

Application Type Renewal
Facility Type Industrial
Major / Minor Major

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

Application No. PA0008281
APS ID 326722
Authorization ID 872106


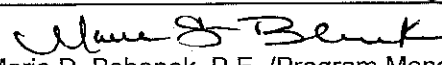
Applicant and Facility Information

Applicant Name	<u>Brunner Island LLC</u>	Facility Name	<u>Brunner Island</u>
Applicant Address	<u>835 Hamilton Street Suite 150</u> <u>Allentown, PA 18101-2400</u>	Facility Address	<u>Wago Road - Brunner Island</u> <u>York Haven, PA 17370-0221</u>
Applicant Contact	<u>Craig Shamory</u>	Facility Contact	<u>Tom Hickee</u>
Applicant Phone		Facility Phone	
Client ID	<u>141473</u>	Site ID	<u>447501</u>
SIC Code	<u>4911</u>	Municipality	<u>East Manchester Township</u>
SIC Description	<u>Trans. & Utilities - Electric Services</u>	County	<u>York</u>
Date Application Received	<u>March 18, 2011</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u>March 23, 2011</u>	If No, Reason	<u>Major Facility</u>
Purpose of Application	<u>Renewal of NPDES permit for discharge of individual industrial wastewater</u>		

Summary of Review

Brunner Island LLC (Brunner Island), a division of Talen Energy is the owner and operator of the Brunner Island Steam Electric Generation Station (BISES) located in East Manchester Township, York County. The NPDES permit Brunner Island is operating under at this time was issued in September 2006 and has been administratively extended for over 6 years. The Department of Environmental Protection (DEP) issued two draft permits to Brunner Island LLC during the period 2012 to 2015. A third draft permit was issued on April 5, 2017. After publication of the draft permit, a comment period was held to allow for public comment regarding the permit. At the end of the comment period, DEP received comments from various environmental groups and Talen Energy. At the request of Sierra Club one of the commenters, a public hearing was held on July 24, 2017, at the fire house in East Manchester Township, York County. During this public hearing DEP listened to and received additional comments on the draft permit. Since draft permit issuance, the United States Environmental Protection Agency (EPA) has postponed for two years the initial compliance date for the Effluent Limitation Guidelines (ELGs) for flue gas desulfurization (FGD) wastewater and bottom ash transport water that were published as a final rulemaking in 2015, amending 40 CFR Part 423. While EPA may ultimately decide to revoke, amend or leave undisturbed the ELGs prior to the initial compliance date of November 1, 2020, the ELGs are effective now and DEP must utilize them in NPDES permits in accordance with the Clean Water Act and 40 CFR Part 122 regulations.

DEP determined based on the comments received and EPA's planned reconsideration of the November 2015 ELGs, to re-draft the permit for a fourth time. The permit will be re-published in the Pennsylvania Bulletin for public comment. This fact sheet has been developed to address some of the comments received on the April 5, 2017 draft permit and to document changes proposed to the draft permit. The draft permit is based on the attached factsheet dated April 5, 2017 except for the proposed changes documented in this fact sheet.

Approve	Deny	Signatures	Date
X		 J. Pascal Kwedza / Environmental Engineering Specialist	January 4, 2018
✓		 Maria D. Bebenek, P.E. / Program Manager	1/5/18

Summary of Review

1.0 WA § 316(a) Thermal Limitation

The facility has been operating under a 316(a) variance since 1981, based on studies conducted in the 1970s. The alternate thermal limits granted in 1981 have been included in all subsequent permit renewals up to 2006. DEP reviewed biological surveys conducted from 2002 to 2005 and temperature monitoring done in 2003 and concluded there may be appreciable harm to the aquatic communities up to 3 miles downstream of Outfall 001 along the western shore of the Susquehanna River near the confluence with Codorus Creek. In 2006 DEP reissued the NPDES permit with more stringent thermal limitations to protect critical habitat in the Susquehanna River, which required Brunner Island to provide cooling for its once-through cooling water. DEP entered into a Consent Order and Agreement(COA) in 2008 with the permittee that led to the construction of cooling towers in 2010. DEP authorized the facility to turn the cooling towers off from December 1st through February 29th annually, due to operational issues with freezing within towers during those winter months. DEP required further biological assessments of the Susquehanna River below the cooling tower discharge. The biological assessments required summer (defined as August) and winter (defined as December 1st through February 29th) assessments for the remainder of the permit, following startup of the cooling towers. Brunner Island submitted a series of Biological Studies which DEP reviewed and determined were inconclusive due to inadequacy of the data. The Biological Studies did, however, indicate some improvement in the biotic community within the critical habitat zone following commencement of cooling tower operation.

The focus at the time of the COA was the impact of high temperatures on the aquatic community, particularly during summer months. Cold shock impacts due to the sudden shutdown of units during cool weather months were known and partially addressed by the permittee, but were not the focus of the COA. There have been documented fish kills at the facility related to cold shock, and the permittee has taken steps to mitigate these impacts. However, these steps have not eliminated the cold shock fish kills, two of which occurred in 2016. Additionally, there has been a significant change in operations at the facility since its submission of Biological Studies of the Susquehanna River. The facility now is being used as a "peaking power facility". The facility shuts down during low demand and only comes back online when needed. DEP indicated in the April 5, 2017 draft permit that due to the change in operation and the concern with cold shock impacts, re-evaluation of the 316(a) variance is required. The permittee submitted an analysis of the biological monitoring done from 2008 to 2016 by Burns & McDonnell that concluded that there was no appreciable harm to the fish and macroinvertebrate communities in the receiving river. DEP reviewed the report and found that the data was insufficient to draw a conclusion of no appreciable harm to fish and the indigenous biotic community. Since the previous 316(a) study did not evaluate the impact of sudden shut down of BISES units on temperature of the stream in the channel and the river, the permittee will have to thoroughly investigate and evaluate the effects of its new operation on the balance of the indigenous biotic community.

DEP determined that, the permittee must demonstrate that the existing 316(a) variance continues to be applicable to the change in facility operations. It should be noted that a variance expires with a permit and needs to be renewed for every new permit term. The permit will retain the existing variance in the interim but will require the submission of a work plan within 120 days of permit issuance for approval to start data collection to demonstrate that the interim 316(a) variance is protective of aquatic life. The following condition will be written in the permit:

"Clean Water Act Section 316(a) Thermal Effluent Limits

The thermal effluent limitations for Outfall 001 in Part A of this permit are based on water temperatures that are less stringent than water quality standards contained in 25 Pa. Code Chapter 93, as allowed under Section 316(a) of the Clean Water Act. The thermal effluent limitations were developed based on biological studies that demonstrated a balanced indigenous aquatic community below an approved compliance point in the Susquehanna River, when the facility operated as a baseload station.

