Fern Valley, Allegheny County** Permit No.: **PA0090271**

Pollutant(s) identified by DEP that may require WQBELs: **Outfalls 001/002/003 – Aluminum**

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☐ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☐ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☐ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: _____ ☐ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☐ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **GenOn, Fern Valley, Allegheny County** Permit No.: **PA0090271**

Pollutant(s) identified by DEP that may require WQBELs: **Outfalls 001/002/003 – Manganese**

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☐ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☐ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☐ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: _____ ☐ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☐ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **GenOn, Fern Valley, Allegheny County** Permit No.: **PA0090271**

Pollutant(s) identified by DEP that may require WQBELs: **Outfalls 001/002/003 – Arsenic**

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☐ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☐ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☐ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: _____ ☐ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☐ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **GenOn, Fern Valley, Allegheny County** Permit No.: **PA0090271**

Pollutant(s) identified by DEP that may require WQBELs: **Outfalls 001/002/003 – Boron**

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☐ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☐ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☐ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: _____ ☐ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☐ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have <u>not</u> been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **GenOn, Fern Valley, Allegheny County** Permit No.: **PA0090271**

Pollutant(s) identified by DEP that may require WQBELs: **Outfalls 001/002/003 – Cadmium**

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☐ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☐ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☐ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: _____ ☐ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☐ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have <u>not</u> been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **GenOn, Fern Valley, Allegheny County** Permit No.: **PA0090271**

Pollutant(s) identified by DEP that may require WQBELs: **Outfalls 001/002/003 – Hexavalent Chromium***

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☐ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☐ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☐ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: _____ ☐ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☐ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

*** NOTE: This pollutant was included because the lab MDL did not meet the Department's target Quantitation Limit.**

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **GenOn, Fern Valley, Allegheny County** Permit No.: **PA0090271**

Pollutant(s) identified by DEP that may require WQBELs: **Outfalls 001/002/003 – Copper**

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☐ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☐ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☐ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: _____ ☐ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☐ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **GenOn, Fern Valley, Allegheny County** Permit No.: **PA0090271**

Pollutant(s) identified by DEP that may require WQBELs: **Outfalls 001/002/003 - Selenium**

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☐ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☐ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☐ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: _____ ☐ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☐ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **GenOn, Fern Valley, Allegheny County** Permit No.: **PA0090271**

Pollutant(s) identified by DEP that may require WQBELs: **Outfalls 001/002/003 - Zinc**

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☐ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☐ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☐ Yes ☐ No ☐ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: _____ ☐ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☐ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP SWRO that is reviewing the permit application within 30 days of receipt.

ATTACHMENT G

MULTI-SECTOR GENERAL PERMIT BENCHMARK VALUES

4.2.2.1 Applicability of Benchmark Monitoring.

You must monitor stormwater discharges for any benchmark parameters specified for the industrial sector(s), both primary industrial activity and any co-located industrial activities, applicable to your discharge listed in Part 8. If your facility is in one of the industrial sectors subject to benchmark thresholds that are hardness-dependent, you must include in your NOI a hardness value, established consistent with the procedures in Appendix J, that is representative of your receiving water. Hardness is not a specific benchmark and therefore the permit does not include a benchmark threshold with which to compare.

Samples must be analyzed consistent with 40 CFR Part 136 analytical methods and using test procedures with quantitation limits at or below benchmark thresholds for all benchmark parameters for which you are required to sample, i.e. sufficiently sensitive methods. For averaging purposes, you may use a value of zero for any individual sample parameter which is determined to be less than the method detection limit. For sample values that fall between the method detection limit and the quantitation limit (i.e., a confirmed detection but below the level that can be reliably quantified), use a value halfway between zero and the quantitation limit.

4.2.2.2 Summary of the 2021 MSGP Benchmark Thresholds

The Table 4-2 presents the 2021 MSGP's freshwater and saltwater benchmark thresholds. Sector-specific benchmark requirements are detailed in Part 8. Values match the original units found in the source documents, detailed in the corresponding section of the fact sheet.

Table 4-2 2021 MSGP Benchmark Thresholds

Pollutant		2021 MSGP Benchmark Threshold
Total Recoverable Aluminum (T)		1,100 µg/L
Total Recoverable Beryllium		130 µg/L
Biochemical Oxygen Demand (5-day)		30 mg/L
pH		6.0 – 9.0 s.u.
Chemical Oxygen Demand		120 mg/L
Total Phosphorus		2.0 mg/L
Total Suspended Solids (TSS)		100 mg/L
Nitrate and Nitrite Nitrogen		0.68 mg/L
Turbidity		50 NTU
Total Recoverable Antimony		640 µg/L
Ammonia		2.14 mg/L
Total Recoverable Cadmium	Freshwater[a]	1.8 µg/L
	Saltwater	33 µg/L
Total Recoverable Copper	Freshwater	5.19 µg/L
	Saltwater	4.8 µg/L

Pollutant		2021 MSGP Benchmark Threshold
Total Recoverable Cyanide	Freshwater	22 µg/L
	Saltwater	1 µg/L
Total Recoverable Mercury	Freshwater	1.4 µg/L
	Saltwater	1.8 µg/L
Total Recoverable Nickel	Freshwater[a]	470 µg/L
	Saltwater	74 µg/L
Total Recoverable Selenium	Freshwater	1.5 µg/L for still/standing (lentic) waters 3.1 µg/L for flowing (lotic) waters
	Saltwater	290 µg/L
Total Recoverable Silver	Freshwater[a]	3.2 µg/L
	Saltwater	1.9 µg/L
Total Recoverable Zinc	Freshwater[a]	120 µg/L
	Saltwater	90 µg/L
Total Recoverable Arsenic	Freshwater[a]	150 µg/L
	Saltwater	69 µg/L
Total Recoverable Lead	Freshwater[a]	82 µg/L
	Saltwater	210 µg/L

[a] These pollutants are dependent on water hardness where discharged into freshwaters. The freshwater benchmark value listed is based on a hardness of 100 mg/L. When a facility analyzes receiving water samples for hardness, the operator must use the hardness ranges provided in Table 1 in Appendix J of the 2021 MSGP and in the appropriate tables in Part 8 of the 2021 MSGP to determine applicable benchmark values for that facility. Benchmark thresholds for discharges of these pollutants into saline waters are not dependent on receiving water hardness and do not need to be adjusted.

4.2.2.3 **Benchmark Monitoring Schedule.** Benchmark monitoring of stormwater discharges is required quarterly, as identified in Part 4.1.7, in the first and fourth year of permit coverage, as follows:

a. **Year one of permit coverage:** You must conduct benchmark monitoring for all parameters applicable to your subsector(s) for four quarters in your first year of permit coverage, beginning in your first *full* quarter of permit coverage, no earlier than May 30, 2021.

i. If the annual average[12] for a parameter does not exceed the benchmark threshold, you can discontinue benchmark monitoring for that parameter for the next two years (i.e., eight quarters).

[12] For this permit, an annual average exceedance for a parameter can occur if: (a) The four-quarter annual average for a parameter exceeds the benchmark threshold; or (b) Fewer than four quarterly samples are collected, but a single sample or the sum of any sample results within the sampling year exceeds the benchmark threshold by more than four times for a parameter. The result in (b) indicates an exceedance is mathematically certain (i.e., the sum of quarterly sample results to date is already more than four times the benchmark threshold). For pH, an annual average exceedance can only occur if the four-quarter annual average exceeds the benchmark threshold.