pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**New/Renewal**	Application No.	**PA0235555**
Facility Type	**Industrial**	APS ID	**824547**
Major / Minor	**Minor**	Authorization ID	**1253693**

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

Applicant and Facility Information

Applicant Name	**Homer City Generation LP**	Facility Name	**Dixon Run Central Treatment Facility**
Applicant Address	1750 Power Plant Road	Facility Address	1054 Allen Bridge Road
	Homer City, PA 15748-8009		Indiana, PA 15701
Applicant Contact	Gary Cline	Facility Contact	Adam Ritts
Applicant Phone	(724) 479-6255	Facility Phone	(724) 479-6123
Client ID	298406	Site ID	618057
SIC Code	1222 (NAICS 212112)	Municipality	Cherryhill Township
SIC Description	Bituminous Coal Underground Mining	County	Indiana
Date Application Received	November 29, 2018	EPA Waived?	Yes
Date Application Accepted	December 13, 2018	If No, Reason	
Purpose of Application	Renewal of an NPDES permit for discharges of treated mine drainage from an underground deep mine.		

Summary of Review

Homer City Generation LP ("HCG") submitted an application to renew NPDES Permit PA0235555 for the Dixon Run Central Treatment Facility. The Dixon Run Central Treatment Facility, which treats acid mine drainage from the Dixon Run Mine No. 3, is transitioning from oversight by the Bureau of Mining to the Bureau of Clean Water. Under a June 1, 2006 Consent Order and Agreement, HCG (then EME Homer City Generation LP) assumed responsibility for the Dixon Run Central Treatment Facility following the bankruptcy and liquidation of Stanford Mining, which previously engaged in coal mining activities at three mines in that area: Dixon Run No. 3 Mine, Penn Hills No. 2 Mine, and the Chestnut Ridge Mine. Stanford Mining also operated the Central Treatment Facility to treat discharges from those mines.

HCG was originally issued a "Post-Mining Activity Permit" (32031701), which was a non-standard permit type created to authorize post-mining activities. HCG never conducted any mining activities associated with the Stanford mines, but HCG is a landowner in areas where discharges from the Dixon Run No. 3 Mine occur and where pumping activities historically were conducted. HCG also has an interest in maintaining good water quality in the Two Lick Reservoir, which is owned by HCG and ensures a consistent water supply for the Homer City Generating Station located downstream on Two Lick Creek.

Sometime after issuance of the Post-Mining Activity Permit, the Office of Surface Mining ("OSM") requested that HCG obtain a Coal Mining Activity Permit ("CMAP"), which HCG obtained (CMAP 32131301) on March 30, 2009. CMAP 32131301 and its associated NPDES Permit (PA0235555) issued by the Bureau of Mining authorize the treatment and discharge of mine drainage to surface waters and the injection of treatment plant sludge into the Dixon Run No. 3 mine via a borehole.

Recently, HCG went through a bankruptcy that caused OSM to review HCG's activities under OSM's purview. OSM found that HCG wasn't bonded and didn't have a treatment trust for the Central Treatment Facility. OSM then issued a 10-day notice to the Department to require bonding or a treatment trust. The Department asked HCG for information to calculate the bond and Homer City appealed. HCG did not want to post bond or pursue a treatment trust given that it voluntarily assumed responsibility for the Central Treatment Facility. Therefore, with OSM's concurrence, CMAP 32131301 will be terminated once the site is permitted by the Clean Water Program. Bonding or a treatment trust will not be required.

Approve	Deny	Signatures	Date
✓		Ryan C. Decker, P.E. / Environmental Engineer	10/24/19
✓		Michael E. Fifth, P.E. / Environmental Engineer Manager	10/29/19

Summary of Review

Operation of the Dixon Run Central Treatment Facility was previously approved by the CMAP. Since that permit will be terminated, operation of the existing treatment facility was re-authorized by Water Quality Management ("WQM") Permit No. 3218200 issued by the Clean Water Program on August 7, 2018. That WQM permit was amended on July 17, 2019 to re-authorize the use of sludge disposal boreholes into the mine workings to dispose of sludge from the treatment facility pursuant to 25 Pa. Code § 89.60(3)(iv).

NPDES Permit Renewal

The Dixon Run Central Treatment Facility is currently permitted with two outfall locations: Outfall 001 to Allen Run, a small stream located near the treatment facility; and Outfall 002, a proposed, but presently unused alternative discharge location from the treatment facility to the Two Lick Reservoir.

This NPDES permit renewal will maintain most of the effluent limits and monitoring requirements imposed in the previous NPDES permit including effluent limits and monitoring requirements for pollutants characteristic of mine drainage based, in part, on 25 Pa. Code Chapter 89 and the Total Maximum Daily Load for the Kiskiminetas-Conemaugh River Watershed; stream monitoring upstream and downstream of the discharge location(s); and monitoring of the Dixon Run mine pool elevation. New water quality-based effluent limits are also included for mercury and thallium at Outfall 001 consistent with the results of a reasonable potential analysis.

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)	0.044 (avg.); 0.72 (max)
Latitude	40° 36' 53.31"	Longitude	-79° 2' 35.48"
Quad Name	Brush Valley	Quad Code	1413
Wastewater Description:	Treated acid mine drainage from an underground deep mine		

Receiving Waters	Allen Run (CWF)	Stream Code	44273
NHD Com ID	123716147	RMI	1.21
Drainage Area	0.7 sq. mi.	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	0.04	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1,415	Slope (ft/ft)	0.04
Watershed No.	18-D	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

Background/Ambient Data		Data Source
Laboratory pH (S.U.)	6.8	CMAP 32131301 quarterly stream samples (2/2017-2/2019)
Field pH (S.U.)	8.2	"
Alkalinity (mg/L)	33.9	"
Acidity (mg/L)	-60.04	"
Iron (mg/L)	0.11	"
Manganese (mg/L)	0.09	"
Aluminum (mg/L)	0.09	"
Sulfates (mg/L)	53.73	"
Suspended Solids (mg/L)	6.0	"
Dissolved Solids (mg/L)	202.33	"
Osmotic Pressure (mOs/kg)	6.43	"
Chlorides (mg/L)	61.22	"

Nearest Downstream Public Water Supply Intake

PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0.044 (avg.); 0.72 (max)
Latitude	40° 37' 39.77"	Longitude	-79° 3' 37.32"
Quad Name	Clymer	Quad Code	1313
Wastewater Description:	Treated acid mine drainage from an underground deep mine		

