pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHWEST REGIONAL OFFICE
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0091910**
Facility Type	**Industrial**	APS ID	**662600**
Major / Minor	**Minor**	Authorization ID	**1395672**

NPDES PERMIT FACT SHEET ADDENDUM

Applicant and Facility Information

Applicant Name	**Alex E Paris Contracting Co. Inc.**	Facility Name	**Paris Flyash Landfill**
Applicant Address	PO Box 369 1595 Smith Twp. Street Road Atlasburg, PA 15004-0369	Facility Address	Frankfort Springs Road - Murdocksville Road Hookstown, PA 15050
Applicant Contact	Emanuel Paris	Facility Contact	Emanuel Paris
Applicant Phone	724-947-2235	Facility Phone	724-947-2235
Client ID	33092	Site ID	521850
SIC Code	4953	Municipality	Hanover Township
SIC Description	Trans. & Utilities - Refuse Systems	County	Beaver
Date Published in PA Bulletin	May 28, 2022	EPA Waived?	No
Comment Period End Date	July 12, 2022	If No, Reason	Imposing TMDL Limits for the first time
Purpose of Application	Renewal of NPDES permit PA0091910		

Internal Review and Recommendations

Notice of the Draft NPDES Permit was published in the Pennsylvania Bulletin on May 28, 2022. Alex E. Paris Contracting Co., Inc, (Paris) requested a 15-day extension of the public comment period. The Department granted the 15-day extension and the comment period expired on July 12, 2022. The Department received one comment from Civil and Environmental Consultants, Inc. on behalf Paris during the comment period. The comment is summarized below and is included in attachment A in this Fact Sheet. The Department requested clarification on CEC's comment which was provided on September 2, 2022. A meeting between the Department, Paris, and CEC was held on December 12, 2022 to discuss the draft permit and the new WQBELs. In the meeting, CEC also discussed their proposed real-time management approach for the discharge from the site. Supplemental documents were submitted to the Department on January 17, 2023, to provide additional information regarding the real-time management approach. There have been numerous emails and letters between the Department and CEC regarding the real-time management approach, as well as another meeting. The supplemental comments and discussions are summarized below and are also included in Attachment A of this Fact Sheet. Ultimately, the Department has determined that the real-time management approach that CEC has proposed is not feasible or allowable in this case. The Department has made changes to the Draft permit due to comments on the draft permit. Due to these changes, the Department is redrafting the permit.

Summary of CEC's Comment:

CEC believes that the 0.114 MGD flow that the Department used in the modeling to estimate impacts of the facility discharge to Raccoon Creek does not represent the actual conditions at the closed facility. On behalf of Paris, CEC request that the Department re-assess the proposed water quality-based effluent limitation calculations using an average discharge volume of 0.02 MGD rather than the original design discharge volume, 0.114 MGD.

Approve	Deny	Signatures	Date
X		Adam Olesnanik, P.E. / Environmental Engineer	April 3, 2024
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	April 3, 2024

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The Department's Response to CEC's Comment:

The Department understands CEC's and Paris's concerns with the discharge flows used with the Toxics Management Spreadsheet Model. The Department may use the average discharge flows when determining water quality limitations. The Department used the design flow in the draft permit because the design flow and the average discharge were drastically different. Additionally, after receiving this comment on the Draft Permit the Department reviewed the DMR data and determined that the reported average discharge flow was closer to 0.073 MGD. Because of these inconsistencies the Department requested Paris to clarify the average discharge flow from the site on August 1, 2022.

Summary of CEC's Supplemental Comment:

After reviewing the discharge data and assessing the impact of a pumping system which could provide a more consistent flow, CEC believes the design discharge flow rate should be 0.05 MGD and an average discharge flow should be 0.038 MGD. Additionally, because the site has the ability to manage the discharge by holding the wastewater and only discharging during higher stream flow periods, CEC proposes that a stream flow based permit condition be included so that the site will discharge only when Raccoon Creek has sufficient flow that there is enough assimilative capacity to be protective of instream water quality criteria.

CEC provided an additional explanation of the proposed stream flow-based permit condition. CEC used the TMS, with the analytical data included with the original permit application and a discharge rate of 0.05 MGD in an iterative fashion to determine what the stream flow would need to be to provide sufficient dilution to the boron loading from the landfill to achieve a no reasonable potential scenario. Based on the TMS, a 9 cfs flow in Raccoon Creek at the discharge point would provide a situation in which there would be no reasonable potential for exceedance of the boron water quality criteria. The site includes a large basin, which can hold approximately 70 days of leachate production at the long-term average leachate discharge rate. Therefore, Paris has the ability to control the discharge rate, maintain the average discharge rate over extended time periods, and operate the holding pond with sufficient volume to hold leachate for an extended period of low flow in Raccoon Creek. In other words, Paris can hold the leachate in the pond during times of low flow and only discharge the wastewater to Raccoon Creek when the stream flow is 9 cfs or greater. CEC believe the discharge represents a "control on the discharge" and the use of that control coupled with an appropriate and achievable "dilution of the effluent in the receiving water" which would meet the intent of 40 CFR 122.4.

The supplemental comments and discussions are included in Attachment A of this Fact Sheet Addendum.

The Department's Response to CEC's Supplemental Comments:

CEC is requesting that the Department adopt a real-time, or a flow management approach within the NPDES permit. Specifically, the recommendation is that the Department should set aside the Chapter 96 (relating to water quality standards implementation) requirement that allocations be based on the Q_{7-10} design low-flow condition in the receiving water. 25 Pa Code 96.4(g) requires the Department to determine the WQBELs for receiving streams using Q_{7-10} Flows. The flow that CEC is suggesting that the Department use as the stream flow is not the Q_{7-10} at the discharge point. Additionally, this method of managing flows on a real-time basis presents many problems, most notably compliance with Federal and State regulatory water quality standards. The Q_{7-10} design flow condition was not arbitrarily selected as the basis for compliance with NPDES water quality standards. It was designed to match the flow profile of natural free-flowing surface waters with the dose response toxicity profile of the pollutant, and thereby achieve the underlying frequency and duration components of the water quality criteria. Use of the steady-state Q_{7-10} design flow condition is the standard in NPDES permitting at both the State and Federal level for most pollutants.

Real-time flow management is inconsistent with the underlying frequency and duration components of the water quality criteria and violates the criterion duration as surely as if the instream concentration exceeds the criterion magnitude. Failure to achieve the frequency and duration components of the water quality criteria has real-world biological impacts.