The permittee shall conduct biological studies to evaluate the continued applicability of the permittee's existing 316(a) variance as a peaking station. Within 120 days after permit issuance, the permittee shall submit a study plan for a Section 316(a) demonstration to the Department for approval. The work plan must include, at a minimum, temperature monitoring, seasonal fish surveys and macroinvertebrate surveys for a period of no less than two years. The work plan must include the permittee's chosen method to evaluate the impact of the sudden shut down of units on fish and other aquatic life. The work plan must be approved by the Department before the work commences. The final Section 316(a) demonstration report shall be submitted to the Department no later than three (3) years following permit issuance."

Summary of Review

2.0 Flue Gas Desulfurization (FGD) Wastewater (007)

The revised schedule submitted by Brunner Island proposed evaluation of two options to comply with the 2015 ELGs for FGD wastewater. Option 1 is a physical/chemical /biological system from Frontier Technologies and option 2 is an evaporation technology.

Option 1 proposed a schedule to install a pilot system for an emerging physical/chemical /biological system from Frontier Technologies. Brunner Island is of the view that the technology from Frontier Technologies has the potential to counter the weaknesses identified with conventional biological systems that rendered it not suitable for its site in its preliminary evaluation. Brunner Island requested the date of December 31, 2023 to comply with the ELGs, if performance data from the pilot test indicate the system can achieve compliance with the ELGs and this option is selected rather than option 2. The proposed schedule with all the activities and justification are presented in section 2.1.1 of Attachment A which includes pilot testing, design, construction and implementation.

Brunner Island's option 2 proposed a schedule to run a pilot program to evaluate, select and install evaporation technology to comply with the FGD ELGs if option 1 is not the selected option. Brunner Island did not commit to the voluntary incentive program (VIP), but requested December 31, 2023 to comply with the ELGs, using evaporation technology. The proposed schedule if option 2 is selected for compliance with the ELGs and timelines and justification are presented in section 2.1.2 of Attachment A.

DEP planned to re-draft the permit with the existing limits from the draft permit issued on April 5, 2017 as interim limits and the FGD ELGs as final limits. The final limits for FGD ELGs will be incorporated in the permit as follows: "Starting December 31, 2023, flue gas desulfurization (FGD) wastewater generated by the permittee shall not be discharged to surface waters unless the wastewater is treated to achieve the effluent limitation guidelines (ELGs) for Best Available Technology (BAT) at 40 CFR § 423.13(g)(1)(i)". It should be noted that December 31, 2023 is the latest date allowed in the ELGs for compliance with FGD wastewater limits unless EPA revises this timeline in the future.

In addition, the permit will include a provision that will address the possibility that EPA might rescind, revoke or amend the ELGs prior to December 31, 2023. The following condition will be added to the permit: "In the event EPA publishes notice of the amendment of the ELGs at 40 CFR § 423.13(g)(1)(i) prior to December 31, 2023, the permittee shall achieve compliance with the amended ELGs as soon as possible but no later than the date established by federal regulations. If EPA publishes notice of the rescission or revocation of the ELGs at 40 CFR § 423.13(g)(1)(i) prior to December 31, 2023, this provision is not applicable".

3.0 Bottom Ash Transport Water(BATW)

The revised schedule submitted for compliance with the BATW ELGs is consistent with the schedule and justification provided during the development of the draft permit issued on April of 2017. The permittee requested December 31, 2021 as the earliest date of compliance with the BATW ELGs. Brunner Island proposed to install a closed loop system to recycle the treated effluent. The compliance date with the ELGs and timelines and justification are presented in section 2.2 of Attachment A.

DEP intends to re-draft the permit with the existing limitations for Outfall 008 from the draft permit that was issued on April 5, 2017, which includes the establishment of interim limits for BATW until installation of the closed cycle system no later than December 31, 2021. After installation of the closed cycle system, BATW will be recycled back to the plant. The final limitation on BATW discharge will be incorporated in the permit as follows: "The permittee shall cease the discharge of pollutants in bottom ash transport water generated after December 31, 2021, except where bottom ash transport water is used in an FGD scrubber. Bottom ash transport water generated prior to December 31, 2021 may be discharged if the limitations at 40 CFR § 423.12(b)(4) are met. The term bottom ash transport water means water carrying ash, including boiler slag, which settles in the furnace or is dislodged from furnace walls, to areas outside of the furnace. The term includes economizer ash when collected with bottom ash".

In addition, the permit will include a provision that will address the possibility that EPA rescind, revoke or amend the ELG prior to December 31, 2021. The following condition will be added to the permit. "In the event the U.S. Environmental Protection Agency (EPA) publishes notice of the amendment of the ELGs at 40 CFR § 423.13(k)(1)(i) prior to December 31, 2021, the permittee shall achieve compliance with the amended ELGs as soon as possible but no later than the date established by federal regulations. If EPA publishes notice of the rescission or revocation of the ELGs at 40 CFR § 423.13(k)(1)(i) prior to December 31, 2021, this provision is not applicable".

Summary of Review

4.0 IMP 801 – Chemical Metal Cleaning Wastes

Metal cleaning waste is generated approximately once every two years on-site. Currently, metal cleaning waste is shipped off-site for injection in a deep well and Brunner Island will continue to send the spent cleaner off-site for disposal. Brunner Island indicated that rinse waters will be disposed off-site as well, however, DEP added an internal monitoring point to the permit to allow monitoring of rinse water if Brunner Island chooses to discharge it to either the Auxiliary Wastewater Treatment Plant(AWWP) or the Incidental Wastewater Treatment Basins(IWTB). The ELGs for metal cleaning waste in 40CFR§ 423.12(b)(5) must be met at the point of the discharge prior to comingling with other wastestreams. The following ELGs apply at the internal monitoring point established in the permit:

- TSS – 30 mg/l 30-day average, 100 mg/L maximum daily;
- Oil and Grease – 15 mg/l 30-day average, 20 mg/L maximum daily;
- Total Copper – 1.0 mg/L 30-day average and maximum daily; and
- Total Iron – 1.0 mg/L 30-day average and maximum daily.

In addition to these, the requirements for pH (6 – 9 S.U.) from Chapter 95 will be imposed. Flow monitoring will be established as well. Monitoring is only required if chemical cleaning or rinse water is sent to treatment plants.