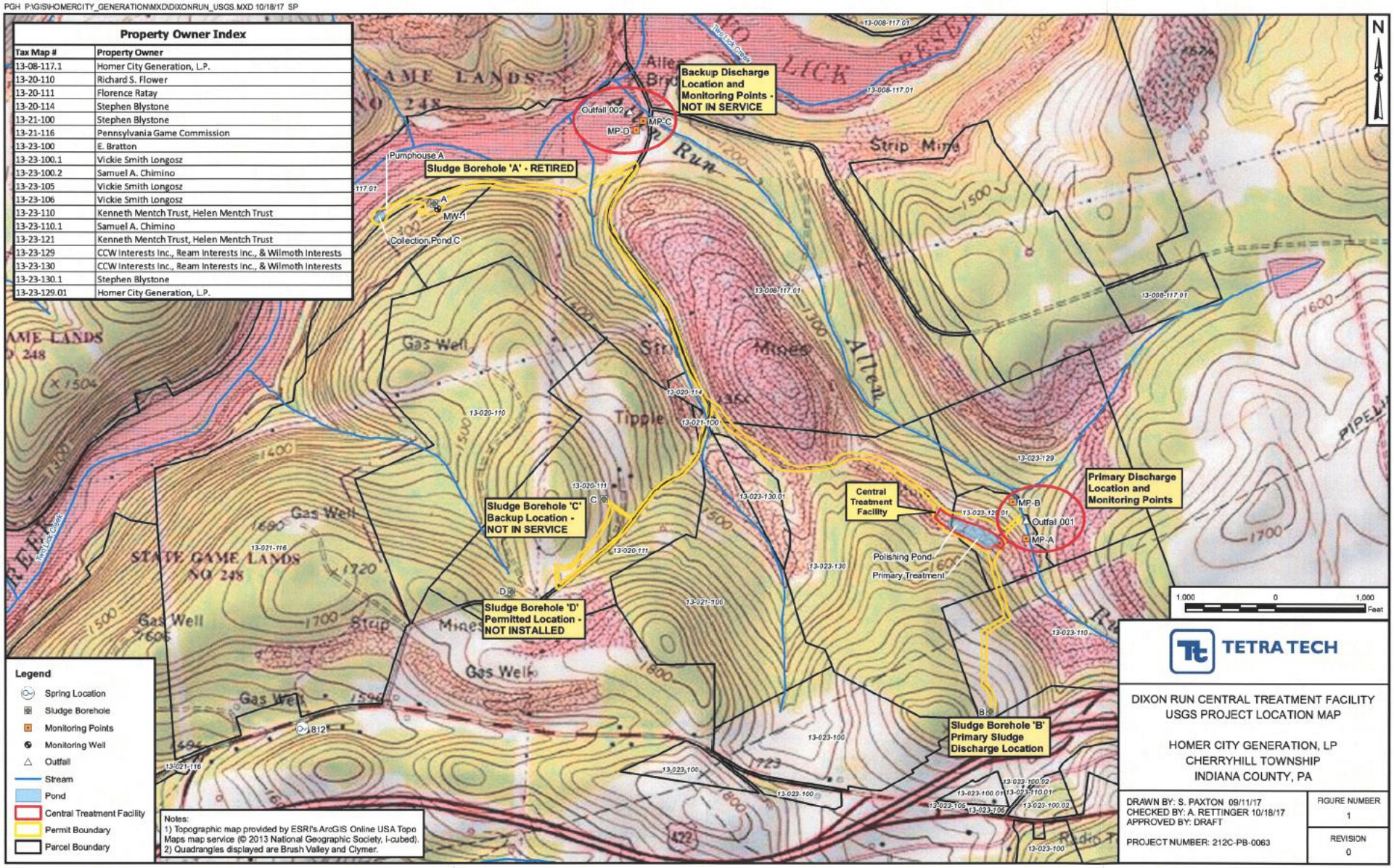
Receiving Waters	Two Lick Creek	Stream Code	44073
NHD Com ID	123716938	RMI	18.22
Drainage Area	66.7 sq. mi.	Yield (cfs/mi^2)	0.5982
Q_{7-10} Flow (cfs)	39.9	Q_{7-10} Basis	USGS Gage 03042500-Daily Discharge data (1994 – 2019) analyzed with USGS DFLOW Tool
Elevation (ft)	1,179	Slope (ft/ft)	0.001
Watershed No.	18-D	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Pennsylvania American Water Company - Indiana		
PWS Waters	Two Lick Creek	Pumping Capacity (MGD)	8.5
PWS RMI	13.34	Distance from Outfall (mi)	4.88

Changes Since Last Permit Issuance:

Other Comments: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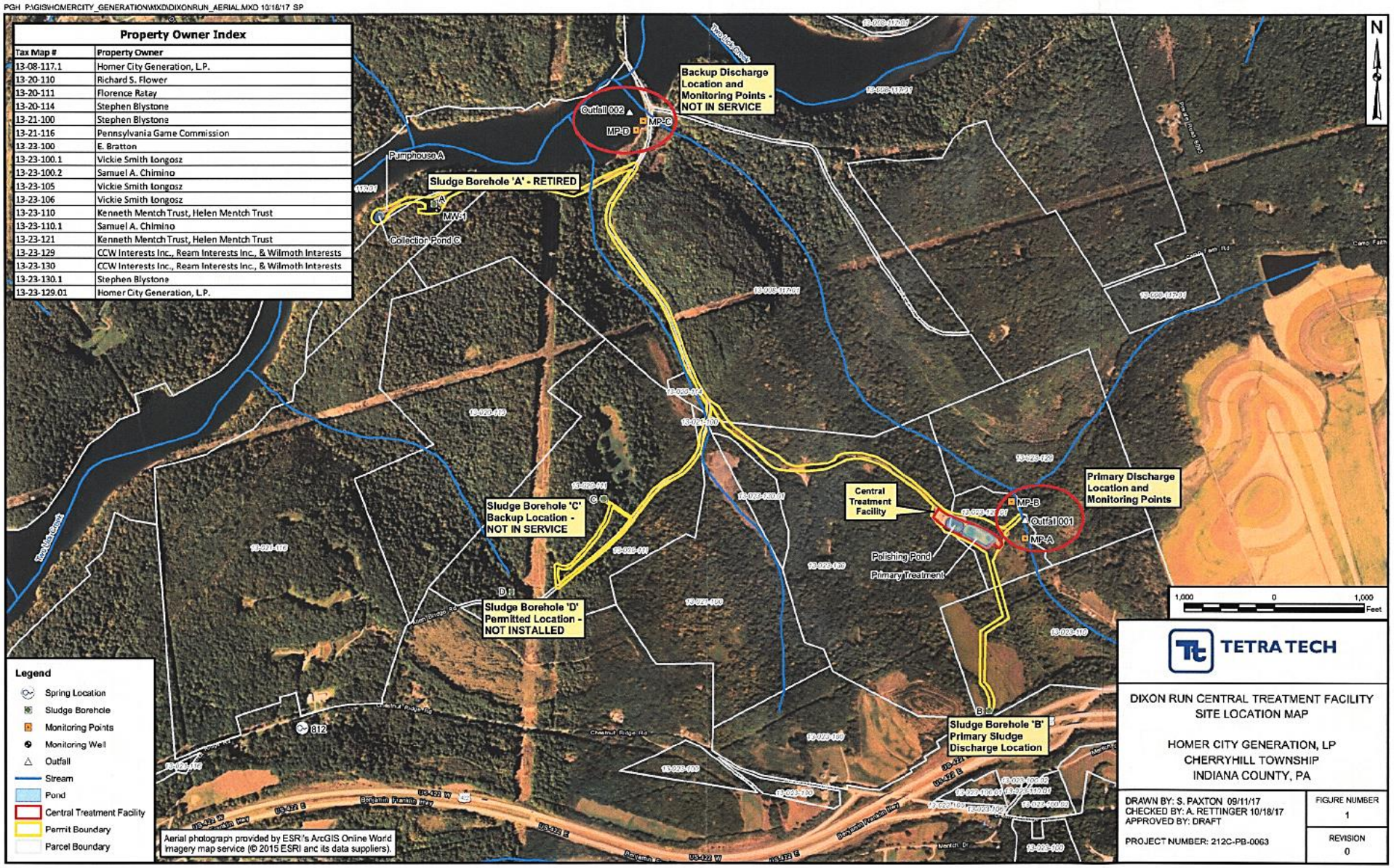
Property Owner Index
Tax Map # | Property Owner
13-08-117.1 | Homer City Generation, L.P.
13-20-110 | Richard S. Flower
13-20-111 | Florence Ratay
13-20-114 | Stephen Blystone
13-21-100 | Stephen Blystone
13-21-116 | Pennsylvania Game Commission
13-23-100 | E. Bratton
13-23-100.1 | Vickie Smith Longosz
13-23-100.2 | Samuel A. Chimino
13-23-105 | Vickie Smith Longosz
13-23-106 | Vickie Smith Longosz
13-23-110 | Kenneth Mentch Trust, Helen Mentch Trust
13-23-110.1 | Samuel A. Chimino
13-23-121 | Kenneth Mentch Trust, Helen Mentch Trust
13-23-129 | CCW Interests Inc., Ream Interests Inc., & Wilmoth Interests
13-23-130 | CCW Interests Inc., Ream Interests Inc., & Wilmoth Interests
13-23-130.1 | Stephen Blystone
13-23-129.01 | Homer City Generation, L.P.
Backup Discharge Location and Monitoring Points - NOT IN SERVICE
Outfall 002
MP-C
MP-D
Pumphouse A
Sludge Borehole 'A' - RETIRED
MW-1
Collection Pond C
Sludge Borehole 'C' Backup Location - NOT IN SERVICE
Sludge Borehole 'D' Permitted Location - NOT INSTALLED
Central Treatment Facility
Primary Discharge Location and Monitoring Points
MP-B
Outfall 001
MP-A
Polishing Pond
Primary Treatment
Sludge Borehole 'B' Primary Sludge Discharge Location
Strip Mine
Gas Well
STATE GAME LANDS NO 248
Tipple
Allen Run
Red Lick Creek
N
1,000 0 1,000 Feet
Legend
Spring Location
Sludge Borehole
Monitoring Points
Monitoring Well
Outfall
Stream
Pond
Central Treatment Facility
Permit Boundary
Parcel Boundary
Notes:
1) Topographic map provided by ESRI's ArcGIS Online USA Topo Maps map service (© 2013 National Geographic Society, i-cubed).
2) Quadrangles displayed are Brush Valley and Clymer.
TETRA TECH
DIXON RUN CENTRAL TREATMENT FACILITY
USGS PROJECT LOCATION MAP
HOMER CITY GENERATION, LP
CHERRYHILL TOWNSHIP
INDIANA COUNTY, PA
DRAWN BY: S. PAXTON 09/11/17
CHECKED BY: A. RETTINGER 10/18/17
APPROVED BY: DRAFT
PROJECT NUMBER: 212C-PB-0063
FIGURE NUMBER 1
REVISION 0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Tax Map # | Property Owner
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13-23-129.01 | Homer City Generation, L.P.
Backup Discharge Location and Monitoring Points - NOT IN SERVICE
Outfall 002
MP-C
MP-D
Pumphouse A
Sludge Borehole 'A' - RETIRED
MW-1
Collection Pond C
Sludge Borehole 'C' Backup Location - NOT IN SERVICE
Sludge Borehole 'D' Permitted Location - NOT INSTALLED
Central Treatment Facility
Primary Discharge Location and Monitoring Points
MP-B
Outfall 001
MP-A
Polishing Pond
Primary Treatment
Sludge Borehole 'B' Primary Sludge Discharge Location
Legend
Spring Location
Sludge Borehole
Monitoring Points
Monitoring Well
Outfall
Stream
Pond
Central Treatment Facility
Permit Boundary
Parcel Boundary
Aerial photograph provided by ESRI's ArcGIS Online World imagery map service (© 2015 ESRI and its data suppliers).
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1,000 0 1,000 Feet
TETRA TECH
DIXON RUN CENTRAL TREATMENT FACILITY
SITE LOCATION MAP
HOMER CITY GENERATION, LP
CHERRYHILL TOWNSHIP
INDIANA COUNTY, PA
DRAWN BY: S. PAXTON 09/11/17
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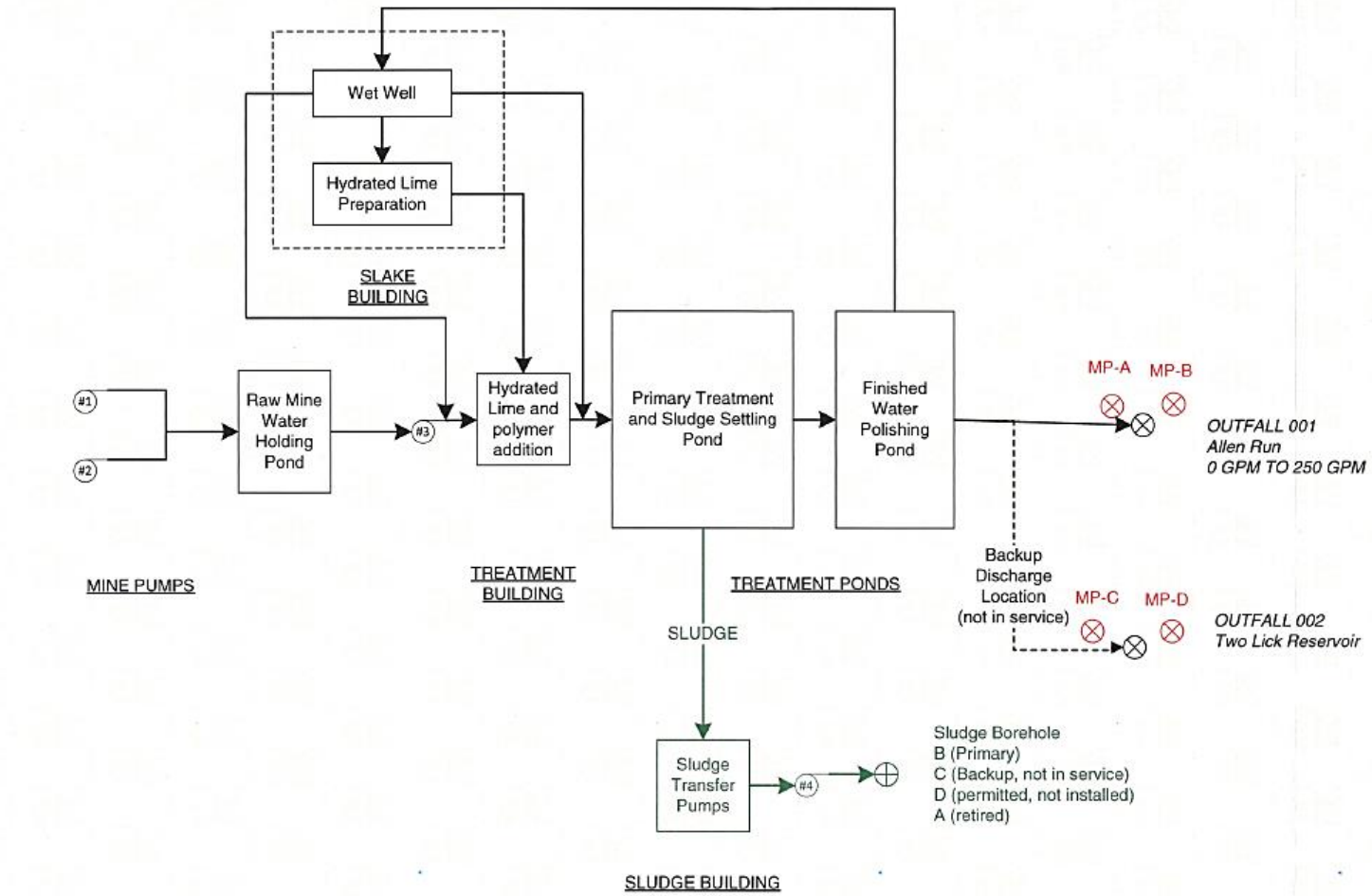
PROJECT NUMBER: 212C-PB-0063
FIGURE NUMBER 1
REVISION 0