To emphasize this, the Department refers to a Real-Time Management or Flow Management discussion in the PA Bulletin Vol. 40, No. 34, dated August 21, 2010. In this issuance the Department amended 25 PA Code Chapter 95 to establish new treatment requirements for new and expanding mass loadings of Total Dissolved Solids. Within the rulemaking, the Department responded to a request to use a real-time, flow managed approach to control TDS, specifically the recommendation was that the Department should set aside the Chapter 96 requirement that allocations be based on the Q7-10 design low-flow condition in the receiving water. The Department included the following justification on why a real-time

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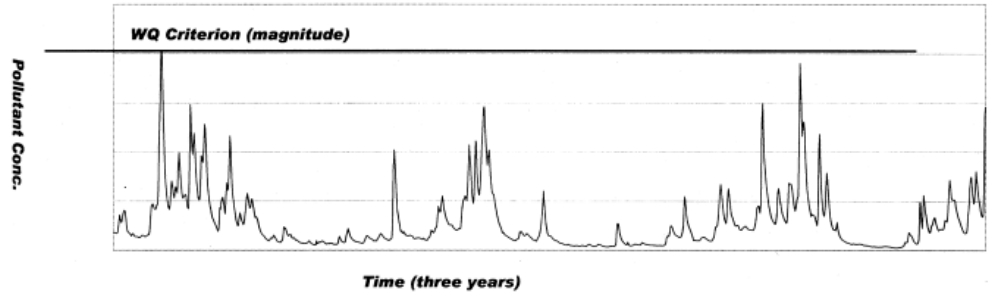
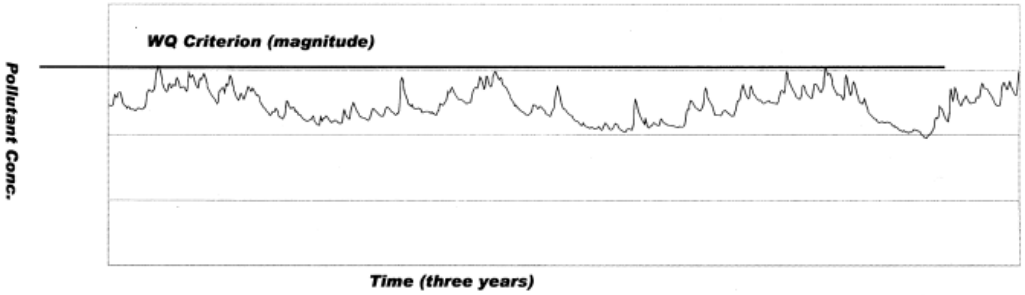
management approach could present many problems, most notable compliance with Federal and State regulatory water quality standard:

> *The fundamental characteristic of numeric water quality criteria is that they include three components: magnitude, frequency and duration. This is especially true of water quality criteria designed to protect aquatic life. Each criterion has been substantiated and advanced based on underlying limitations and conditions that have been specified in the criteria development documentation. Implementation of these criteria is invalid unless the underlying limitations and conditions are preserved. If there is a 230 mg/L water quality criterion for chloride designed to protect aquatic life, the criterion magnitude is advanced on the basis that exposure to concentrations that high will occur rarely (in this case, a frequency of no more than once every 3 years) and for limited periods of time (a duration of no more than 4 days). For the rest of the time, the underlying requirement is that the target organism is not stressed by exposure to chloride at any significant level, that is, that exposure to elevated concentrations of chloride is a rare and isolated event. To achieve the underlying frequency and duration components of the water quality criterion, Water Quality Based Effluent Limitations (WQBEL) must be developed that limit the frequency and duration of instream concentrations of the pollutant of concern. An example of a target distribution that would achieve the magnitude, frequency, and duration components of the water quality criteria looks something like the following chart. The criterion magnitude is challenged only rarely with near-background concentrations existing most of the time.*



> *The effect of using real-time flow management is to allow instream concentrations to approach the criterion magnitude value more often and for longer periods of time. An example of real-time flow management, a target distribution that would achieve the magnitude component but not achieve the frequency and duration components of the water quality criterion might look more like the following chart. The criterion magnitude is challenged continually, and concentrations essentially never drop to near-background levels. The WQBEL has not been designed to achieve the frequency and duration components of the water quality criterion, even if the criterion magnitude has not been exceeded.*



> *The Q7-10 design flow condition was not arbitrarily selected. It was designed to match the flow profile of natural free-flowing surface waters with the dose response toxicity profile of the pollutant, and thereby achieve the underlying frequency and duration components of*

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the water quality criteria. Use of the steady-state Q7-10 design flow condition is the standard in NPDES permitting at both the State and Federal level for most pollutants. Real-time flow management is inconsistent with the underlying frequency and duration components of the water quality criteria and violates the criterion as surely as if the instream concentration exceeds the criterion magnitude. Failure to achieve the frequency and duration components of the water quality criteria has real-world consequences in terms of biological and other impacts.

There are limitations inherent in the methods employed to produce water quality criteria. The normal objective is to define the dose-response relationship using one or more sensitive species. The organisms are exposed to different concentrations of the toxicant for different time periods and the resulting adverse effects are used to define the dose-response relationship. There are two important limitations of the methods. First, for practical reasons when three major variables (species, concentration and exposure time) are involved, there are limits to the number and time-length of these exposure tests. For instance, laboratory analyses may be able to expose sensitive organisms to calibrated concentrations of the pollutant for days or weeks, but not months or years. Hence, the long-term effects of continuous exposure to most toxicants typically are largely unknown. Second, there are limits to measuring toxicity. Third, toxicity alone is not necessarily the only issue. For instance, changing the hardness of water, independent of toxic effects, may have significant impacts on aquatic life. Native species that are acclimated and thrive in soft water may be at a disadvantage to species that perform better in hard water. The hard water is not toxic to the native soft-water species, they just lose out in the competition to better adapted species in the same or similar ecological niche

The Q7-10 design flow reflects the limitations of laboratory dose-response toxicity testing and the underlying bases. New criteria are developed with the same underlying limitations and conditions. The Q7-10 design flow prevents nontoxicity effects from manifesting because it assures that the fundamental nature of the receiving water is not changed. Reliance on other methods that allow for higher discharge loading rates moves away from the dose-response model and may pose altering the fundamental nature of the receiving water.

To summarize, CEC's proposal includes two complimentary approaches. (1) Includes the installation of increased leachate storage and discharge flow controls; and (2) restrictions on the timing of discharges to coincide with minimum stream flow rates provide adequate leachate dilution. The Department does not object to the addition of additional leachate storage (Approach 1) and flow equalization but cannot, under the regulations, approve the abstaining of discharges until stream conditions are favorable. This approach would result in an increased average instream pollutant concentration that is inconsistent with the intent of water quality criteria and NPDES regulations.

Lastly, the Department is willing to accept and re-evaluate the WQBELs in the Toxics Management Spreadsheet using the re-evaluated discharge flow. Using this discharge flow, the WQBELs are less stringent but Paris will still not be able to meet the limits upon permit issuance. Therefore, Paris will still need to evaluate the discharge and determine how it plans to achieve the new WQBELs. A few solutions that the Department would like to point out, other than installing treatment, would be re-routing the discharge to a point where the $Q_{7\text{-}10}$ flow is great enough to handle the discharge or by reducing the discharge flow rate through the addition of supplemental equalization storage.

Summary of CEC's Response to the Department's Comments on the Real-Time Management Approach:

The Department indicated it could not approve such an approach because it "ignores the requirements in 25 Pa Code Chapter 96. 25 Pa Code 96.4(g) which requires the Department to determine the WQBELs for receiving streams using Q7-10 Flows". However, CEC notes that portion of the Pa Code actually states: "(g) Mathematical modeling at the design flow conditions listed in Table 1 shall be used *as applicable* (emphasis added) to develop TMDLs and WQBELs for point source discharges."

CEC also believes the discharge represents a "control on the discharge" and the use of that control coupled with an appropriate and achievable "dilution of the effluent in the receiving water" which would meet the intent of 40 CFR

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122.44(d)(1)(ii): When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use *procedures which account for existing controls* (emphasis added) on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and *where appropriate, the dilution of the effluent in the receiving water* (emphasis added).