5.0 Groundwater Management

DEP considered groundwater issues at the site, and developed permit limits and permit conditions towards improving groundwater. Groundwater remediation spans several decades at the BISES site. The site has both unlined ash basins and a lined landfill. The unlined storage basins were designed to drain the liquid into the fractured bedrock leaving the dry ash material to be removed. This practice of not lining basins was the acceptable method at the time they were installed; however, this led to groundwater contamination. Also, since the basins were not emptied within a year they became waste disposal basins and were reclassified as coal ash monofills by new regulations. The lined Class II Landfill was designed with a leachate collection system and leachate detection zone to capture leachate for treatment. Groundwater contamination management at the site is a multi-program effort at DEP between the Waste Management, Clean Water and Environment Cleanup programs. There is an intensive groundwater monitoring program at the site and a plan to clean close the last active ash basin (Basin 6) by removing all the ash material and stained bedrock out of the basin to address any further contamination from this basin. (see closure permit presented in attachment B). DEP reviews the groundwater reports and requests investigations and remedial actions if the data is not acceptable (see attachment C and D for the recent correspondence between the permittee and the waste management program). The NPDES permit will authorize a new outfall for a new Waste Water Treatment Plant (WWTP) that was built to divert flow from Basin 6 thereby allowing final closure of the basin. Diverting the flow from the basin to the WWTP and subsequent removal of coal combustion residual from the basin prevents further degradation of groundwater. The WWTP employs physical and chemical treatment processes and will produce a better effluent quality than the impoundment and reduce any further degradation of the receiving river. Also, the facility has implemented the EPA Coal Combustion Residuals rules (CCR rules) for Basin 6 and Disposal Area 8. These CCR rules require additional sets of monitoring and reporting requirements and annual inspections. Reports of the CCR rules are located on Talen Energy/Brunner Island website under <https://www.talenenergy.com/generation/fossil-fuels/ccr-brunner-island>.

6.0 Additional Reporting Requirement

The permit will require additional reporting under certain operational conditions in the colder months. From October 1st to May 31st, the permittee shall telephone Southcentral Regional Office's Emergency Response and provide notification of changes to operation and/or temperature under the following circumstances: a. The Permittee shall provide notice to the Department upon commencement of shutdown of its equipment which will result in removal of heat source from its discharge. b. The Permittee shall provide notice to the Department within 4 hours of completion of shutdown of equipment which will result in removal of heat source from its discharge and c. The Permittee shall provide notice to the Department within 1 hour of an average change of 4 degrees Fahrenheit in a one hour period in the discharge channel.

Summary of Review

7.0 Other Revisions to the April 5, 2017 Draft Permit

7.1 Polychlorinated Biphenyls (PCBs):

Per 40 CFR § 423.12(b)(2), the draft permit will prohibit the discharge of PCBs. The following statement will be placed in the permit as a Part C condition: "There shall be no discharge of polychlorinated biphenyl (PCB) compounds such as those commonly used for transformer fluid at any time."

7.2 Cooling Water Blowdown

Brunner Island is required to meet ELGs contained in 40 CFR § 423.13 (b)(1) for the Steam Electric Power Generating Point Source Category. The ELG (based on best available control technology) for once-through cooling water (at plants generating greater than 25 MW of electricity)

The permit condition in the draft permit at Part C II G will be revised as follows:

"Cooling tower blowdown discharges shall contain no detectable amounts of the 126 Priority Pollutants listed in 40 CFR Part 423, Appendix A, that are contained in chemicals added for cooling tower maintenance, except for Total Chromium (average monthly and maximum daily of 0.2mg/l) and Total Zinc (average monthly and maximum daily of 1.0mg/l). When requested by DEP, the permittee shall conduct monitoring or submit engineering calculations to demonstrate compliance with 40 CFR 423.13(d)(1)."

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality, and Best Professional Judgement (BPJ). Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Calculation
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/week	Grab
Total Residual Oxidants(TRO)*	XXX	XXX	XXX	0.2	XXX	0.5	1/day	Grab
Temperature (°F)	XXX	XXX	Report Avg Mo	Report Daily Max	XXX	110	Continuous	I-S
Temperature (°F) Intake	XXX	XXX	XXX	Report	Report	XXX	Continuous	I-S
Hourly Temp Change (°F) Instream Monitoring	XXX	XXX	XXX	XXX	XXX	2.0	Continuous	I-S
Heat Rejection Rate (MBTUs/day) Dec 1 - Feb 28	XXX	167040	XXX	XXX	XXX	XXX	1/day	Calculation
Heat Rejection Rate (MBTUs/day) Mar 1 - Apr 30, Nov 1 - 30	XXX	91870	XXX	XXX	XXX	XXX	1/day	Calculation
Heat Rejection Rate (MBTUs/day) May 1 - 31, Oct 1 - 31	XXX	83520	XXX	XXX	XXX	XXX	1/day	Calculation
Heat Rejection Rate (MBTUs/day) Jun 1 - Sep 30	XXX	75170	XXX	XXX	XXX	XXX	1/day	Calculation
Trihalomethanes	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab

Compliance Sampling Location: At end of condenser discharge channel prior to confluence with Susquehanna River. Measurements to determine compliance with the Hourly Instream Temperature Change limitation shall be taken at the point of compliance, 5,000 feet downstream of the discharge channel confluence with the River.

*Total Residual Oxidants(TRO) for intake water with bromides is the value obtained using any of the "chlorine - total residual" methods in Table IB in 40 CFR 136.3(a)

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality, and Best Professional Judgement (BPJ). Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ. Sample frequencies for TSS and Oil and Grease have been revised following the "NPDES Permit Writer's Manual" (362-0400-001)

Outfall 002, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Average Monthly	Daily Maximum	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Min	XXX	XXX	9.0	1/day	Grab
TSS	XXX	XXX	30.0	50.0	XXX	50.0	1/week	Grab
Oil and Grease	XXX	XXX	15.0	20.0	XXX	30.0	1/week	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Arsenic	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Boron	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Cadmium	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Chromium	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Mercury	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab

Outfall 002, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)			Instant. Maximum	Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Average Monthly	Daily Maximum	Daily Maximum			
Total Molybdenum	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Nickel	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Selenium	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab

Compliance Sampling Location: at Outfall 002

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality, and Best Professional Judgement (BPJ). Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 003, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.63	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Composite 8-Hr
TSS	XXX	XXX	XXX	30	XXX	60	2/month	Composite 8-Hr
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000	XXX	10,000	2/month	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200	XXX	1,000	2/month	Grab 8-Hr
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	1/month	Composite 8-Hr
Total Phosphorus*	XXX	XXX	XXX	2.0	XXX	4.0	2/month	Composite 8-Hr

Compliance Sampling Location: at Outfall 003

*IMAX of 4mg/l which was in the existing permit but was omitted in the April 5, 2017 draft permit has been added.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality, and Best Professional Judgement (BPJ). Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ. Sample frequencies for TSS and Oil and Grease have been revised following the "NPDES Permit Writer's Manual" (362-0400-001)

Outfall 004, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly Report Daily Max	Average Monthly	Daily Maximum	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	9.0 IMAX	XXX	1/day	Grab
Total Suspended Solids (TSS)	XXX	XXX	30.0	50.0	XXX	50.0	1/week	Grab
Oil and Grease	XXX	XXX	15.0	20.0	30.0 IMAX	XXX	1/week	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Arsenic	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Boron	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Cadmium	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Chromium	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Mercury	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab

Outfall 004, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations					Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)			Instant. Maximum	Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Average Monthly	Daily Maximum	Daily Maximum			
Total Molybdenum	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Nickel	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Selenium	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab

Compliance Sampling Location: at Outfall 004

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality, and Best Professional Judgement (BPJ). Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.
Outfall 005, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Mass Units (lbs/day) ⁽¹⁾					Effluent Limitations				Monitoring Requirements		
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum (mg/L)	Instant. Maximum	Minimum Measurement Frequency	Required Sample Type	Monitoring Requirements			
									Minimum	Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Daily when Discharging	Estimate				
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	9.0 IMAX	XXX	1/day	Grab				
Total Suspended Solids(TSS)	Report	Report	XXX	XXX	100.0	XXX	Daily when Discharging	Grab				
Oil and Grease	Report	Report	XXX	20.0 Daily Max	30.0 IMAX	XXX	Daily when Discharging	Grab				
Aluminum, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab				
Arsenic, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab				
Boron, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab				
Cadmium, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab				
Chromium, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab				
Copper, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab				
Iron, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab				
Lead, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab				
Manganese, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab				
Mercury, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab				
Molybdenum, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab				

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)			Instant. Maximum	Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum			
Nickel, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab
Selenium, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab
Zinc, Total	XXX	XXX	XXX	XXX	Report	XXX	Daily when Discharging	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at Outfall 005

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality, and Best Professional Judgement (BPJ). Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 006. Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Instant. Maximum	Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly Report Daily Max	Minimum	Average Monthly	Daily Maximum				
Flow (MGD)	XXX	Report Daily Max	XXX	XXX	XXX	XXX	1/year	Estimate	
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Total Arsenic	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Total Boron	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Total Cadmium	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Total Chromium	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Total Mercury	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Total Molybdenum	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	
Total Nickel	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab	

Outfall 006, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)			Instant. Maximum	Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum			
Total Selenium	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

Compliance Sampling Location: at Outfall 006

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality, and Best Professional Judgement (BPJ). Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 007, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾			Concentrations (mg/L)			Instant. Maximum	Required Sample Type	
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Minimum Measurement Frequency			
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	XXX	1/day	Grab
Total Suspended Solids(TSS)*	Report	Report	XXX	30.0	100.0	100	100	2/month	Composite 24-Hr
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	XXX	1/month	Composite
Oil and Grease*	Report	Report	XXX	15	20.0	30.0	30.0	2/month	Grab
Aluminum, Total	XXX	Report	XXX	XXX	Report	XXX	XXX	1/month	Composite 24-Hr
Antimony, Total	XXX	Report	XXX	XXX	Report	XXX	XXX	1/month	Composite 24-Hr
Arsenic, Total	XXX	Report	XXX	XXX	Report	XXX	XXX	1/month	Composite 24-Hr
Boron, Total	XXX	Report	XXX	XXX	Report	XXX	XXX	1/month	Composite 24-Hr
Cadmium, Total	XXX	Report	XXX	XXX	Report	XXX	XXX	1/month	Composite 24-Hr
Chromium, Total	XXX	Report	XXX	XXX	Report	XXX	XXX	1/month	Composite 24-Hr
Copper, Total	XXX	Report	XXX	XXX	Report	XXX	XXX	1/month	Composite 24-Hr
Fluoride, Total	XXX	Report	XXX	XXX	Report	XXX	XXX	1/month	Composite 24-Hr

Outfall 007, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾			Concentrations (mg/L)			Instant. Maximum	Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Minimum			
Iron, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite	
Lead, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite	
Manganese, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite	
Mercury, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite	
Molybdenum, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite	
Nickel, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite	
Selenium, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite	
Sulfate, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite	
Thallium, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite	
Zinc, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite	
Chloride	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite	
Bromide	XXX	Report	XXX	XXX	Report	XXX	1/month	24-Hr Composite	

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at Outfall 007 prior to comingling with stormwater.

*Mass limits for TSS and Oil & Grease have revised to Report for consistency with DEP technical guidance document No. 362-0400-001

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

Outfall 007, Effective Period: October 1, 2017 through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)			Instant. Maximum	Minimum Measurement Frequency ⁽²⁾	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum			
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen Intake	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus Intake	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	0	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	0	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: at Outfall 007

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality, and Best Professional Judgement (BPJ). Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 008, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾			Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	9.0	XXX	1/day	Grab 24-Hr
Total Suspended Solids(TSS)	Report	Report	XXX	30.0	50.0	50	2/month	Composite
Oil and Grease	Report	Report	XXX	15	20.0	30.0	2/month	Grab 24-Hr
Aluminum, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	Composite 24-Hr
Arsenic, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	Composite 24-Hr
Boron, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	Composite 24-Hr
Cadmium, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	Composite 24-Hr
Chromium, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	Composite 24-Hr
Copper, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	Composite 24-Hr
Iron, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	Composite 24-Hr
Lead, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	Composite 24-Hr
Manganese, Total	XXX	Report	XXX	XXX	Report	XXX	1/month	Composite 24-Hr

Outfall 008 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾			Concentrations (mg/L)			Instant. Maximum	Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Report			
Mercury, Total	XXX	Report	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Molybdenum, Total	XXX	Report	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Nickel, Total	XXX	Report	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Selenium, Total	XXX	Report	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite
Zinc, Total	XXX	Report	XXX	XXX	Report	Report	XXX	1/month	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at Outfall 008

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality, and Best Professional Judgement (BPJ). Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 801, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾			Concentrations (mg/L)			Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly Report Daily Max	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Daily when Discharging	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	Daily when Discharging	Grab
TSS	XXX	XXX	XXX	30	100	XXX	Daily when Discharging	Grab
Oil and Grease	XXX	XXX	XXX	15	20	30	Daily when Discharging	Grab
Total Copper	XXX	XXX	XXX	1.0	1.0	XXX	Daily when Discharging	Grab
Total Iron	XXX	XXX	XXX	1.0	1.0	XXX	Daily when Discharging	Grab

Compliance Sampling Location: at Internal Monitoring Point (IMP) 801, prior to discharge to Auxiliary Wastewater Treatment Plant (AWWP) or to Incidental Wastewater Treatment Basins(IWTB)

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality, and Best Professional Judgement (BPJ). Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 013, 014, 015 and 026., Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly Report Daily Max	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	XXX	Report	XXX	XXX	XXX	XXX	1/year	Estimate
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Suspended Solids (TSS)	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Arsenic	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Boron	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Cadmium	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Chromium	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Mercury	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab
Total Molybdenum	XXX	XXX	XXX	XXX	Report	XXX	1/year	Grab

Outfall 013, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)			Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum		
Total Nickel	XXX	XXX	XXX	XXX	Report	XXX	1/year Grab
Total Selenium	XXX	XXX	XXX	XXX	Report	XXX	1/year Grab
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/year Grab

Compliance Sampling Location: Outfall 013, 014, 015 and 026

ATTACHMENTS

A. Brunner Island Applicability dates and justification of timeline Document

ELG Applicability Date Documentation for
Brunner Island SES NPDES Permit Renewal
December 13, 2017

1. REGULATORY BASIS

On April 11, 2017, Administrator Pruitt sent to the governors of states that administer the NPDES program a letter notifying them of the petitions for reconsideration, reminding them that the ELG Rule applies only when implemented in an NPDES permit in accordance with applicability dates determined under the 2015 Rule, and encouraging them to make use of the flexibility that § 423.11(t) of the Rule affords to consider "other factors" in selecting an appropriate applicability date. See DCN SE06613.