PUMP
MONITORING POINT (MP)
OUTFALL
SLUDGE BOREHOLE

DIXON RUN CENTRAL TREATMENT FACILITY
PROCESS FLOW DIAGRAM
HOMER CITY GENERATION LP
NPDES PERMIT APPLICATION

Treatment Facility Summary				
Treatment Facility: Dixon Run Central Treatment Facility				
WQM Permit No.	**Issuance Date**	**Purpose**		
3218200	August 7, 2018	Authorization for existing treatment facilities previously permitted by the mining program.		
3218200 A-1	July 17, 2019	Sludge disposal boreholes		
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Industrial (Mining)	Primary	Flow Equalization, Chemical Precipitation, Coagulation/Flocculation, Sedimentation	N/A	0.044

Changes Since Last Permit Issuance: WQM 3218200 was a new permit issued by the Clean Water Program for existing treatment facilities as part of the oversight transition.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.044 (avg.); 0.72 (max)
Latitude 40° 36' 53.00" **Longitude** -79° 2' 35.00"
Wastewater Description: Treated acid mine drainage from an underground deep mine

001.A. Technology-Based Effluent Limitations (TBELs)

There are no Federal Effluent Limitations Guidelines applicable to Outfall 001. The Coal Mining Point Source Category effluent limitations at 40 CFR Part 434 apply to discharges from active coal mines and coal preparation plants and associated areas. The Dixon Run No. 3 mine is not an active mine. Therefore, Part 434 limits do not apply.

The post-closure mine pool maintenance activities assumed by HCG under the June 1, 2006 Consent Order and Agreement are classified as "*underground mining activities*" pursuant to the definitions in 25 Pa. Code § 89.5(a):

> *Underground mining activities*—Includes the following:
>
> (i) Surface operations incident to underground extraction of coal or in situ processing, such as construction, use, maintenance and reclamation of roads, aboveground repair areas, storage areas, processing areas, shipping areas, areas upon which are sited support facilities, including hoist and ventilating ducts, areas used for the disposal and storage of waste and areas on which materials incident to underground mining operations are placed.
>
> (ii) Underground operations such as underground construction, operation and reclamation of shafts, adits, support facilities located underground, in situ processing and underground mining, hauling, storage and blasting.
>
> (iii) Operation of a mine including preparatory work in connection with the opening and reopening of a mine, backfilling, sealing, and other closing procedures, postclosure mine pool maintenance and any other work done on land or water in connection with a mine.