CEC provided additional information comparing the discharge flow from the site, precipitation, and stream flow on July 18, 2023. CEC determined that because the existing pumped discharge at the landfill is manually operated, there is not a clear relationship between the dry periods of the year, represented by periods of lower stream flows and the pumping rates while the landfill pump operates. However, CEC believes that if the pump controls were changed to an average discharge rate (0.038 MGD or approximately 26 gallons per minute), then the risk of pumping at too high of a rate during the dry portions of the year would be minimized. In addition, CEC concludes that by working with a float system, the leachate collection pond would be pumped down during these periods and no discharge would occur. CEC believes the enhanced management of the discharge with the pump rate limited to the long-term average discharge rate and a float system in the leachate collection pond represents a "control on the discharge" and the use of that control coupled with an appropriate and achievable "dilution of the effluent in the receiving water" which would meet the intent of 40 CFR 122.44(d)(1)(ii).

The Department's Response:

The Department is still in the position to deny CEC's solution to incorporate a real-time management approach for achieving WQBELs for the same reasons that were stated on the March 14th email. Again, the Department cannot approve such an approach because it ignores the requirements is 25 Pa Code Chapter 96. 25 Pa Code 96.4(g) requires the Department to determine the WQBELs for receiving streams using Q_{7-10} Flows. CEC's response to this was that the Pa Code actually states: "(g) Mathematical modeling at the design flow conditions listed in Table 1 shall be used as applicable (emphasis added) to develop TMDLs and WQBELs for point source discharges." However, the Department believes that CEC is interpreting the regulation incorrectly and that the "as applicable" in § 96.4(g) isn't referring to the applicability of using other flows but is noting which stream flows are applicable to which criteria. CEC further states that they believe the discharge represents a "control on the discharge" and the use of that control coupled with an appropriate and achievable "dilution of the effluent in the receiving water" would meet the intent of 40 CFR 122.44(d)(1)(ii): "When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls (emphasis added) on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water (emphasis added)." The Department would like to point out that the generalized statements relating to reasonable potential evaluations in 40 CFR § 122.44(d)(1)(ii) do not override the specific procedures described in § 96.4. Or, put a different way, § 96.4 is a specific implementation of the general procedures of § 122.44(d)(1)(ii) and is not inconsistent with § 122.44(d)(1)(ii). Based on these reasons, the Department still believes that the WQBELs will have to be determined using the Q_{7-10} flow.

The Department is proposing to move forward with the 2nd Draft Permit by developing the WQBELs using the re-evaluated discharge flow and the Q_{7-10} flow. However, the Department is proposing to give Paris a longer compliance schedule to achieve the Final Limitations. The compliance schedule that the Department can propose is up to 59 months from the permit effective date, which would give Paris nearly 5 years to come into compliance with the new water-quality limitation. During this time, Paris can evaluate the different options to comply with the limits. A few options that the Department can point out are to install additional leachate storage to equalize and limit the discharge flow to a reduced rate, relocate the discharge to a point where there is more assimilative capacity, install wastewater treatment on the discharge that can reduce the boron levels to a point that achieves the final effluent limits or do site specific studies to see if any of the Department's assumptions can be changed.

Additional Changes:

The Department has recently implemented a new monitoring initiative for Per- and Polyfluoroalkyl Substances (PFAS). Monitoring for PFOA, PFOS, PFBS, and HFPO-DA will be imposed on the discharges from Outfall 001 to be consistent with this initiative. This is discussed in more detail below in this Fact Sheet Addendum.

The Department has updated the PAG-03 General Stormwater Permit to include monitoring for Total Phosphorous and Total Nitrogen to all appendices and a Benchmark Value of 9.0 S.U. for pH has been added to Appendix H. Monitoring for Total Phosphorous and Total Nitrogen will be imposed on the discharges from Outfalls 002, 003 and 004 to be consistent with the

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PAG-03 requirements. A footnote has been added to the permit discussing how Total Nitrogen is calculated. As part of the update to the PAG-03 General Permit the Department has made changes to the Part C condition for the *Requirements Applicable to Stormwater Outfalls in Individual NPDES Permits*. The standard Requirements Applicable to Stormwater Outfall Part C conditions have been updated to include additional requirements, see Part C. IV. C. 1. f., Part C. IV. C. 1. g., Part C. IV. C. 4. c., Part C. IV. D. 1., Part C. IV. F.5, Part C. IV. F.7, and Part C. IV. G of the Draft Permit.

Summary and Recommendation:

Based on CEC's original comment, the Department requested additional information regarding the discharge flow. Supplemental comments were provided on September 2, 2022. The comments did not directly address the Department's concerns regarding the average discharge flow request but requested a different approach to achieve WQBELs. This approach cannot be considered as it violates 25 Pa Code 96.4(g).

However, the Department is willing to re-evaluate the WQBELs in the Toxics Management Spreadsheet (TMS) using the average discharge flow from the site instead of the design flow. The Department is proposing to use an average discharge flow of 0.038 MGD in the TMS because that is rate Paris is currently proposing the average discharge flow to be.

The Department has re-evaluated the discharge using the revised discharge flow, which is included in this Fact Sheet Addendum, and has determined that WQBELs for Boron are still required for Outfall 001. The Department also notes that Paris cannot currently achieve the new WQBELs and that it may take time for Paris to achieve these limits. Therefore, the Department is proposing a 59-month Schedule of Compliance for Paris to achieve these new limits accordance with 25 Pa. Code § 92a.51(a).

PFAS monitoring has been added to the monitoring requirements for Outfall 001 in Part A of the Draft Permit.

Total Phosphorous and Total Nitrogen monitoring has been added to the monitoring requirements for Outfalls 002, 003, and 004 in Part A of the Draft Permit.

A benchmark value of 9.0 S.U. for pH has been added to the table in Part C.IV.F.7. of the Draft Permit.

Changes have been made to Part C. IV. (Requirements Applicable to Stormwater Outfalls). These changes include Part C. IV. C. 1. f., Part C. IV. C. 1. g., Part C. IV. C. 4. c., Part C. IV. D. 1., Part C. IV. F.5, Part C. IV. F.7, and Part C. IV. G of the Draft Permit.

The Department mistakenly neglected to copy the U.S. Environmental Protection Agency on the First Draft. EPA should have been forwarded a copy of the Draft Permit because the Department is imposing TMDL limitations in the Paris Flyash Landfill NPDES permit for the first time. The oversight will be corrected by redrafting the NPDES permit.

The Department has determined that the NPDES permit will need to be re-drafted due to the changes to the limitations at Outfall 001.