On August 11, 2017, EPA announced its intention to conduct further rulemaking to potentially revise the new, more stringent effluent limitations guidelines and pretreatment standards for existing facilities (PSES) established by the 2015 steam electric guidelines rule for two waste streams: flue gas desulfurization scrubber-blowdown (FGD wastewater) (§ 423.13(g)(1)(i)) and bottom ash transport water (BATW) (§ 423.13(k)(1)(ii)). See DCN SE06670.

Furthermore, on September 18, 2017, EPA issued a final rule ("Postponement Rule") postponing the near-term applicability dates for FGD wastewater and bottom ash transport water (BATW) from November 1, 2018 to November 1, 2020. 82 Fed. Reg. 43,494. The Postponement Rule also lifts the 705 Stay. *Id.* at 43,496, col. 1. The rule became effective upon publication. *Id.* at 43,495, col. 1. PA DEP should also recognize that EPA may also extend the not later than date. "EPA plans to take up the appropriate compliance period in its next rulemaking." *Id.* at 43,496, col. 2.

Given EPA's recent decision to reconsider portions of the 2015 rule, PA DEP should seek to preserve the regulatory status quo for the Brunner Island permit. This would be consistent with EPA's intent. In its recent rulemaking postponing certain ELG applicability dates, EPA states: "EPA's action to postpone certain compliance dates in the 2015 Rule is intended to preserve the status quo for FGD wastewater and bottom ash transport water until EPA completes its next rulemaking concerning those waste streams." 82 Fed. Reg. at 43494-95. Therefore, PA DEP should issue the renewal permit with limits for FGD wastewater (Outfall 007) and bottom ash transport water (Outfall 006) consistent with the limits established in the previous permit, and establish the same limits as for Outfall 006 for new Outfall 008 (Auxiliary Waste Water Plant discharge). This approach would also be consistent with the BAT legacy wastewater provisions for FGD wastewater and BATW established in the 2015 ELG rule. PA DEP should reserve any additional changes to the limits until EPA completes its new rulemaking addressing bottom ash transport water and FGD wastewater limits, and this approach would still be compliant with the 2015 ELG.

Applying the previous permit's TSS limits for bottom ash transport water (i.e., 100 mg/L daily maximum; 30 mg/L daily average) is also consistent with EPA's proposed approach for the Merrimack power plant. On August 4, 2017, EPA released a document seeking comment on proposed changes to the Merrimack NPDES permit. See Statement of Substantial New Questions for Public Comment on Merrimack Station (NPDES Permit No. NH0001465), available at <https://www3.epa.gov/region1/npdes/merrimackstation/pdfs/2017-statement-snqpc.pdf>. In that document, EPA explains that the 2015 ELG rule set two tiers of "best available technology" (BAT) limits for bottom ash transport water. *Id.* at 56. The first tier — which EPA terms the "interim" BAT limits — are set forth in 423.13(k)(1)(ii), and are equivalent to Talen's Brunner Island plant's current TSS limits of 100 mg/L daily maximum and 30 mg/L daily average. EPA further explains that the interim BAT limits apply, according to the rule, until a final compliance date for application of the second tier of BAT limits has been set by the permitting authority. *Id.* EPA further states: "In the absence of the [second tier] limits, the 2015 Steam Electric ELGs prescribe the interim BAT effluent limits for TSS discussed above. 40 C.F.R. § 423.13(k)(1)(ii) (incorporating the TSS effluent

limits from 40 C.F.R. § 423.12(b)(4)). These interim BAT limits have not been postponed or stayed. 40 C.F.R. § 423.13(k)(1)(ii). See 82 Fed. Reg. 19006. Therefore, under the 2015 Steam Electric ELGs that are currently in effect, BAT limits—equal to the TSS limits listed in § 423.12(b)(4)—apply to bottom ash transport water discharges.” Statement of Substantial New Questions at 60. Brunner Island recommends that PA DEP take the same approach for our permit renewal. This approach makes sense considering EPA’s plans to develop a new rulemaking addressing limits for bottom ash transport water.

However, if PA DEP believes it must establish applicability dates for FGD wastewater and BATW in this permit renewal, we request that PA DEP establish the end of 2023 for the FGD Wastewater and end of 2021 for eliminating BATW. This allows for the longest time currently available during which the facilities can evaluate appropriate technology to meet the standards once EPA re-establishes them. Furthermore, PA DEP should specify that the treatment standards to be met will be those that exist at the time of the applicability date (instead of specifying the current limits). If PA DEP does not provide for either the standards or the applicability dates to be left open to EPA’s finalized values, they should provide for the permit to be reopened mid-cycle to allow for delayed applicability dates and/or revised limits/standards to be incorporated based on EPA’s reconsideration, including the ability to choose the Voluntary Incentive Program (VIP) option that exists at that time.

The final 2015 Rule specifies the factors that the permitting authority must consider in determining the ‘as soon as possible’ date, and Section XVI.A.1 of the preamble to the final 2015 Rule provides guidance on implementation with respect to timing. EPA notes that one of the factors that the permitting authority may consider in determining the applicable compliance date is ‘other factors as appropriate.’ This discretion enables permitting authorities to consider the ongoing rulemaking in determining the appropriate compliance deadline for FGD and bottom ash transport water.” Response to Comment 2.c, RTC, p. 22 (citing April 11 letter of the Administrator to states).

2. BRUNNER ISLAND

2.1. FGD WASTEWATER RETROFIT

For FGD wastewater, the EPA prescribed primary BAT limits based on a model technology train consisting of chemical precipitation and biological treatment. The Agency also provided for alternative and more stringent BAT limits based on a model of evaporation technologies.