Discharges from Outfall 001 are subject to the Group A effluent limits in 25 Pa. Code § 89.52(c) pursuant to § 89.52(f)(2), which states:

> (f) *Postmining pollutional discharges.* […]
>
> (2) If the discharge continues to exist, after implementation of the abatement measures required under paragraph (1), the discharger shall make provisions for sound future treatment of the discharge to achieve the Group A effluent requirements in subsection (c), including modifications authorized or required under subsection (e) or (h). […]

Table 1. TBELs for Postmining Pollutional Discharges

Parameter	30-day Average (mg/L)	Daily Maximum (mg/L)	Inst. Maximum (mg/L)
Total Suspended Solids	35	70	90
Iron	3.0	6.0	7.0
Manganese	2.0	4.0	5.0
pH	not less than 6.0 nor greater than 9.0 standard units		
Alkalinity greater than acidity at all times			

25 Pa. Code Chapter 89 – Surface Water and Groundwater Monitoring Requirements

Section 89.59 requires minimum surface water and groundwater monitoring for underground mining activities. The current NPDES permit issued as part of CMAP 32131301 included surface water and groundwater monitoring requirements that will be maintained in the renewed permit with a few changes. The existing requirements include quarterly upstream and downstream monitoring on Allen Run and Two Lick Creek (upstream and downstream of Outfalls 001 and 002) for flow, pH, alkalinity, acidity, iron, manganese, aluminum, sulfates, suspended solids, dissolved solids, osmotic pressure, and chlorides. There is also a requirement to monitoring the water elevation of the Dixon Run mine pool in monitoring well "MW-1". Mercury and thallium monitoring will be added to the surface water sampling locations associated with Outfall 001 (see Section 001.B, below). The requirements are summarized in the following table.

Table 2. Surface Water and Groundwater Monitoring Program for Dixon Run

Monitoring Point No.	001 Upstream ("MP-A")	001 Downstream ("MP-B")	002 Upstream ("MP-C") †	002 Downstream ("MP-D") †	MW-1
Quad Map ID	Brush Valley	Brush Valley	Clymer	Clymer	Brush Valley
Latitude (dd mm ss)	40° 36' 51"	40° 36' 55"	40° 37' 36"	40° 37' 35"	40° 37' 43"
Longitude (dd mm ss)	79° 02' 35"	79° 02' 37"	79° 03' 31"	79° 03' 32"	79° 04' 01"
Surface Elevation (ft)	±1425	±1395	±1180	±1180	±1280
Location Description	Allen Run US	Allen Run DS	Two Lick Dam US	Two Lick Dam DS	Dixon Run Mine Pool
Flow (cfs/gpm)	Report	Report	Report	Report	—
Water Elevation (ft)	—	—	—	—	Report
pH	Report	Report	Report	Report	—
Alkalinity (mg/L)	Report	Report	Report	Report	—
Acidity (mg/L)	Report	Report	Report	Report	—
Iron (mg/L)	Report	Report	Report	Report	—
Manganese (mg/L)	Report	Report	Report	Report	—
Aluminum (mg/L)	Report	Report	Report	Report	—
Sulfate (mg/L)	Report	Report	Report	Report	—
Suspend Solids (mg/L)	Report	Report	Report	Report	—
Dissolved Solids (mg/L)	Report	Report	Report	Report	—
Osmotic Pressure (mOs/kg)	Report	Report	Report	Report	—
Chlorides (mg/l)	Report	Report	Report	Report	—
Mercury (mg/L)	Report	Report	—	—	—
Thallium (mg/L)	Report	Report	—	—	—
Sampling Frequency	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly

† Sampling at MP-C and MP-D only applies if/when Homer City Generation activates Outfall 002, which is not currently in use.

001.B. Water Quality-Based Effluent Limitations (WQBELs)

Water quality-based effluent limits are evaluated pursuant to 25 Pa. Code §§ 89.52(f)(2) and 89.52(h) regarding additional requirements necessary to comply with Chapters 91, 92a, 93, and 95 of Title 25.

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

The procedures for evaluating reasonable potential are as follows:

1. For industrial waste discharges, the design flow to use in modeling is the average flow during production or operation unless another flow value is more appropriate.

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 "<QL" where the quantitation limit for the analytical method used by the applicant is greater than DEP's target quantitation limit]. List all toxic pollutants of concern in a Toxics Screening Analysis section of the fact sheet (see Attachment A).

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 is collected on a spreadsheet titled "Toxics Screening Analysis." (Attachment A).

PENTOXSD Water Quality Modeling Program

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 in PENTOXSD to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions, and partial mix factors also may 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 generally 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.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Table 3. 001 PENTOXSD Inputs

Parameter	**Value**
River Mile Index	1.21
Discharge Flow (MGD)	0.044
Basin/Stream Characteristics	
Parameter	**Value**
Drainage Area (sq. mi.)	0.7
$Q_{7\text{-}10}$ (cfs)	0.04
Low-flow yield (cfs/mi^2)	0.057
Elevation (ft)	1,415
Slope	0.04

The PENTOXSD model is run for Outfall 001 with the modeled discharge and receiving stream characteristics shown in Table 3. The pollutants selected for analysis are those identified as candidates for modeling by the Toxics Screening Analysis. Pollutants for which water quality criteria have not been promulgated (e.g., TSS, oil and grease, etc.) are excluded from the PENTOXSD modeling.

DEP's initial PENTOXSD modeling for Outfall 001 indicated that WQBELs are required for cadmium, mercury, selenium, and thallium and that reporting is required for arsenic. The requirements for arsenic, cadmium, and selenium arise from HCG's contracted laboratory's use of insufficiently sensitive analytical methods that did not achieve DEP's target quantitation limits. That is, the permit application reported that the concentrations of those pollutants are less than Environmental Service Laboratory's analytical reporting limits, but those reporting limits are too high to rule out the possibility that discharges will result in excursions above Pennsylvania's water quality standards. In these situations, DEP allows dischargers to collect additional samples and analyze them using lower quantitation limits—preferably the target quantitation limits specified in DEP's most recent Application for Permit to Discharge Industrial Wastewater.

By letter dated May 16, 2019, DEP notified HCG of the potential for new WQBELs. The letter included a survey giving HCG an opportunity to resample its effluent and/or to explain whether it would be able to comply with the WQBELs and, if not, how long it would take to comply. HCG did not resample its effluent, but it did forward to DEP additional analytical data that were collected and sent to DEP's Mining Program as part of the 2014 CMAP/NPDES permit renewal. HCG's contracted lab did achieve lower reporting limits for those results. Based on the additional data, water quality-based requirements for arsenic, cadmium, and selenium will not be imposed. However, WQBELs for mercury and thallium will be imposed. Even though the 2014 data included non-detect results for mercury, the older non-detect result for mercury at a quantitation limit of 0.025 µg/L does not invalidate two newer detected results at 0.04 µg/L. In either case, HCG can comply with the proposed mercury WQBELs.

Thallium was detected in the 2014 results at a value of 0.2 µg/L, which is less than the proposed thallium WQBELs. Nevertheless, pursuant to DEP's guidance, the 0.2 µg/L value exhibits a reasonable potential to cause or contribute to an excursion above the thallium WQBELs of 0.381 µg/L (average monthly) and 0.594 µg/L (maximum daily), so the thallium WQBELs will be imposed at Outfall 001. DEP also cannot ignore the more recent thallium result of 2.2 µg/L.

The mercury and thallium WQBELs are less than DEP's target quantitation limits for those pollutants (0.2 µg/L and 2.0 µg/L), which, at the time of this writing, are the quantitation limits that DEP has determined will comply with EPA's 2014 Sufficiently Sensitive Methods rule. In these situations, the WQBELs are imposed in the permit, but the permittee demonstrates compliance with those limits by reporting 'less than' values at the level of the target quantitation limit (e.g., "<0.2 µg/L"). The handling of WQBELs at values below target quantitation limits will be described in the permit using the following conditions:

A. The parameter(s) listed below are subject to water quality-based effluent limits (WQBELs) in Part A of this permit that are necessary to comply with state water quality standards, but may be less than quantitation limits (QLs), as defined in 25 Pa. Code § 252.1, that are generally achievable by conventional analytical technology. The permittee shall analyze the parameter(s) using methods that will achieve the QL(s) as listed below. For the purpose of compliance, a statistical value reported on the DMR that is less than the QL(s) (i.e., "non-detect") will be considered to be in compliance.

Parameter Name	Quantitation Limit
Mercury, Total	0.2 µg/L
Thallium, Total	2.0 µg/L

B. The permittee shall, where determined to be feasible by the permittee, achieve a QL less than the QL identified above to improve the level of confidence that state water quality standards are being met in the receiving waters.

C. The permittee shall manage non-detect values and report statistical results to DEP in accordance with published DMR guidance (3800-BK-DEP3047 and 3800-FS-DEP4262). Where a mixed data set exists containing non-detect results and "detected" values (i.e., results greater than or equal to the QL), the QL shall be used for non-detect results to compute average statistical results.