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)	0.05
Latitude	40º 28' 39"	Longitude	-80º 21' 44"
Quad Name	Clinton	Quad Code	1503
Wastewater Description:	Landfill Leachate		
Receiving Waters	Raccoon Creek (WWF)	Stream Code	33564
NHD Com ID	99686684	RMI	27.86
Drainage Area	76.1 mi^2	Yield (cfs/mi^2)	0.022
Q_{7-10} Flow (cfs)	1.67	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	860	Slope (ft/ft)	0.0049
Watershed No.	20-D	Chapter 93 Class.	WWF
Existing Use	Not Attaining	Existing Use Qualifier	Impaired Aquatic Life
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Non-attaining		
Cause(s) of Impairment	Metals, pH		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	Final	Name	Raccoon Creek Watershed TMDL

Background/Ambient Data		Data Source
pH (SU)	7.0	Default
Temperature (°F)	Ambient	Default
Hardness (mg/L)	742	Analytical Results from immediately upstream of the forced main discharge
Other:	N/A	N/A

Nearest Downstream Public Water Supply Intake	Nova Chemicals Beaver Valley Plant		
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	969	Distance from Outfall (mi)	~28

Treatment Facility Summary

Treatment Facility Name: Leachate Treatment Pond

WQM Permit No.	Issuance Date	Status
0400203	September 28, 2000	Active

Waste Type	Process Type	Disinfection	Hydraulic Capacity (MGD)	Average Flow (MGD)
Industrial	Underdrain Collection Settling Basin	N/A	0.05	0.038

Changes Since Last Permit Issuance: The landfill is now closed. Leachate is produced by precipitation infiltrating and contacting the waste material through the vegetative cover.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	Intermittent and Variable
Latitude	40º 28' 54"	Longitude	-80º 25' 38"
Quad Name	Burgettstown	Quad Code	1502
Wastewater Description:	Stormwater Runoff		
Receiving Waters	Wingfield Run (WWF)	Stream Code	33770
NHD Com ID	99686408	RMI	3.74
Watershed No.	20-D	Chapter 93 Class.	WWF
Existing Use	WWF	Existing Use Qualifier	Supporting Aquatic Life
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	N/A		
Source(s) of Impairment	N/A		
TMDL Status	Final	Name	Raccoon Creek Watershed

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	Intermittent and Variable
Latitude	40º 28' 53"	Longitude	-80º 25' 50"
Quad Name	Burgettstown	Quad Code	1502
Wastewater Description:	Stormwater Runoff		
Receiving Waters	Wingfield Run (WWF)	Stream Code	33770
NHD Com ID	99686408	RMI	3.89
Watershed No.	20-D	Chapter 93 Class.	WWF
Existing Use	WWF	Existing Use Qualifier	Supporting Aquatic Life
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	N/A		
Source(s) of Impairment	N/A		
TMDL Status	Final	Name	Raccoon Creek Watershed

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	Intermittent and Variable
Latitude	40º 28' 42"	Longitude	-80º 25' 29"
Quad Name	Burgettstown	Quad Code	1502
Wastewater Description:	Stormwater Runoff		
Receiving Waters	Unnamed Tributary of Wingfield Run (WWF)	Stream Code	33776
NHD Com ID	99686666	RMI	0.21
Watershed No.	20-D	Chapter 93 Class.	WWF
Existing Use	WWF	Existing Use Qualifier	Supporting Aquatic Life
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	N/A		
Source(s) of Impairment	N/A		
TMDL Status	Final	Name	Raccoon Creek Watershed

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.05
Latitude 40º 28' 39" **Longitude** -80º 21' 44"
Wastewater Description: Treated Landfill Leachate

Technology-Based Effluent limitations:

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1).

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code § 95.2(1).

Table 1: Regulatory Effluent Standards and Monitoring Requirements for Outfall 001

Parameter	Monthly Average	Daily Maximum	Units
Flow	Monitor and Report		MGD
pH	Not less than 6.0 nor greater than 9.0		S.U.

Federal Effluent Limitations Guidelines

The Effluent Limitation Guidelines under 40 CFR 423, Steam Electric Power Generating Point Source Category, are no longer applicable to the discharges from the site.

EPA promulgated the Steam Electric Power Generating Effluent Guidelines and Standards (40 CFR Part 423) in 1974, and amended the regulations in 1977, 1978, 1980, 1982 and 2015. The regulations cover particular wastewater discharges from power plants operating as utilities. The Technical Development Document (TDD) for the 2015 amendment states in the footnotes of Table 6-13 that combustion residual leachate wastewater was previously regulated under the low volume waste category of the ELG. In 2015, combustion residual leachate was separated from low volume wastes and specifically listed under 40 CFR 423.12(b)(11) and 423.13(l) for BPT and BAT, respectively.

On April 12, 2019, the Fifth Circuit of the United States Court of Appeals filed a decision on petitions for rehearing Case No. 15-60821 filed by Southwestern Electric Power Company (and others) against the United States Environmental Protection Agency. The challenge was to the final rule updates for "Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category" 80 Fed. Reg. 67,838 (Nov. 3, 2015). The rule updated Best Available Technology Economically Available (BAT) guidelines for some of the waste streams from the power industry. Petitioners specifically challenged the new ELGs for "legacy wastewater" and for "combustion residual leachate" claiming that the EPA set unlawful BAT for these two categories by arbitrarily setting BAT the same as the BPT impoundments set in 1982. The Courts concluded that the portions of the 2015 final rule regulating legacy wastewater and residual combustion leachate are unlawful and capricious and shall be vacated in part and remanded to the agency for reconsideration.

On August 31, 2020, EPA finalized a rule revising the 40 CFR 423 ELG for the Steam Electric Power Generating Category, but specifically revised only the waste streams for flue gas desulfurization (FGD) wastewater and bottom ash (BA) transport water. The Federal Register Notice on October 13, 2020 stated "…EPA is not establishing BAT for leachate in the current rulemaking…".

Per- and Polyfluoroalkyl Substances (PFAS)

In February 2024, DEP implemented a new monitoring initiative for PFAS consistent with an EPA memorandum that provides guidance to states for addressing PFAS discharges. PFAS are a family of thousands of synthetic organic chemicals that contain a chain of strong, carbon-fluorine bonds. Many PFAS are highly stable, water- and oil-resistant, and exhibit other properties that make them useful in a variety of consumer products and industrial processes. PFAS are resistant to biodegradation, photooxidation, direct photolysis, and hydrolysis and do not readily degrade naturally; thus, many PFAS accumulate over time. According to the United States Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), the environmental persistence and mobility of some PFAS, combined with decades of widespread use, have resulted in their presence in surface water, groundwater, drinking water, rainwater, soil, sediment, ice caps, outdoor and indoor air, plants, animal tissue, and human blood serum across the globe. ATSDR also reported that exposure to certain PFAS can lead to adverse human health impacts Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as potentially significant pollutants of concern.

In accordance with Section II.I of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 92a.61(b), DEP has determined that monitoring for a subset of common/well-studied PFAS including Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) is necessary to help understand the extent of environmental contamination by PFAS in the Commonwealth and the extent to which point source dischargers are contributors. SOP BCW-PMT-032 directs permit writers to consider special monitoring requirements for PFOA, PFOS, PFBS, and HFPO-DA in the following instances:

a. If sampling that is completed as part of the permit renewal application reveals a detection of PFOA, PFOS, HFPO-DA or PFBS (any of these compounds), the application manager will establish a quarterly monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds) in the permit.

b. If sampling that is completed as part of the permit renewal application demonstrates non-detect values at or below the Target QLs for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds in a minimum of 3 samples), the application manager will establish an annual monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS in the permit.

c. In all cases the application manager will include a condition in the permit that the permittee may cease monitoring for PFOA, PFOS, HFPO-DA and PFBS when the permittee reports non-detect values at or below the Target QL for four consecutive monitoring periods for each PFAS parameter that is analyzed. Use the following language: The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detects at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees should enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

Paris' application was submitted before the NPDES permit application forms were updated to require sampling for PFOA, PFOS, PFBS, and HFPO-DA. Also, according to EPA's guidance, Paris does not operate in one of the industries EPA expects to be a source for PFAS. Therefore, annual reporting of PFOA, PFOS, PFBS, and HFPO-DA will be required consistent with Section II.I.b of SOP BCW-PMT-032. Even though Paris did not report results for PFOA, PFOS, PFBS, and HFPO-DA on the permit application, as a facility operating in a suspected non-source industry, it is reasonable to conclude that if Paris did report results for PFOA, PFOS, PFBS, and HFPO-DA on the application, the results may have been non-detect values, which would subject Paris to the annual monitoring requirements described in Section II.I.b of the SOP.