2.1.1. PHYS/CHEM/BIO TECHNOLOGIES

Brunner Island has developed a preliminary evaluation of all the treatment options and their risks/benefits and costs for the wastewater streams at the facility. Based on this evaluation as supplemented by our previous operational experience utilizing biological wastewater processes, we have determined that the currently proven biological treatment processes may not be consistently effective at the site. Biological treatment systems require consistent wastewater flows and quality and any changes in wastewater flows or quality, such as those caused by unit cycling, can lessen the effectiveness of the biological treatment system. Once the system is disrupted, it can take several weeks to re-establish proper growth and achieve operation that meets compliance. Given the extremely low effluent limits in the ELG Rule, current available biological treatment technology is limited in its ability to meet the limits on a continuous basis, even at steady state conditions. Under the current and forecasted market for electricity and the resulting trends in unit dispatching, the Brunner Island units will continue to operate in a cycling

manner. Furthermore, Brunner Island initiated earlier this year gas-firing capability on all three units, which is further limiting the operation of these units on coal. Due to these operating constraints, retrofitting the existing FGD phys/chem WWTP with advanced biological treatment for FGD wastewater would cause the plant to struggle to achieve compliance when the units at the facility must come back on-line or start firing on coal instead of gas-only firing. However, several emerging phys/chem/bio systems have been identified, one of which is from Frontier Technologies. This emerging technology has the potential to counter the weaknesses identified with conventional biological systems as listed above, especially if the EPA's reconsideration of the ELG rule establishes a more reasonable selenium discharge standard. Based on preliminary performance data, the facility has developed a potential schedule incorporating a pilot system assessment of this technology and ultimately, if it will be able to achieve compliance the respective ELG standards based on the current operational criteria, for full time implementation at the site.

Schedule for FGD Phys/Chem/Bio Treatment Technology

AWWP Start-up (eliminate wastewater flows to Ash Basin #6)
Develop Start up plan for existing AWWP (once NPDES permit issued)
Check out existing AWWP - identify & procure equipment
Installation of equipment to have existing AWWP operational
Start up AWWP with discharge only
Total Duration to get AWWP operational to discharge = 15 Months

Phase I - Pilot Plant Engineering and Prep work. (Will be done concurrently with AWWP Start-up)
Internal engineering & project requirements development for pilot
Review technologies and contractors for pilot
Bid & select contractor for pilot
Pilot project approval
Engineering for pilot
Fabrication of pilot equipment
Installation of pilot equipment
Total Duration to prepare for FGD Wastewater Treatment Pilot Testing = 21 Months

Phase II - Pilot Plant Testing, Data Evaluation, System Selection, and Permit Applications
Run pilot program
Assess data from pilot program and evaluate treatment system(s) and waste disposal options
Compare outcome of Pilot Testing to Revised ELG Standards (EPA plans to issue revision by end of 2020)
Complete conceptual engineering of treatment system, if feasible, to evaluate versus evaporative system (see below)

Select treatment system vendor, if feasible, and develop engineering bid specifications & submit permit applications
Total Duration to complete FGD Wastewater Treatment Pilot Testing and Select Compliance Option = 24 Months

Phase III - Construction
Project estimate and approval
Bid equipment and installation and complete permitting (6 months)
Evaluate and award
Engineering
Fabrication
Installation
Commissioning and start up including plant turnover/closeout.
Total Duration to prepare for FGD Wastewater Treatment Pilot Testing = 33 Months

Total duration for FGD Treatment Technology = 78 Months
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Notes

- 1) Pilot plant test period of 12 months is needed to allow for the variability in market conditions and dispatch on different fuel types. The testing needs to reflect the intermittent operation of the waste water plant due to economic outages and periods when natural gas is the primary (or only) fuel used, as well as, testing during different weather conditions.
- 2) The pilot plant trial requires that the AWWP system is in service and accepting the leachate stream from Area 8. During extended economic outages or operation on natural gas the primary waste stream to the FGD WWTP is leachate. The leachate is not representative of the typical FGD waste water and will need to be sent to the AWWP prior to pilot testing of the biological treatment systems.
- 3) Availability of the pilot plant test systems is on a "first come first serve" basis. There are a limited number of the pilot systems available, which may extend the duration of Phase I of the project.

2.1.2. EVAPORATIVE TECHNOLOGIES

Based on our preliminary evaluation, the most conservative path forward to comply with the ELG requirements for FGD wastewater is to pursue an evaporation technology. However, questions still remain related to an evaporative units operation, and in particular the disposal of byproducts. The salts anticipated to be generated from an evaporative system could prove difficult to handle and depending on the concentrations of metals and other constituents, could prove extremely expensive to dispose of. Additional pilot testing needs to be conducted to assess the overall function of an evaporative unit as well as answer any questions around site-specific disposal issues. Brunner Island had initially proposed to use this technology under the ELG rule's Voluntary Incentive Program (VIP), but as we discussed in earlier correspondence this year, is not at this time prepared to select given EPA's reconsideration of the ELG rule.

Schedule for FGD Evaporation Technology

Phase I - Pilot Plant Engineering and Prep work
Internal engineering & project requirements development for pilot
Review technologies and contractors for pilot
Bid & select contractor for pilot
Engineering for pilot
Fabrication of pilot equipment
Installation of pilot equipment
Total Duration to prepare for Pilot Testing = 23 Months
Phase II - Pilot Plant Testing, Data Evaluation, System Selection, and Permit Applications
Run pilot program
Assess data from pilot program and evaluate salt waste handling and disposal options
Complete conceptual engineering of evaporative system, if feasible, to evaluate versus treatment system (see above) after revised treatment standards are finalized
Select evaporation technology, if feasible, and waste handling/disposal option and develop engineering bid specifications & permit applications
Total Duration to prepare for Pilot Testing = 19 Months
Phase III - Construction
Bid equipment and installation and complete permitting including disposal
Evaluate and award
Engineering
Fabrication
Installation
Commissioning and start-up
Total duration for Construction and Start-up = 37 Months
Total duration for FGD Evaporation Technology = 78 Months

2.1.3. CONCLUSION

Based on the above factors, the facility intends to pursue a dual approach consisting of a pilot study and evaluation of the most promising phys/chem/bio process, while still evaluating the operational and disposal issues associated with installing an evaporative system. Timelines for both options as presented are similar, and once the necessary data has been collected and analyzed, a selection will be made as to the final treatment technology approximately 3.5 years (42 – 45 months) from the commencement of the program. Based on the timeline projected for either treatment or evaporation technologies, the facility is expected to need longer than the current latest applicability provided in the 2015 ELG of December 31, 2023. Therefore, we are

requesting an applicability date of December 31, 2023 for the FGD compliance date, with the option to request a later date if EPA extends it in its pending rulemaking. PA DEP should specifically provide for the permit to be reopened mid-cycle to allow for delayed applicability dates and, if needed, revised limits to be incorporated based on EPA's reconsideration.