HCG expects that it will comply with the proposed mercury and thallium WQBELs pursuant to the above conditions. Therefore, no schedule of compliance will be included in the permit for the new WQBELs.

Table 4. WQBELs for Outfall 001

Parameter	Concentration Limit (µg/L)			2018 NPDES Appl. Result (µg/L)	2014 CMAP/ NPDES Appl. Result	Target QL (µg/L)
	Avg Mo.	Max Daily	IMAX			
Proposed water quality-based requirements that will not be imposed due to the receipt of additional information as part of the pre-draft survey						
Arsenic, Total	Report	Report	—	<5	<1	3
Cadmium, Total	1.36	2.13	3.42	<1.6	<0.2	0.2
Selenium, Total	7.91	12.34	19.78	<6.6	<2	5
Proposed water quality-based requirements that will be imposed						
Mercury, Total	0.079	0.124	0.197	0.04	<0.025	0.2
Thallium, Total	0.381	0.594	0.952	2.2	0.2	2.0

Other Monitoring Requirements

Discharges from Outfall 001 are currently subject to average monthly and maximum daily limits of 50.0 mOs/kg for osmotic pressure. Those limits are equivalent to the most stringent water quality criterion for osmotic pressure.[1] DEP's reasonable potential analysis indicates that the osmotic pressure of Outfall 001's discharges (maximum of 9 mOs/kg) does not exhibit a reasonable potential to cause or contribute to an excursion above the osmotic pressure water quality criterion. Therefore, pursuant to the exception to anti-backsliding in 40 CFR § 122.44(l)(2)(i)(B)(*1*) regarding new information that justifies the application of less stringent limits (effluent data in this case), Outfall 001's osmotic pressure WQBELs will be removed from the permit.

[1] Osmotic pressure is identified in 25 Pa. Code § 93.7(a) of DEP's regulations in units representing osmolality (milliosmoles per kilogram). Implementation of the osmotic pressure criterion in NPDES permits is consistent with these units.

Pursuant to 25 Pa. Code §§ 92a.61(b) and 89.59(a)(3), monitoring for osmotic pressure, sulfates, total dissolved solids, and chlorides will remain in the permit. Section 89.59(a)(3) requires surface water and discharge monitoring to "measure and record the water quantity and quality of discharges from the permit area and the effect of the discharges on the receiving waters". Monitoring of the discharge and monitoring of the receiving stream both upstream and downstream of the discharge (see Table 2) for the same parameters will allow DEP to evaluate the impacts of the Dixon Run discharges on waters of the Commonwealth.

Mercury and thallium will be added to the quarterly stream monitoring program on Allen Run to establish in-stream concentrations for those pollutants and whether Outfall 001's discharges have an adverse impact on those in-stream concentrations.

Kiskiminetas-Conemaugh River Watershed TMDL

A TMDL for the Kiskiminetas-Conemaugh River Watershed ("Kiski-Conemaugh TMDL")—of which the Allen Run is a part—was completed on January 29, 2010 for the control of acid mine drainage pollutants: aluminum, iron, manganese, sediment and pH. In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by EPA pursuant to 40 CFR § 130.7. The Dixon Run Central Treatment Facility was assigned wasteload allocations (WLAs) for aluminum, iron, and manganese by the Kiski-Conemaugh TMDL. Therefore, pursuant to § 122.44(d)(1)(vii)(B), WQBELs will be imposed at Outfall 001. Only aluminum, iron, and manganese WQBELs are imposed because the TMDL does not establish wasteload allocations for sediment or pH. The TMDL used a surrogate approach for both of those constituents by which reductions of in-stream concentrations of aluminum, iron, and manganese would result in acceptable reductions of sediment and mitigation of acidic pH.

The TMDL's allocated concentrations for aluminum, iron, and manganese are equivalent to the most stringent water quality criteria for those pollutants and those criteria will be imposed as end-of-pipe limits at Outfall 001. The methods used to implement water quality criteria are described in 25 Pa. Code §§ 96.3 and 96.4. Also, DEP's *Water Quality Toxics Management Strategy* (Doc. No. 361-2000-003) addresses design conditions in detail (Table 1 in that document), including the appropriate durations to assign to water quality criteria. The design duration for Criteria Maximum Concentration (CMC) criteria is 1 hour (acute). The design duration for Criteria Continuous Concentration (CCC) criteria is 4 days (chronic). The design duration for Threshold Human Health (THH) criteria is 30 days (chronic). The design duration for Cancer Risk Level (CRL) criteria is 70 years (chronic).

The 750 µg/L aluminum criterion in 25 Pa. Code § 93.8c is a CMC (acute) criterion. Therefore, 750 µg/L is imposed as a maximum daily limit. There is no CCC criterion for aluminum necessitating the imposition of a more stringent average monthly limit. Imposing 750 µg/L as both a maximum daily and average monthly limit is protective of water quality uses.

The 1.5 mg/L iron criterion is given as a 30-day average in 25 Pa. Code § 93.7(a). Therefore, 1.5 mg/L is imposed as an average monthly limit and the maximum daily effluent limit is calculated using a multiplier of two times the average monthly limit based on DEP's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (Doc. No. 362-0400-001, Chapter 3, pp. 15 – 16).

The 1 mg/L potable water supply criterion for manganese in 25 Pa. Code § 93.7(a) is a human health criterion (chronic). Per Table 1 of the *Water Quality Toxics Management Strategy*, the duration for a THH criterion is 30 days. Therefore, an average monthly effluent limit of 1 mg/L is imposed and the maximum daily effluent limit is calculated using a multiplier of two times the average monthly limit consistent with the technical guidance cited above for iron.

Since the allocated concentrations are equivalent to water quality criteria, HCG's compliance with concentration limits for aluminum, iron, and manganese will not result in excursions above water quality criteria and the permit will be consistent with the TMDL's WLAs. Consequently, the TMDL's load limits are not required. The TMDL's wasteload allocations and the applicable WQBELs are summarized in the table below.

Table 5. TMDL Effluent Limits for Outfall 001

Pollutant	Average Monthly (mg/L)	Maximum Daily (mg/L)
Aluminum, Total	0.75	0.75
Iron, Total	1.5	3.0
Manganese, Total	1.0	2.0

The TMDL WQBELs in Table 5 are imposed in the current permit for Dixon Run, so HCG's compliance with those limits is expected.

001.C. 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 the table below.

Table 6. Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
Total Suspended Solids	—	—	35	70	90	25 Pa. Code § 89.52(f)(2)
Aluminum, Total	—	—	0.75	0.75	0.75	TMDL WQBELs
Iron, Total	—	—	1.5	3.0	3.75	TMDL WQBELs
Manganese, Total	—	—	1.0	2.0	2.0	TMDL WQBELs
Mercury, Total	—	—	0.079	0.124	0.197	Reasonable Potential; § 92a.61(b)
Thallium, Total	—	—	0.381	0.594	0.952	Reasonable Potential; § 92a.61(b)
Alkalinity	—	—	Report	Report	—	25 Pa. Code § 89.52(f)(2)
Acidity	—	—	Report	Report	—	25 Pa. Code § 89.52(f)(2)
Net Alkalinity†	—	—	0.0 (Minimum)	—	—	25 Pa. Code § 89.52(f)(2)
Osmotic Pressure (mOs/kg)	—	—	Report	Report	—	25 Pa. Code §§ 89.59(a)(3) & 92a.61(b)
Sulfates	—	—	Report	Report	—	25 Pa. Code §§ 89.59(a)(3) & 92a.61(b)
Total Dissolved Solids	—	—	Report	Report	—	25 Pa. Code §§ 89.59(a)(3) & 92a.61(b)
Chlorides	—	—	Report	Report	—	25 Pa. Code §§ 89.59(a)(3) & 92a.61(b)
pH (s.u.)	within the range of 6.0 to 9.0					25 Pa. Code § 95.2(1)

†Net Alkalinity is the sum of alkalinity (+) and acidity (-). A minimum limit of zero for net alkalinity will require alkalinity to always be greater than acidity as required by Chapter 89's Group A limits.

Monitoring frequencies and sample types are imposed based on those given in the existing permit and on Chapter 6, Table 6-4 of DEP's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits*. Flow must be measured 2/month. Aluminum, iron, manganese, mercury, thallium, alkalinity, acidity, osmotic pressure, sulfates, total dissolved solids, chlorides must be sampled 2/month using grab samples. Less frequent monitoring and less intensive sampling methods than those identified in the *Technical Guidance* are imposed because the treatment system operates intermittently.