As stated in Section II.I.c of the SOP, if non-detect values at or below DEP's Target QLs are reported for four consecutive monitoring periods (i.e., four consecutive annual results in Paris' case), then the monitoring may be discontinued.

Water Quality-Based Effluent limitations:

Toxics Management Spread Sheet

The Department of Environmental Protection (DEP) has developed the DEP Toxics Management Spreadsheet ("TMS") to facilitate calculations necessary for completing a reasonable potential (RP) analysis and determining water quality-based effluent limitations for discharges of toxic pollutants. The Toxics Management Spreadsheet is a macro-enabled Excel binary file that combines the functions of the PENTOXSD model and the Toxics Screening Analysis spreadsheet to evaluate the reasonable potential for discharges to cause excursions above water quality standards and to determine WQBELs. The Toxics Management Spread Sheet is a single discharge, mass-balance water quality calculation spread sheet 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, discharge flow rate and the discharge concentrations for parameters in the permit application or in DMRs, are entered into the spread sheet to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also be entered to further characterize the conditions of the discharge and receiving water. Discharge concentrations for the parameters are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). The spread sheet then evaluates each parameter 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, the Toxics Management Spread sheet recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Discharges from Outfall 001 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are entered into the Toxics Management Spread Sheet. The maximum pollutant values reported in the application form or from previous DMRs is used as the input concentration in the Toxics Management Spread Sheet. All toxic pollutants whose maximum concentrations, as reported in the permit application or on DMRs, that are greater than the most stringent applicable water quality criterion are considered to be pollutants of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion]. The Toxics Management Spread Sheet was used to evaluate the discharge and receiving stream characteristics shown in Table 2. For IW discharges, the design flow used in modeling is the average flow during production or operation taken from the permit application. Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease) are excluded from the analysis. All the parameters are evaluated using the model to determine the water quality-based effluent limits applicable to the discharge and the receiving stream. The spreadsheet then compares the reported discharge concentrations to the calculated water quality-based effluent limitations to determine if a reasonable potential exists to exceed the calculated WQBELs. Effluent limitations are established in the draft permit where a pollutant's maximum reported discharge concentration equals or exceeds 50% of the WQBEL. For non-conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 25% - 50% of the WQBEL. For conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 10% - 50% of the WQBEL. The information described above including the maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are displayed in the Toxics Management Spread Sheet in Attachment B of this Fact Sheet. The water quality-based effluent limitations and monitoring requirements that are recommended by the Toxics Management Spread Sheet are displayed below in Table 3.

Table 2: TMS Inputs for Outfall 001

Parameter	**Value**
River Mile Index	27.86
Discharge Flow (MGD)	0.038
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	76.1
$Q_{7\text{-}10}$ (cfs)	1.67
Low-flow yield (cfs/mi^2)	0.022
Elevation (ft)	860
Slope	0.0049

Table 3: Water Quality Based Effluent Limitations at Outfall 001

Parameters	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant. Maximum (mg/L)
Total Arsenic	Report	Report	XXX
Total Boron	47.1	73.5	118
Total Copper	Report	Report	XXX
Total Selenium	Report	Report	XXX

Toxics Reduction Evaluation (TRE)

The permittee will be required to complete a Toxics Reduction Evaluation (TRE) to investigate approaches, strategies and feasibility to provide treatment to achieve the final WQBELs for boron. The evaluation may also include a further analysis

of water quality of the leachate and any other possible sources to the landfill that may be impacting the boron levels. Details will be included in Part C of the permit. The TRE should be completed within 36 months of the Permit Effective Date. The remaining two years of permit coverage should be used to procure, install, and commence operation of facilities, processes, and practices that allow Paris to achieve its final effluent limits. During the 59-month compliance period, only monitoring will be required for boron.

The TRE will be required to address the following:

1. The source(s) of the toxic pollutants in the effluent through a comprehensive review of influent and effluent quality and contributors to the facility, if applicable.
2. An evaluation of approaches and strategies that exist to reduce or eliminate sources to achieve the final WQBELs.
3. An evaluation of approaches and strategies that exist to provide treatment to achieve the final WQBELs.
4. An analysis of the feasibility of the approaches and strategies identified in paragraphs 2 and 3, above.

The Part C condition outlines milestones for the work plan, data collection, implementation, final report, action completion, and compliance with the final permit limit.

Raccoon Creek Watershed TMDL

This segment of Raccoon Creek is a part of the Raccoon Creek Watershed TMDL. The TMDL was established in accordance with Section 303(d)(1)(c) and (2) of the Clean Water Act to address impairments of water quality as identified on Pennsylvania's Section 303(d) lists. The TMDL was finalized on February 3, 2005 and determined the cause of the impairments to be metals (iron, manganese, aluminum) and pH (low) from acid mine drainage from abandoned coal mines.

The TMDL establishes the amount of a pollutant that a waterbody can assimilate without exceeding its water quality standard for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and nonpoint sources to restore and maintain the quality of the state's water resources. A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit Margin of Safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody.

There are nine active mining permits in the Raccoon Creek watershed. Discharges from the mining operations that are active are considered to be point sources. All remaining discharges in the watershed are from abandoned mines and are considered to be nonpoint sources. Most of the pollution sources in the watershed are non-point sources, and so the largest part of the TMDL is expressed as Load Allocations (LAs). All allocations are specified as long-term average daily concentration which are expected to meet water quality criteria 99% of the time as required in PA Title 25 Chapter 96.3(c).

The Paris Flyash Landfill was not assigned waste load allocations by the Raccoon Creek Watershed TMDL. Discharges that do not have TMDL waste load allocations can be accommodated by permitting the discharges at criteria levels or by revising the TMDL to assign waste load allocations. In the case of the latter option, it is likely that a discharge's waste load allocations would be equivalent to water quality criteria because loading's available to allocate to the site were already allocated to other point and non-point sources.

Effluent data shows that the site does not contribute to the impairment of Raccoon Creek because effluent concentrations are generally less than water quality criteria. Nevertheless, 40 CFR § 122.44(d)(1)(vii)(B) requires that:

> (vii) When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that: […]
>
> (B) 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 for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7 [regarding TMDL development].

To comply with 40 CFR § 122.44(d)(1)(vii)(B) and given that there are no waste load allocations for Outfall 001 in the TMDL, effluent limits equivalent to water quality criteria will be imposed at Outfall 001 for the TMDL's pollutants of concern (aluminum, iron, and manganese).

The methods used to implement water quality criteria are described in 25 Pa. Code §§ 96.3 and 96.4. In addition, 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 effluent 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*.

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.

The TMDL limits and the site discharge concentrations are summarized in Table 4.

Table 4. Raccoon Creek Watershed TMDL Pollutants of Concern and Facility Discharge Concentrations

Parameter	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant. Maximum (mg/L)	Maximum Discharge Concentration (mg/L)
Aluminum, Total	0.75	0.75	0.75	0.025
Iron, Total	1.50	3.0	3.75	0.147
Manganese, Total	1.00	2.0	2.5	0.162

IMAX limits are calculated using an average monthly limit multiplier of 2.5.