2.2. ELIMINATING BOTTOM ASH TRANSPORT WATER (BATW) DISCHARGE

The ELG Rule establishes a BAT zero discharge requirement for bottom ash transport water. EPA bases this requirement on model technologies such as dry handling or a closed-loop wet ash sluicing system that does not discharge. The Brunner Island units are all designed with an open loop wet-bottom ash system with final treatment in a surface impoundment prior to discharge. Brunner Island, which was originally constructed in the 1960's, was not designed to recycle bottom ash transport water. Bottom ash is deposited below the boiler and hydraulically transported to sluice troughs and the final treatment in a bottom ash basin.

As part of our evaluation, we reviewed both closed-loop recycling and dry bottom ash handling technologies. Dry bottom ash handling technology requires considerably more space under the boiler than is available and therefore cannot be retrofitted at this facility. Our preliminary evaluation suggests that a recycle system will be the most effective means of handling the bottom ash transport water. We are evaluating whether we can use the existing Auxiliary Waste Water Treatment Plant (AWWP) as a part of the BATW recycling system. The AWWP was originally designed and permitted to treat both BATW and other low volume wastewater flows from the plant. The existing AWWP, which was completed at the end of 2011, but was never operated due to the lack of a permitted outfall, consists of chemical treatment and clarification systems. The purpose of the AWWP was to facilitate closure of Ash Basin #6. The AWWP was designed and permitted to handle various low volume wastewaters, landfill leachate, and bottom ash transport water prior to discharge. It has two identical treatment trains and was designed to operate in parallel with bottom ash transport water mixed with other plant flows from the facility's equalization pond. The trains are redundant to allow for maintenance to be performed on one train while the other train is in service. However, the AWWP was designed with the intent of discharging to a permitted outfall. The plant currently does not have systems in place to provide for recycling the bottom ash transport water or for sufficient redundancy for continuous operation.

Based on our preliminary evaluation, the low volume wastewater and other miscellaneous flows being sent to the AWWP will need to be segregated from the BATW. This segregation and the ability to recycle bottom ash transport water cannot be accomplished with the existing layout of the treatment plant. The AWWP must be retrofitted to separate the two treatment trains. Based on our preliminary plans, one treatment train will be used for recycling the bottom ash transport water back to the power plant, and will essentially make the bottom ash transport water system a closed-loop system. The second train will treat the flows from the equalization pond and landfill leachate prior to discharge to an NPDES permitted outfall, as provided in the initial design for the AWWP. Projected system modifications are shown in attached Figure 1.

Based on our preliminary evaluation, the following planned modifications to the AWWP system will be required:

1. Isolate all low volume wastewater influent flows and direct them to AWWP train 2.
 - a. This will require installing new isolation valves, instrumentation and controls, and re-directing piping.
2. Direct all bottom ash transport water to the AWWP train 1.
 - a. This will require installing new isolation valves, piping, instrumentation and controls, and re-directing piping.
3. Modify the common recycle tank to create two chambers – one for the low volume wastewater and the other for the bottom ash transport water.
 - a. Train 1 (the bottom ash transport water train) chamber will be larger to act as a surge and bottom ash transport water recycle feed tank.
 - b. Train 2 (low volume wastewater train) will take wastewater from the Equalization Basin and landfill leachate for treatment prior to discharge to the AWWP outfall. This outfall must be included in the renewed NPDES permit so that the AWWP can be put into service for the BATW, landfill leachate and low volume wastewater flows until the plant is modified into two trains.
 - c. This modification will require a water tight divider to be installed in this chamber to insure the different waters will be isolated from each other. Also some additional piping and instrumentation will be required.
4. Four (4) new bottom ash transport water return pumps that recycle the bottom ash transport water flow back to the boilers, each nominally sized for about 3500 gpm, will need to be installed. These pumps will feed the suction of the existing ash sluice pumps, as well as send blowdown bottom ash transport water to the FGD system via the Absorber drain tank or the Makeup Water tank.
 - a. This will require the installation of new pumps and motors, foundations, new electric service for these large pump motors, long runs (~3,000') of fairly-large diameter piping, valves, and instrumentation.
 - b. The piping will need to provide makeup water to both the existing wet bottoms of each boiler and to the FGD system. Both connections are required to maintain the necessary flexibility for managing surge flows through the BATW system and to allow drainage of BATW from the system during necessary maintenance activities, thus ensuring that no BATW is discharged.

Operating the bottom ash transport water system with zero discharge presents several hydraulic challenges. The amount of water that comes in contact with bottom ash, and must be considered bottom ash transport water, is significant. According to the rule, this water must not be discharged. Most closed-loop systems require the ability to blow down to an alternate flow path to maintain water quality. The modified AWWP system as proposed will no longer have redundancy. This poses a problem of how to manage this amount of flow when performing routine maintenance on the AWWP and, more importantly, when handling a system failure. The design and management of this system will be complex to ensure that the hydraulic requirements are accurately designed while meeting the requirements of the rule. The station requires a system that is reliable and provides for options for maintenance and minimizes the opportunity for the system to be hydraulically bound, a condition when there is nowhere for the treated bottom ash water to go. Based on these conditions, the station requires an alternate flow path.

The only allowable alternate flow path for the bottom ash transport water during these blowdown and maintenance events would be as makeup water for the FGD scrubber. Any bottom ash transport water that passes through the scrubber would undergo significant treatment in order to meet the final FGD wastewater limitations and standards. The preamble to the ELG Rule states,

"...EPA recognizes the extensive changes in this industry, and it wants to provide flexibility to plants in managing their wastewater and operations, as well as preserve the ability of plants to retain existing approaches where it is consistent with the CWA's [Clean Water Act] goals." 80 Fed. Reg. at 67,862. The ability to use a portion of the bottom ash transport water flow as scrubber makeup water is an appropriate and crucial flexibility required for Brunner Island.

Completing the evaluation, engineering, design, financing, procurement, installation, and optimization of the BATW recycling system will need to be conducted in two phases. First, the AWWP system must be started after 5+ years of not operating after completion. This will take 18 months to engineer and design, procure, install necessary replacement items like seals, and optimize the physical-chemical operations so that Brunner Island is ready to comply with its NPDES discharge permit and the CCR Rule requirements. Brunner Island plans to initiate this phase as soon as the required new outfall is added to its renewed NPDES permit. Table 2 details the timing of the first phase.

The second phase of AWWP modifications will be completed to facilitate segregation, recycling, and blowdown to the FGD scrubber of the BATW while the AWWP is in service. Table 3 details the timing of the second phase. Since Brunner Island demonstrating the FGD wastewater treatment technology will not be available until December 31, 2023, and as noted above, Brunner Island will need that extra time to obtain an appropriate technology for its FGD wastewater. The bottom ash transport water retrofit system, as explained earlier, must provide a means of removing some bottom ash transport water from the recycling system.