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** 0.044 (avg.); 0.72 (max)
Latitude 40° 37' 39.77" **Longitude** -79° 3' 37.32"
Wastewater Description: Treated acid mine drainage from an underground deep mine

002.A. Technology-Based Effluent Limitations (TBELs)

Outfall 002 is an alternative discharge location for effluent from the Central Treatment Facility. TBELs for Outfall 002 are the same as the TBELs for Outfall 001 (see Table 1).

002.B. Water Quality-Based Effluent Limitations (WQBELs)

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Table 7. 001 PENTOXSD Inputs

Parameter	Value
River Mile Index	18.22
Discharge Flow (MGD)	0.044
Basin/Stream Characteristics	
Parameter	**Value**
Drainage Area (sq. mi.)	66.7
Q_{7-10} (cfs)	40
Low-flow yield (cfs/mi^2)	0.5982
Elevation (ft)	1,179
Slope	0.001

The PENTOXSD model is run for Outfall 002 with the modeled discharge and receiving stream characteristics shown in Table 7. The pollutants selected for analysis are those identified as candidates for modeling by the Toxics Screening Analysis. Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease, etc.) are excluded from the PENTOXSD modeling.

Based on the results of the PENTOXSD modeling (see Attachment B), no WQBELs or water quality-based reporting requirements are necessary for Outfall 002.

Kiskiminetas-Conemaugh River Watershed TMDL

TMDL WLAs for Outfall 002 are the same as those for Outfall 001 (see Table 4).

002.C. Effluent Limitations and Monitoring Requirements for Outfall 002

Effluent limits applicable at Outfall 002 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in the table below.

Table 8. Effluent Limits and Monitoring Requirements for Outfall 002

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
Total Suspended Solids	—	—	35	70	90	25 Pa. Code § 89.52(f)(2)
Aluminum, Total	—	—	0.75	0.75	0.75	TMDL WQBELs
Iron, Total	—	—	1.5	3.0	3.75	TMDL WQBELs
Manganese, Total	—	—	1.0	2.0	2.0	TMDL WQBELs
Alkalinity	—	—	Report	Report	—	25 Pa. Code § 89.52(f)(2)
Acidity	—	—	Report	Report	—	25 Pa. Code § 89.52(f)(2)
Net Alkalinity	—	—	0.0 (Minimum)	—	—	25 Pa. Code § 89.52(f)(2)
Osmotic Pressure (mOs/kg)	—	—	Report	Report	—	25 Pa. Code §§ 89.59(a)(3) & 92a.61(b)
Sulfates	—	—	Report	Report	—	25 Pa. Code §§ 89.59(a)(3) & 92a.61(b)
Total Dissolved Solids	—	—	Report	Report	—	25 Pa. Code §§ 89.59(a)(3) & 92a.61(b)
Chlorides	—	—	Report	Report	—	25 Pa. Code §§ 89.59(a)(3) & 92a.61(b)
pH (s.u.)	within the range of 6.0 to 9.0					25 Pa. Code § 95.2(1)

Monitoring frequencies and sample types are the same as those at Outfall 001.

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	PENTOXSD for Windows Model (see Attachment B)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Toxics Screening Analysis Spreadsheet (see Attachment A)
☐	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: Establishing Effluent Limitations for Individual Industrial Permits, BCW-PMT-032, v1.5, 1/10/2019.
☒	SOP: Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers, BCW-PMT-037, v1.2, 7/30/2019.
☒	SOP: New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications, BPNPSM-PMT-001, v1.5, 10/11/2013.
☐	Other:

ATTACHMENT A

Toxics Screening Analysis for Outfall 001

TOXICS SCREENING ANALYSIS – OUTFALL 001
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.6

Facility: **Homer City Dixon Run Central Trtm. Fac.** NPDES Permit No.: **PA0235555** Outfall: **001**

Analysis Hardness (mg/L): **170** Discharge Flow (MGD): **0.044** Analysis pH (SU): **7**

Stream Flow, Q_{7-10} (cfs): **0.04**

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
Pollutant Group 1						
Total Dissolved Solids		928000	500000	Yes		
Chloride		6680	250000	No		
Bromide		46	N/A	No		
Sulfate		571000	250000	Yes		
Fluoride		369	2000	No		
Pollutant Group 2 – Metals						
Total Aluminum		286	750	No	762.473	
Total Antimony		0.76	5.6	No		
Total Arsenic	<	1	10	No (Value < QL)	15.862	
Total Barium		4	2400	No		
Total Beryllium		0.3	N/A	No		
Total Boron		213	1600	No		
Total Cadmium	<	0.2	0.401	No (Value < QL)	1.369	
Total Chromium		0.9	N/A	No		
Hexavalent Chromium		5	10.4	No		
Total Cobalt		2	19	No		
Total Copper		2	14.7	No		
Total Cyanide			N/A			
Total Iron		193	1500	No		
Dissolved Iron		83	300	No		
Total Lead	<	3.3	6.3	Yes	37.003	No Limits/Monitoring
Total Manganese		47	1000	No		
Total Mercury		0.04	0.05	Yes	0.079	Establish Limits
Total Molybdenum		2	N/A	No		
Total Nickel		5	81.7	No		

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
Total Phenols (Phenolics)	<	2	5	No (Value < QL)		
Total Selenium	<	2	5.0	No (Value < QL)	7.914	
Total Silver	<	3.3	9.4	No	56.787	
Total Thallium		2.2	0.24	Yes	0.381	Establish Limits
Total Zinc		5	187.8	No		
Pollutant Group 7 – Additional Parameters						
Osmotic Pressure (mOs/kg)		9	50	No		

TOXICS SCREENING ANALYSIS – OUTFALL 002
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.6

Facility: **Homer City Dixon Run Central Trtm. Fac.** NPDES Permit No.: **PA0235555** Outfall: **002**

Analysis Hardness (mg/L): **100** Discharge Flow (MGD): **0.044** Analysis pH (SU): **7**

Stream Flow, Q_{7-10} (cfs): **4.9**

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
Pollutant Group 1						
Total Dissolved Solids		928000	500000	Yes	348070000	No Limits/Monitoring
Chloride		6680	250000	No		
Bromide		46	N/A	No		
Sulfate		571000	250000	Yes	174030000	No Limits/Monitoring
Fluoride		369	2000	No		
Pollutant Group 2 – Metals						
Total Aluminum		286	750	No	60918.48	
Total Antimony		0.76	5.6	No		
Total Arsenic	<	1	10	No	5871.777	
Total Barium		4	2400	No		
Total Beryllium		0.3	N/A	No		
Total Boron		213	1600	No		
Total Cadmium	<	0.2	0.271	Yes	160.023	No Limits/Monitoring
Total Chromium		0.9	N/A	No		
Hexavalent Chromium		5	10.4	No		
Total Cobalt		2	19	No		
Total Copper		2	9.3	No		
Total Cyanide			N/A			
Total Iron		193	1500	No	880766.5	
Dissolved Iron		83	300	No		
Total Lead	<	3.3	3.2	Yes	1890.83	No Limits/Monitoring
Total Manganese		47	1000	No		
Total Mercury		0.04	0.05	No	29.359	
Total Molybdenum		2	N/A	No		
Total Nickel		5	52.2	No		

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
Total Phenols (Phenolics)	<	2	5	No (Value < QL)		
Total Selenium	<	2	5.0	Yes	2929.52	No Limits/Monitoring
Total Silver	<	3.3	3.8	No	331.079	
Total Thallium		2.2	0.24	Yes	140.923	No Limits/Monitoring
Total Zinc		5	119.8	No		
Pollutant Group 7 – Additional Parameters						
Osmotic Pressure (mOs/kg)		9	50	No		

ATTACHMENT B

PENTOXSD Modeling Results

Outfall 001

PENTOXSD

Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
44273	1.21	1415.00	0.70	0.04000	0.00	☑

Stream Data

	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Rch Velocity (fps)	Rch Trav Time (days)	Tributary Hard (mg/L)	Tributary pH	Stream Hard (mg/L)	Stream pH	Analysis Hard (mg/L)	Analysis pH
Q7-10	0.057	0	0	0	0	0	0	0	170	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
Outfall 001	PA0235555	0.044	0	0	0	0	0	0	0	659	8