Only aluminum, iron, and manganese limits are imposed because the TMDL does not directly limit sediment and pH. The TMDL used a surrogate approach for both of those constituents by which reductions of in-stream concentrations of aluminum, iron, and manganese will result in acceptable reductions of sediment and mitigation of acidic pH. Based on the data provided Paris should easily meet these proposed effluent limits.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l). The previous limitations for Outfall 001 are displayed below in Table 5. The limits for Total Suspended Solids, Iron, and Manganese were developed using Best Professional Judgement (BPJ) based on the treatability of the treatment system. TRC was imposed in the 1998 NPDES permit based on monitoring requirements in the previous permit per the fact sheet. It was noted that TRC results were high in the renewal application. A letter dated January 16, 1998 from the permittee's consultant states that "Chlorination was found after much experimentation at the Paris flyash landfill to be an effective method of treatment for manganese removal." The renewal application in 1997 noted that oxidation was a treatment process for the landfill leachate. The facility no longer utilizes any chemicals at the facility, however the facility is authorized to, so the TRC limit, along with the Part C TRC minimization clause, will continue to be imposed.

Table 5: Effluent Limitations in the Current Permit for Outfall 001

Parameter	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	Report	XXX	XXX	Daily	Continuous
Suspended Solids	30	60	75*	1/Week	24-hr composite
Total Residual Chlorine	0.5	XXX	1.25	1/Week	Grab
Iron	3.0	6.0	7.5*	1/Week	24-hr composite
Manganese	2.0	4.0	5.0*	1/Week	24-hr composite
pH	Not less than 6.0 nor greater than 9.0			1/Week	Grab

*Part C.5: Instantaneous maximum limitations are imposed to allow for a grab sample to be collected by the appropriate regulatory agency to determine compliance. The permittee is not required to monitor for the instantaneous maximum limitation. However, if grab samples are collected by the permittee, the results must be reported.

Final Effluent Limitations

The proposed effluent limitations and monitoring requirements for Outfall 001 are shown below in Table 6. The limits are the most stringent values from the above limitation analysis. The sample frequency for TRC, Iron, Manganese, and pH has been reduced from once per week to twice a month following EPA's Performance-Based Reduction of Monitoring Frequencies Guidance. Additionally, the sample frequency for Aluminum will be twice a month to match the same monitoring frequency as the other TMDL parameters. The once per week sample frequency for Total Suspended Solids will not be reduced because there have been exceedances of the average monthly limit within the past two years. Once per week sampling will be imposed on Arsenic, Boron, Copper, and Selenium because they are new to the permit.

Table 6: Proposed Effluent Limitations in the Permit for Outfall 001

Parameter	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	Continuous	Recorded
Total Suspended Solids	30	60	75*	1/Week	24-hr composite
Total Residual Chlorine	0.5	XXX	1.25	2/Month	Grab
Total Iron	1.5	3.0	3.75*	2/Month	24-hr composite
Total Manganese	1.0	2.0	2.5*	2/Month	24-hr composite
Total Aluminum	0.75	0.75	0.75*	2/Month	24-hr composite
Total Arsenic	Report	Report	XXX	1/Week	24-hr composite
Total Boron	47.1	73.4	118*	1/Week	24-hr composite
Total Copper	Report	Report	XXX	1/Week	24-hr composite
Total Selenium	Report	Report	XXX	1/Week	24-hr composite
PFOA (ng/L)	XXX	Report	XXX	1/year	Grab
PFOS (ng/L)	XXX	Report	XXX	1/year	Grab
PFBS (ng/L)	XXX	Report	XXX	1/year	Grab
HFPO-DA (ng/L)	XXX	Report	XXX	1/year	Grab
pH	Not less than 6.0 nor greater than 9.0			2/Month	Grab

*A Footnote is included in the Draft Permit indicating that these Instantaneous maximum limitations are imposed to allow for a grab sample to be collected by the appropriate regulatory agency to determine compliance. The permittee is not required to monitor for the instantaneous maximum limitation. However, if grab samples are collected by the permittee, the results must be reported.

Final WQBEL Compliance Report and Interim Monitoring

The WQBELs listed in Table 6 above for Boron are new to Outfall 001. Alex E. Paris Contracting Company does not have the necessary controls in place to ensure compliance with the WQBELs upon permit issuance. Therefore, in accordance with 25 Pa. Code § 92a.51(a) of DEP's regulations, Alex E. Paris Contracting Company will be granted 59 months to come into compliance with the WQBELs. Because the new WQBELs will not be effective upon permit issuance, the permit will be tiered to have interim and final effluent limitations. For the 59 months, Boron will have monitor and report requirements, and after 59 Months, the WQBELs will take effect. Additionally, because the WQBELs were developed using the default or model-derived estimates, the permittee shall collect site-specific data and conduct a Toxics Reduction Evaluation (TRE). The site-specific data and TRE will be submitted to the Department as part of a Final WQBEL Compliance Report, 36 months following the permit effective date. The TMDL WQBELs listed in Table 6 above for Iron, Manganese and Aluminum are new to Outfall 001, as well. However, the discharge concentrations from the site are well below the new limitations and Alex E. Paris Contracting Company is expected to meet the limitations upon issuance. Therefore, there will be no schedule of compliance for the TMDL WQBELs.

Development of Effluent Limitations

Outfall No.	002	**Latitude**	40º 28' 54"	**Longitude**	-80º 25' 38"
Outfall No.	003	**Latitude**	40º 28' 53"	**Longitude**	-80º 25' 50"
Outfall No.	004	**Latitude**	40º 28' 42"	**Longitude**	-80º 25' 29"

Wastewater Description: Stormwater

Technology-Based Effluent limitations:

Outfalls 002, 003, and 004 will be subject to PAG-03 General Stormwater Permit conditions as a minimum requirement because the outfalls discharge stormwater associated with industrial activity. Based on Paris Flyash Landfill's SIC Code of 4953, the facility would be classified under Appendix A – Hazardous Waste Treatment, Storage or Disposal Facilities of the PAG-03 General Permit for Stormwater Associated with Industrial Activity if the facility were eligible for this permit coverage. However, since the facility received combustion residual from a coal-fired power plant, Appendix H – Steam Electric Generating Facilities, is the more appropriate appendix. The proposed monitoring requirements are shown in Table 7 below.

Table 7: PAG-03 Appendix (H) Monitoring Requirements

Parameters	Mass (lb/day)		Concentration (mg/l)			
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum
Total Nitrogen*	XXX	XXX	XXX	XXX	Report	XXX
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX
Total Suspended Solids (TSS)	XXX	XXX	XXX	XXX	Report	XXX
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX
Total Iron	XXX	XXX	XXX	XXX	Report	XXX

*Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO2+NO3-N), where TKN and NO2+NO3-N are measured in the same sample.

Water Quality-Based Effluent limitations:

Water quality analyses are typically performed under low-flow (Q7-10) conditions. Stormwater discharges occur at variable rates and frequencies but not however during $Q_{7\text{-}10}$ conditions. Since the discharges from Outfalls 002, 003, and 004 are composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations based on water quality analyses are not proposed.