Based on the mid-2017 completion of the natural gas conversions and the downturn in the power generation markets, we now project that we would need until the end of 2019 before we would have adequate run time on natural gas to evaluate the future of coal-firing. Our analysis as provided in the August 2016 document shows that the engineering, procurement, and construction of the BATW system conversion will take 24 months to implement. Therefore, we expect that the earliest that the BATW system could be in service would be at the end 2021.

We request that the BATW applicability date be set no earlier than December 31, 2021 based on the 45 month schedule shown below and on an April 2018 final permit date. This assumes that EPA's interpretation that the scrubber waste water does not need to meet the new ELG standards until December 31, 2023 even though the BATW would be used as make up water for the scrubber after the December 31, 2021 and the existing scrubber waste water treatment system would continue to discharge. Additionally, Brunner Island requests a specified reopener provision to allow the incorporation of any new limits and/or compliance dates that EPA promulgates in their rule reconsideration effort.

Schedule for Recycling BATW

Phase I - AWWP Start-up (eliminate wastewater flows to Ash Basin #6)
Develop Start up plan for existing AWWP (once NPDES permit issued)
Check out existing AWWP - identify & procure equipment
Installation of equipment to have existing AWWP operational

Start up AWWP with discharge only
Total Duration to Start up AWWP for discharge = 15 Months

Phase II - ELG BA Modifications for Recycling & FGD Makeup
Design for ELG AWWP mods & Complete Permit Applications
Permitting of Design Changes to AWWP
Equipment Procurement & Fabrication for modifying (splitting) AWWP
Installation of BA mods for Recycling & FGD Makeup
Tie into modified AWWP and Start-up of BA mods
Total Duration to get ELG modifications to AWWP operational = 30 Months

Total Duration of Project Recycle BATW using AWWP = 45 months
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B. Ash Basin 6 Clean Closure Permit



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
WASTE MANAGEMENT PROGRAM

NOV 24 2014

CERTIFIED MAIL NO. 9171 9690 0935 0033 0173 24

Mr. Glenn Amey, Senior Environmental Professional
PPL Brunner Island, LLC
Two North Ninth Street
Allentown, PA 18101-1179

Re: Major Permit Modification
Ash Basin No. 6 Clean Closure
Permit No. 301300
APS No. 831986
East Manchester Township, York County

Dear Mr. Amey:

Enclosed is a major permit modification to Solid Waste Permit No. 301300 for the operation of Ash Basin No. 6, issued in accordance with Article V of the Solid Waste Management Act, 35 P.S. Sections 6018.101, *et seq.*

This approves a change to the Ash Basin No. 6 closure plan to clean close the basin by excavating and transporting all waste off-site for beneficial use.

Compliance with the terms and conditions set forth in the permit is mandatory. You have the right to file an appeal as to these terms and conditions.

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa. C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, PO Box 8457, Harrisburg, PA 17105-8457, 717.787.3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800-654-5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717.787.3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

Southcentral Regional Office | 909 Elmerton Avenue | Harrisburg, PA 17110-8200

717.705.4706 | Fax 717.705.4930

Printed on Recycled Paper A small circular logo with a recycling symbol (three chasing arrows) inside.

www.depweb.state.pa.us

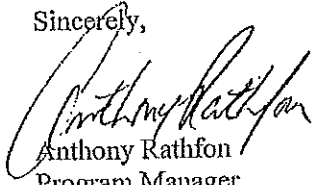
Mr. Glenn Amey

NOV 24 2014

IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717.787.3483) FOR MORE INFORMATION.

If you have any questions about the enclosed permit or requirements of the Solid Waste Management Act, please call Mr. Ajaz Uddin at 717.705.4706.

Sincerely,


Anthony Rathfon
Program Manager
Waste Management Program

Enclosure(s)

cc: East Manchester Township
York County Solid Waste & Refuse Authority

C. Request for Investigation and Remedial Action for Basin 4 and 7



June 16, 2016

Martin E. Mengel, PG, Project Manager
Environmental Services Department
Talen Generation, LLC
GENPL #6, 835 Hamilton St., Suite 150
Allentown, PA 18101

Re: Brunner Island Groundwater Abatement for Basins 4 and 7
East Manchester Township, York County

Dear Mr. Mengel:

The Department hereby requests that Talen prepare and submit abatement plans for Brunner Island's Basins 4 and 7 within 90 days after receipt of this letter. This request comes after multiple years of observed Arsenic exceedances at groundwater monitoring wells: MWs - 4-8, 4-9A and 7-5. These abatement plans should be focused on preventing any further releases of leachate, degradation constituents or contaminants from the closed waste management disposal basins.

In particular for Basin 4, between 4S and 4N near the cooling towers, please investigate further the pipe penetrations through the slurry grout curtain and/or any excavation of this groundwater barrier and make any repairs necessary to make the barrier whole again. For Basin 7, along the west side, please consider some form of groundwater strategy between Basin 7's berm and groundwater monitoring well MW-7-5.

If you have any questions, please call me at 717.705.4917.

Sincerely,

A handwritten signature in black ink that reads "Kurt S. Fritz". The signature is written in a cursive style.

Kurt S. Fritz
Geologic Specialist
Waste Management Program

D. Request for Investigation and Remedial Action Basin 5



June 16, 2016

Martin E. Mengel, PG, Project Manager
Environmental Services Department
Talen Generation, LLC
GENPL #6, 835 Hamilton St., Suite 150
Allentown, PA 18101

Re: Brunner Island Pyrite Tomb – NE Corner of Basin 5
East Manchester Township, York County

Dear Mr. Mengel:

This letter is a follow-up to our February 2016 emails concerning the pyrite tomb in the northeast corner of Basin 5. Looking closer at the groundwater monitoring data trend plots for MW-8-4, from 2012 to present, it becomes apparent that there is a connection between the seasonal fluctuation of the groundwater table and the release of the metals (Aluminum, Beryllium, Cadmium and Nickel) from the pyrite tomb into the groundwater during the third quarter of each of these years. The other parameters with increasing trend plots (Boron, Chloride, Manganese, Sodium, Sulfate and TDS) should also continue to be evaluated.

Based on the groundwater degradation observed at MW-8-4, the Department would like for Talen to investigate the leachate system of the pyrite tomb further. Specifically, Talen should provide the Department with any as built drawings or sketches for this tomb and its leachate collection system, determine the average daily quantity of leachate generation within the tomb and a plan detailing the removal of leachate from the leachate system/concrete box and how the leachate would be trucked or piped to the treatment plant for proper disposition. Also, the Bond for Basin 5 should be revised to include the maintenance costs and leachate system operating costs for this pyrite tomb.

If you have any questions, please call me at 717.705.4917.

Sincerely,

A handwritten signature in black ink that reads "Kurt S. Fritz".

Kurt S. Fritz
Geologic Specialist
Waste Management Program

E. April 05 Draft Permit Factsheet



20180104152354260.
pdf