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)
ALUMINUM	1000000	0	0.5	0.5	0.09	0	0	0	1	0
ARSENIC	1000000	0	0.5	0.5	0	0	0	0	1	0
CADMIUM	1000000	0	0.5	0.5	0	0	0	0	1	0
LEAD	1000000	0	0.5	0.5	0	0	0	0	1	0
MANGANESE	1000000	0	0.5	0.5	0.09	0	0	0	1	0
MERCURY	1000000	0	0.5	0.5	0	0	0	0	1	0
OSMOTIC PRESSURE	1000000	0	0.5	0.5	6.43	0	0	0	1	0
SELENIUM	1000000	0	0.5	0.5	0	0	0	0	1	0
SILVER	1000000	0	0.5	0.5	0	0	0	0	1	0
THALLIUM	1000000	0	0.5	0.5	0	0	0	0	1	0
TOTAL IRON	1000000	0	0.5	0.5	0.11	0	0	0	1	0

Outfall 001

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
44273	1.00	1355.00	1.56	0.04000	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	0.057	0	0	0	0	0	0	0	170	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)
ALUMINUM	0	0	0.5	0.5	0	0	0	0	1	0
ARSENIC	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
LEAD	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
OSMOTIC PRESSURE	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
SILVER	0	0	0.5	0.5	0	0	0	0	1	0
THALLIUM	0	0	0.5	0.5	0	0	0	0	1	0
TOTAL IRON	0	0	0.5	0.5	0	0	0	0	1	0

Outfall 001

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
1.21	**Outfall 001**	**PA0235555**

AFC

Q7-10: **CCT (min)** 0.059 **PMF** 1 **Analysis pH** 7.363 **Analysis Hardness** 478.288

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
ALUMINUM	0.09	0	0	0	750	750	1189.581
MANGANESE	0.09	0	0	0	NA	NA	NA
TOTAL IRON	0.11	0	0	0	NA	NA	NA
OSMOTIC PRESSURE	6.43	0	0	0	NA	NA	NA
ARSENIC	0	0	0	0	340	340	539.301
	Dissolved WQC. Chemical translator of 1 applied.						
CADMIUM	0	0	0	0	9.199	10.471	16.609
	Dissolved WQC. Chemical translator of 0.879 applied.						
LEAD	0	0	0	0	337.015	598.653	949.57
	Dissolved WQC. Chemical translator of 0.563 applied.						
MERCURY	0	0	0	0	1.4	1.647	2.613
	Dissolved WQC. Chemical translator of 0.85 applied.						
SELENIUM	0	0	0	0	NA	NA	NA
SILVER	0	0	0	0	47.477	55.855	88.597
	Dissolved WQC. Chemical translator of 0.85 applied.						
THALLIUM	0	0	0	0	65	65	103.102

CFC

Q7-10: **CCT (min)** 0.059 **PMF** 1 **Analysis pH** 7.363 **Analysis Hardness** 478.288

Parameter	Stream Conc. (µg/L)	Stream CV	Trib Conc. (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
ALUMINUM	0.09	0	0	0	NA	NA	NA
MANGANESE	0.09	0	0	0	NA	NA	NA
TOTAL IRON	0.11	0	0	0	1500	1500	2379.203
	WQC = 30 day average. PMF = 1.						
OSMOTIC PRESSURE	6.43	0	0	0	50	50	75.54
	Units for WLA and Effluent Limit = Milliosmoles per kilogram.						
ARSENIC	0	0	0	0	150	150	237.927
	Dissolved WQC. Chemical translator of 1 applied.						
CADMIUM	0	0	0	0	0.728	0.863	1.369
	Dissolved WQC. Chemical translator of 0.844 applied.						

Outfall 001

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
1.21	**Outfall 001**	**PA0235555**						
	LEAD	0	0	0	0	13.133	23.329	37.003
		Dissolved WQC. Chemical translator of 0.563 applied.						
	MERCURY	0	0	0	0	0.77	0.906	1.437
		Dissolved WQC. Chemical translator of 0.85 applied.						
	SELENIUM	0	0	0	0	4.6	4.989	7.914
		Dissolved WQC. Chemical translator of 0.922 applied.						
	SILVER	0	0	0	0	NA	NA	NA
	THALLIUM	0	0	0	0	13	13	20.62

THH

Q7-10: **CCT (min)** 0.059 **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)
ALUMINUM	0.09	0	0	0	NA	NA	NA
MANGANESE	0.09	0	0	0	1000	1000	1586.126
TOTAL IRON	0.11	0	0	0	NA	NA	NA
OSMOTIC PRESSURE	6.43	0	0	0	NA	NA	NA
ARSENIC	0	0	0	0	10	10	15.862
CADMIUM	0	0	0	0	NA	NA	NA
LEAD	0	0	0	0	NA	NA	NA
MERCURY	0	0	0	0	0.05	0.05	0.079
SELENIUM	0	0	0	0	NA	NA	NA
SILVER	0	0	0	0	NA	NA	NA
THALLIUM	0	0	0	0	0.24	0.24	0.381

CRL

Qh: **CCT (min)** 0.117 **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)
ALUMINUM	0.09	0	0	0	NA	NA	NA

Outfall 001

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
1.21	**Outfall 001**	**PA0235555**						
	MANGANESE	0.09	0	0	0	NA	NA	NA
	TOTAL IRON	0.11	0	0	0	NA	NA	NA
	OSMOTIC PRESSURE	6.43	0	0	0	NA	NA	NA
	ARSENIC	0	0	0	0	NA	NA	NA
	CADMIUM	0	0	0	0	NA	NA	NA
	LEAD	0	0	0	0	NA	NA	NA
	MERCURY	0	0	0	0	NA	NA	NA
	SELENIUM	0	0	0	0	NA	NA	NA
	SILVER	0	0	0	0	NA	NA	NA
	THALLIUM	0	0	0	0	NA	NA	NA

Outfall 001

PENTOXSD Analysis Results

Hydrodynamics

SWP Basin	Stream Code:	Stream Name:
18D	44273	ALLEN RUN

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											
1.210	0.0399	0	0.0399	0.06806	0.04	0.3684	3.7749	10.248	0.0776	0.1653	.059
1.000	0.0889	0	0.0889	NA	0	0	0	0	0	0	NA
Qh Hydrodynamics											
1.210	0.4449	0	0.4449	0.06806	0.04	0.7313	3.7749	5.1623	0.1858	0.0691	.117
1.000	0.8962	0	0.8962	NA	0	0	0	0	0	0	NA

Outfall 001

PENTOXSD Analysis Results

Recommended Effluent Limitations

SWP Basin	Stream Code:	Stream Name:
18D	44273	ALLEN RUN

RMI	Name	Permit Number	Disc Flow (mgd)
1.21	Outfall 001	PA0235555	0.0440

Parameter	Effluent Limit (µg/L)	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent WQBEL (µg/L)	Most Stringent WQBEL Criterion
ALUMINUM	762.473	AFC	1189.581	762.473	AFC
ARSENIC	15.862	THH	24.747	15.862	THH
CADMIUM	1.369	CFC	2.135	1.369	CFC
LEAD	37.003	CFC	57.731	37.003	CFC
MANGANESE	1586.126	THH	2474.611	1586.126	THH
MERCURY	0.079	THH	0.124	0.079	THH
OSMOTIC PRESSURE	75.54	CFC	117.854	75.54	CFC
SELENIUM	7.914	CFC	12.347	7.914	CFC
SILVER	56.787	AFC	88.597	56.787	AFC
THALLIUM	0.381	THH	0.594	0.381	THH
TOTAL IRON	2379.203	CFC	3711.94	2379.203	CFC

Outfall 002

PENTOXSD

Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
44073	18.22	1179.00	66.70	0.00100	0.00	☑

Stream Data

	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Rch Velocity (fps)	Rch Trav Time (days)	Tributary Hard (mg/L)	Tributary pH	Stream Hard (mg/L)	Stream pH	Analysis Hard (mg/L)	Analysis pH
Q7-10	0.5982	0	0	0	0	0	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
Outfall 002	PA0235555-1	0.044	0	0	0	0	0	0	0	659	8

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)
ALUMINUM	1000000	0	0.5	0.5	0	0	0	0	1	0
ARSENIC	1000000	0	0.5	0.5	0	0	0	0	1	0
CADMIUM	1000000	0	0.5	0.5	0	0	0	0	1	0
LEAD	1000000	0	0.5	0.5	0	0	0	0	1	0
MANGANESE	1000000	0	0.5	0.5	0	0	0	0	1	0
MERCURY	1000000	0	0.5	0.5	0	0	0	0	1	0
OSMOTIC PRESSURE	1000000	0	0.5	0.5	0	0	0	0	1	0
SELENIUM	1000000	0	0.5	0.5	0	0	0	0	1	0
SILVER	1000000	0	0.5	0.5	0	0	0	0	1	0
SULFATE (PWS)	1E+07	0	0.5	0.5	0	0	0	0	1	0
THALLIUM	1000000	0	0.5	0.5	0	0	0	0	1	0
TOTAL DISSOLVED SOLIDS (PWS)	1E+07	0	0.5	0.5	0	0	0	0	1	0
TOTAL IRON	1000000	0	0.5	0.5	0	0	0	0	1	0