Raccoon Creek Watershed TMDL

Details of the Raccoon Creek Watershed TMDL are described for Outfall 001 above. Wingfield Run is a part of the TMDL so the concentrations of aluminum, iron, manganese and the pH should be considered. Wingfield Run is attaining its use, but the iron, aluminum, manganese and pH will be monitored as discussed above. Acid mine drainage was known to be present at the facility.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l). Previous Limits imposed at Outfall 002 are displayed below in Table 8. Outfalls 003 and 004 are new to the permit and do not have any existing limits. The current permit requires monitoring for TSS, nitrate-nitrite nitrogen, total iron and manganese based on construction activity at the time of the renewal in 2004.

Table 8. Existing Limitations at Outfall 002

Parameter	Average Monthly	Daily Maximum	Measurement Frequency	Sample Type
Total Suspended Solids	Monitor	Monitor	1/quarter	Grab
Nitrate + Nitrite Nitrogen	Monitor	Monitor	1/quarter	Grab
Total Iron	Monitor	Monitor	1/quarter	Grab
Total Manganese	Monitor	Monitor	1/quarter	Grab

Final Effluent Limitations

Monitoring Requirements for Outfalls 002, 003, and 004 are displayed in Table 9 below. Nitrate + Nitrite Nitrogen has been low and is no longer a pollutant of concern; therefore, nitrate + nitrite nitrogen monitoring will be removed from the renewed permit. The monitoring for TSS, Total Iron and Manganese will remain in the permit because these parameters are still pollutants of concern based on the above PAG-03 and TMDL evaluations. The monitoring frequency imposed at this outfall will reflect what is required in the PAG-03 general permit, semi-annual monitoring. A Part C condition is included in the Draft permit stating that in the event that stormwater discharge concentrations for a parameter exceeds the benchmark values in the Part C condition at the same outfall for two or more consecutive monitoring periods, the permittee shall develop a corrective action plan to reduce the concentrations of the parameters in stormwater discharges.

Table 9: Proposed Effluent Monitoring Requirements for the Stormwater Outfalls 002, 003 & 004

Parameter	Max Daily Concentration	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Total Nitrogen*	Monitor and Report	-	1/6 Months	Calculation
Total Phosphorus	Monitor and Report	-	1/6 Months	Grab
pH (S.U.)	Monitor and Report	9.0	1/6 Months	Grab
Total Suspended Solids (TSS)	Monitor and Report	100	1/6 Months	Grab
Oil and Grease	Monitor and Report	30	1/6 Months	Grab
Total Aluminum	Monitor and Report	-	1/6 Months	Grab
Total Iron	Monitor and Report	-	1/6 Months	Grab
Total Manganese	Monitor and Report	-	1/6 Months	Grab

*Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO2+NO3-N), where TKN and NO2+NO3-N are measured in the same sample.

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment **A**)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Toxics Screening Analysis Spreadsheet (see Attachment)
☐	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 (SOP No. BCW-PMT-032, Version 1.5)
☒	SOP: Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers (SOP No. BCW-PMT-037, Version 1.2)

Attachment A:

Correspondence Between the Department and CEC/Alex E. Paris

ALEX E. PARIS
CONTRACTING COMPANY, INC.

P.O. BOX 369 • 1595 SMITH TOWNSHIP STATE ROAD (RT. 18)
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Our Greatest Assets
Our Employees

6-13-2022

Adam Olesnanik, E.I.T | Project Manager
Department of Environmental Protection | Clean Water Program
Southwest Regional Office
400 Waterfront Dr, Pgh, PA 15222

RE: Paris Fylash Landfill, Draft NPDES, Comment Period Extension

Dear Adam

As per our recent phone conversation, we are requesting an extension of the comment period for the Draft NPDES Permit PA0091910. This extension is requested as we are having a new consultant brought on board to address the parameters identified in the draft Permit.

Please contact me at 724-947-2235 if you have any questions

Sincerely,

Scott J. Putnam, PE

Cc:

Olesnanik, Adam

From: Olesnanik, Adam
Sent: Monday, June 27, 2022 7:39 AM
To: Scott Putnam
Cc: Alex Paris
Subject: RE: [External] RE: DRAFT NPDES Permit PA0091910 Alex E Paris Contracting Co Inc Paris Flyash Landfill

Hello Scott,

In response to your request, the Department hereby grants a 15-day extension to the public comment period. This is the maximum time allowed by 25 Pa. Code § 92a.82(d).

Please provide any written comments on the draft NPDES permit no later than July 12, 2022.

Please let me know if you have any questions or concerns.

Sincerely,

Adam Olesnanik, E.I.T | Project Manager
Department of Environmental Protection | Clean Water Program
Southwest Regional Office
400 Waterfront Dr| Pgh, PA 15222
Phone: 412.442.4254
www.dep.pa.gov

DEP is now accepting permit and authorization applications, as well as other documents and correspondence, electronically through the OnBase Electronic Forms Upload tool. Please use the link below to view the webpage, get instructions, and submit documents:
https://www.dep.pa.gov/DataandTools/Pages/Application-Form-Upload.aspx

Civil & Environmental Consultants, Inc.

July 12, 2022

Mr. Adam Olesnanik, Project Manager
Clean Water Program
Pennsylvania Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania 15222-4745

Dear Mr. Olesnanik:

Subject: Comments on Draft NPDES Permit
Paris Flyash Landfill
Application No. PA0091910
Hanover Township, Beaver County
CEC Project 324-728

On behalf of our client, Alex E. Paris Contracting Co., Inc. (Paris), Civil & Environmental Consultants, Inc. (CEC) presents the following written comments on the Draft National Pollution Discharge Elimination System (NPDES) Permit provided by the Pennsylvania Department of Environmental Protection (PADEP) via electronic mail on May 12, 2022. As you noted in your letter, the PADEP is proposing to establish effluent limitations in the renewed permit that are more stringent than the existing permit.

1.0 BACKGROUND

The draft permit contains a major special condition consisting of the requirement to perform a Toxics Reduction Evaluation (TRE) for selenium, arsenic, and boron. The final effluent limits for selenium, arsenic, and boron will become effective three (3) years after permit issuance.

A comparison of the Final Effluent Limits for these metals and the maximum and long-term average values provided in the permit renewal application are shown in the following table:

Constituent	Monthly Average (Draft permit)	Daily Maximum (Draft Permit)	Long-Term Average (Permit Application)	Maximum Value (Permit Application)
Selenium (mg/l)	0.0522	0.0815	0.02567	0.029
Arsenic (mg/l)	0.105	0.163	0.08933	0.097
Boron (mg/l)	16.7	26.1	82.767	88.9

1.0 FACILITY BACKGROUND

Landfill leachate is collected by a series of underdrains, which directs the water by gravity to the leachate treatment basin. An adjacent manhole receives groundwater from below the original leachate pond constructed in 1993, which also enters the current leachate pond for treatment. The capacity of the treatment pond is 2.6 million gallons. At an average flow of approximately 0.02 million gallons per day (MGD), the detention time is approximately 130 days.

Water from the leachate pond flows via a 4-inch-high density polyethylene (HDPE) force main pipeline for 3.3 miles to the receiving stream, Raccoon Creek. Flow is non-continuous and varies based on precipitation. Discharges are present for approximately 84 days per year (25%). The pump is typically operated for seven (7) consecutive days at the beginning of each month. A flow meter is located at the outfall to compare to the pump station to monitor for leaks or other compromises to the pipeline.