Outfall 002

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
44073	13.34	1090.00	79.10	0.00100	6.00	☑

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	0.5982	0	0	0	0	0	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)
ALUMINUM	0	0	0.5	0.5	0	0	0	0	1	0
ARSENIC	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
LEAD	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
OSMOTIC PRESSURE	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
SILVER	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
THALLIUM	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
TOTAL IRON	0	0	0.5	0.5	0	0	0	0	1	0

Outfall 002

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
18.22	**Outfall 002**	**PA0235555-1**

AFC

Q7-10: **CCT (min)** 15 **PMF** 0.214 **Analysis pH** 7.003 **Analysis Hardness** 104.411

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	43086
	Dissolved WQC. Chemical translator of 1 applied.						
CADMIUM	0	0	0	0	2.1	2.229	282.452
	Dissolved WQC. Chemical translator of 0.942 applied.						
LEAD	0	0	0	0	67.687	86.257	10930.81
	Dissolved WQC. Chemical translator of 0.785 applied.						
MERCURY	0	0	0	0	1.4	1.647	208.721
	Dissolved WQC. Chemical translator of 0.85 applied.						
SELENIUM	0	0	0	0	NA	NA	NA
SILVER	0	0	0	0	3.465	4.076	516.537
	Dissolved WQC. Chemical translator of 0.85 applied.						
THALLIUM	0	0	0	0	65	65	8237.028
ALUMINUM	0	0	0	0	750	750	95042.63
TOTAL IRON	0	0	0	0	NA	NA	NA
MANGANESE	0	0	0	0	NA	NA	NA
OSMOTIC PRESSURE	0	0	0	0	NA	NA	NA
SULFATE (PWS)	0	0	0	0	NA	NA	NA
TOTAL DISSOLVED SOLIDS (PWS)	0	0	0	0	NA	NA	NA

CFC

Q7-10: **CCT (min)** 326.074 **PMF** 1 **Analysis pH** 7 **Analysis Hardness** 100.952

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	88076.66
	Dissolved WQC. Chemical translator of 1 applied.						
CADMIUM	0	0	0	0	0.248	0.273	160.023
	Dissolved WQC. Chemical translator of 0.909 applied.						
LEAD	0	0	0	0	2.543	3.22	1890.83
	Dissolved WQC. Chemical translator of 0.79 applied.						
MERCURY	0	0	0	0	0.77	0.906	531.914
	Dissolved WQC. Chemical translator of 0.85 applied.						

Outfall 002

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number							
18.22	**Outfall 002**	**PA0235555-1**							
	SELENIUM		0	0	0	0	4.6	4.989	2929.52
			Dissolved WQC. Chemical translator of 0.922 applied.						
	SILVER		0	0	0	0	NA	NA	NA
	THALLIUM		0	0	0	0	13	13	7633.31
	ALUMINUM		0	0	0	0	NA	NA	NA
	TOTAL IRON		0	0	0	0	1500	1500	880766.5
			WQC = 30 day average. PMF = 1.						
	MANGANESE		0	0	0	0	NA	NA	NA
	OSMOTIC PRESSURE		0	0	0	0	50	50	29358.88
			Units for WLA and Effluent Limit = Milliosmoles per kilogram.						
	SULFATE (PWS)		0	0	0	0	NA	NA	NA
	TOTAL DISSOLVED SOLIDS (PWS)		0	0	0	0	NA	NA	NA

THH

Q7-10: **CCT (min)** 326.074 **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	5871.777
CADMIUM	0	0	0	0	NA	NA	NA
LEAD	0	0	0	0	NA	NA	NA
MERCURY	0	0	0	0	0.05	0.05	29.359
SELENIUM	0	0	0	0	NA	NA	NA
SILVER	0	0	0	0	NA	NA	NA
THALLIUM	0	0	0	0	0.24	0.24	140.923
ALUMINUM	0	0	0	0	NA	NA	NA
TOTAL IRON	0	0	0	0	NA	NA	NA
MANGANESE	0	0	0	0	1000	1000	587177.7
OSMOTIC PRESSURE	0	0	0	0	NA	NA	NA

Outfall 002

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
18.22	**Outfall 002**	**PA0235555-1**

SULFATE (PWS)	0	0	0	0	250000	250000	1.7403E+08
	WQC applied at RMI 13.34 with a design stream flow of 47.31762.						
TOTAL DISSOLVED SOLIDS (PWS)	0	0	0	0	500000	500000	3.4807E+08
	WQC applied at RMI 13.34 with a design stream flow of 47.31762.						

CRL

Qh: **CCT (min)** 118.344 **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
CADMIUM	0	0	0	0	NA	NA	NA
LEAD	0	0	0	0	NA	NA	NA
MERCURY	0	0	0	0	NA	NA	NA
SELENIUM	0	0	0	0	NA	NA	NA
SILVER	0	0	0	0	NA	NA	NA
THALLIUM	0	0	0	0	NA	NA	NA
ALUMINUM	0	0	0	0	NA	NA	NA
TOTAL IRON	0	0	0	0	NA	NA	NA
MANGANESE	0	0	0	0	NA	NA	NA
OSMOTIC PRESSURE	0	0	0	0	NA	NA	NA
SULFATE (PWS)	0	0	0	0	NA	NA	NA
TOTAL DISSOLVED SOLIDS (PWS)	0	0	0	0	NA	NA	NA

Outfall 002

PENTOXSD Analysis Results

Hydrodynamics

SWP Basin	Stream Code:	Stream Name:
18D	44073	TWO LICK CREEK

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											
18.220	39.9	0	39.9	0.06806	0.001	0.8799	78.931	89.708	0.5755	0.5182	326.074
13.340	47.318	9.282	38.036	NA	0	0	0	0	0	0	NA
Qh Hydrodynamics											
18.220	186.31	0	186.31	0.06806	0.001	1.7324	78.931	45.563	1.3631	0.2188	118.344
13.340	216.25	9.282	206.97	NA	0	0	0	0	0	0	NA

Outfall 002

PENTOXSD Analysis Results

Recommended Effluent Limitations

SWP Basin	Stream Code:	Stream Name:
18D	44073	TWO LICK CREEK

RMI	Name	Permit Number	Disc Flow (mgd)
18.22	Outfall 002	PA0235555-1	0.0440

Parameter	Effluent Limit (µg/L)	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent WQBEL (µg/L)	Most Stringent WQBEL Criterion
ALUMINUM	60918.48	AFC	95042.63	60918.48	AFC
ARSENIC	5871.777	THH	9160.916	5871.777	THH
CADMIUM	160.023	CFC	249.662	160.023	CFC
LEAD	1890.83	CFC	2949.998	1890.83	CFC
MANGANESE	587177.7	THH	916091.6	587177.7	THH
MERCURY	29.359	THH	45.805	29.359	THH
OSMOTIC PRESSURE	29358.88	CFC	45804.58	29358.88	CFC
SELENIUM	2929.52	CFC	4570.522	2929.52	CFC
SILVER	331.079	AFC	516.537	331.079	AFC
SULFATE (PWS)	1E+07	INPUT	1.56E+07	1.7403E+08	THH
THALLIUM	140.923	THH	219.862	140.923	THH
TOTAL DISSOLVED SOLIDS (PWS	1E+07	INPUT	1.56E+07	3.4807E+08	THH
TOTAL IRON	880766.5	CFC	1370000	880766.5	CFC

ATTACHMENT C

Kiskiminetas-Conemaugh River Watershed TMDL Waste Load Allocations

Kiskiminetas River Watershed Mining Wasteload Allocations

Region	SWS	Mining Permit	NPDES PERMIT	Outlets	Metal	Baseline Load (lbs/yr)	Baseline Concentration (mg/L)	Allocated Load (lbs/yr)	Allocated Concentration (mg/L)	% Reduction
4	4415	32031701	PA0235555	1	Aluminum	823	0.75	823	0.75	0
4	4415	32031701	PA0235555	1	Iron	1,645	1.50	1,645	1.50	0
4	4415	32031701	PA0235555	1	Manganese	1,097	1.00	1,097	1.00	0
4	4415	32031701	PA0235555	2	Aluminum	2,193	2.00	823	0.75	63
4	4415	32031701	PA0235555	2	Iron	3,510	3.20	1,645	1.50	53
4	4415	32031701	PA0235555	2	Manganese	2,193	2.00	1,097	1.00	50