According to the PADEP Fact Sheet, discharges from Outfall 001 were evaluated by PADEP using the PADEP's Toxics Management Spreadsheet (TMS) and concentrations reported on the application and on Discharge Monitoring Reports. According to the Fact Sheet provided with the draft permit, the following inputs were used for that analysis:

Table 2: TMS Inputs for Outfall 001

Parameter	Value
River Mile Index	27.86
Discharge Flow (MGD)	0.114
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	76.1
Q7-10 (cfs)	1.67
Low-flow yield (cfs/mi^2)	0.022
Elevation (ft)	860
Slope	0.0049

CEC has reviewed the available information and is questioning the use of discharge volume of 0.114 MGD in the PADEP modelling from which the proposed water quality-based effluent limitations were derived:

Table 3: Water Quality Based Effluent Limitations at Outfall 001

Parameters	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant Maximum (mg/L)
Total Arsenic	0.105	0.163	0.262
Total Boron	16.751	26.134	41.877
Total Selenium	0.0522	0.0815	0.131

2.0 DISCUSSION

The design flow provided in the permit application, 0.114 MGD equates to approximately 41.6 million gallons per year or approximately 5.6 million cubic feet of water per year. Given that the portion of the landfill which is lined has a footprint of approximately 30 acres (1.31 million square feet), 5.6 million cubic feet equates to 4.27 feet of infiltration, which approximates the total precipitation for an average year (39.61 inches, 3.3 feet, mean annual rainfall 1991-2020) and presumably considers the additional flow of the groundwater collected from underneath the original leachate pond. CEC believes that the 0.114 MGD flow estimate may have been appropriate as a maximum discharge rate while the landfill was open and operating. However, since the landfill has been graded, capped with at least 2 feet of soil, and revegetated, a significant portion of the precipitation would now be lost through evapotranspiration and unimpacted runoff.

As noted above, the observed average discharge from the leachate collection system is 0.02 MGD. Using the same landfill size as noted above, 0.02 MGD would equate to an infiltration rate of approximately 0.75 feet per year. According to the Pennsylvania Stormwater Best Management Practices Manual (363-0300-002, 12/30/2006), the average infiltration in the Pennsylvania Piedmont region would be approximately 12 inches out of a total rainfall of 45 inches or approximately 27%. This generally agrees with the estimated 0.75 feet of infiltration out of the 3.3 feet of rainfall experienced in this part of Pennsylvania.

3.0 SUMMARY

Given these considerations, CEC believes that the 0.114 MGD flow used in the modelling to estimate impacts of the facility discharge to Raccoon Creek does not represent the actual conditions at the closed facility. On behalf of Paris, CEC request that the PADEP re-assess the proposed water quality-based effluent limitations calculated using the PADEP TMS using the average discharge volume (0.02MGD) rather than the original design discharge volume (0.114 MGD).

As noted above, the discharge from the closed facility is pumped with real time flow monitoring, and the discharge system includes a large basin, which can hold approximately 130 days of discharge at the average discharge rate. Therefore, Paris has the ability to control the discharge rate and maintain the average discharge rate over extended time periods.

4.0 CLOSING

CEC appreciates the opportunity to provide these comments to the Draft NPDES Permit on behalf of Paris. Please contact us if you have any questions regarding these comments.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Scott Rasmussen
Principal

Robert C. Dlugos, P.G.
Principal

SR:RCD/ad

cc: Scott Putnam, Alex E. Paris Contracting Co., Inc.

P-324728.Jul12/P

Olesnanik, Adam

From: Olesnanik, Adam
Sent: Monday, August 1, 2022 8:14 AM
To: Rasmussen, Scott
Cc: sputnam@alexparis.com; aparis@alexparis.com; Fifth, Michael
Subject: RE: [External] RE: Response Comments for Draft Permit PA0091910

Hello Scott,

We had a phone call a few weeks ago about the subject Draft NPDES permit.

During the call we discussed the comment and the request to use an average discharge flow of 0.02 MGD instead of 0.114 MGD. The Department understands the request but would like to know a little more information about where the alternative discharge flow came from. Could you please provide a more detail description of the calculations and justification for using this flow. The main concern the Department has is that the DMR data has indicated that the average discharge flow is more closer to 0.07 MGD.

If you have any questions on what the Department is requesting, feel free to send me an email or give me a call at the number below.

Thank you,

Adam Olesnanik, E.I.T | Project Manager
Department of Environmental Protection | Clean Water Program
Southwest Regional Office
400 Waterfront Dr| Pgh, PA 15222
Phone: 412.442.4254
www.dep.pa.gov

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Civil & Environmental Consultants, Inc.

September 2, 2022

Mr. Adam Olesnanik, Project Manager
Clean Water Program
Pennsylvania Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania 15222-4745

Dear Mr. Olesnanik:

Subject: Proposed Discharge Flows
NPDES Permit Discharge
Paris Flyash Landfill
Application No. PA0091910
Hanover Township, Beaver County
CEC Project 324-728

On behalf of our client, Alex E. Paris Contracting Co., Inc. (Paris), Civil & Environmental Consultants, Inc. (CEC) presents the following additional information regarding flows from Outfall 001 at the Paris Flyash Landfill (NPDES Permit Application PA0091910).

1.0 BACKGROUND

The draft permit contains a major special condition consisting of the requirement to perform a Toxics Reduction Evaluation (TRE) for selenium, arsenic, and boron. The final effluent limits for selenium, arsenic, and boron will become effective three (3) years after permit issuance.

A comparison of the Final Effluent Limits for these metals and the maximum and long-term average values provided in the permit renewal application are shown in the following table:

Constituent	Monthly Average (Draft permit)	Daily Maximum (Draft Permit)	Long-Term Average (Permit Application)	Maximum Value (Permit Application)
Selenium (mg/l)	0.0522	0.0815	0.02567	0.029
Arsenic (mg/l)	0.105	0.163	0.08933	0.097
Boron (mg/l)	16.7	26.1	82.767	88.9

4350 Northern Pike, Suite 141 | Monroeville, PA 15146 | p: 800-899-3610 f: 724-327-5280 | www.cecinc.com

2.0 FACILITY BACKGROUND

Landfill leachate is collected by a series of underdrains, which directs the water by gravity to the leachate treatment basin. An adjacent manhole receives groundwater from below the original leachate pond constructed in 1993, which also enters the current leachate pond for treatment. The capacity of the treatment pond is 2.6 million gallons. At an average flow of approximately 0.037 million gallons per day (MGD), the detention time is approximately 70 days.

Water from the leachate pond flows via a 4-inch-high density polyethylene (HDPE) force main pipeline for 3.3 miles to the receiving stream, Raccoon Creek. Flow is non-continuous and varies based on precipitation. Discharges are present for approximately 84 days per year (25%). The pump is typically operated for seven (7) consecutive days at the beginning of each month. A flow meter is located at the outfall to compare to the pump station to monitor for leaks or other compromises to the pipeline.

According to the Pennsylvania Department of Environmental Protection (PADEP) Fact Sheet, discharges from Outfall 001 were evaluated by PADEP using the PADEP's Toxics Management Spreadsheet (TMS) and concentrations reported on the application and on Discharge Monitoring Reports. According to the Fact Sheet provided with the draft permit, the following inputs were used for that analysis:

Table 2: TMS Inputs for Outfall 001

Parameter	Value
River Mile Index	27.86
Discharge Flow (MGD)	0.114
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	76.1
Q7-10 (cfs)	1.67
Low-flow yield (cfs/mi^2)	0.022
Elevation (ft)	860
Slope	0.0049

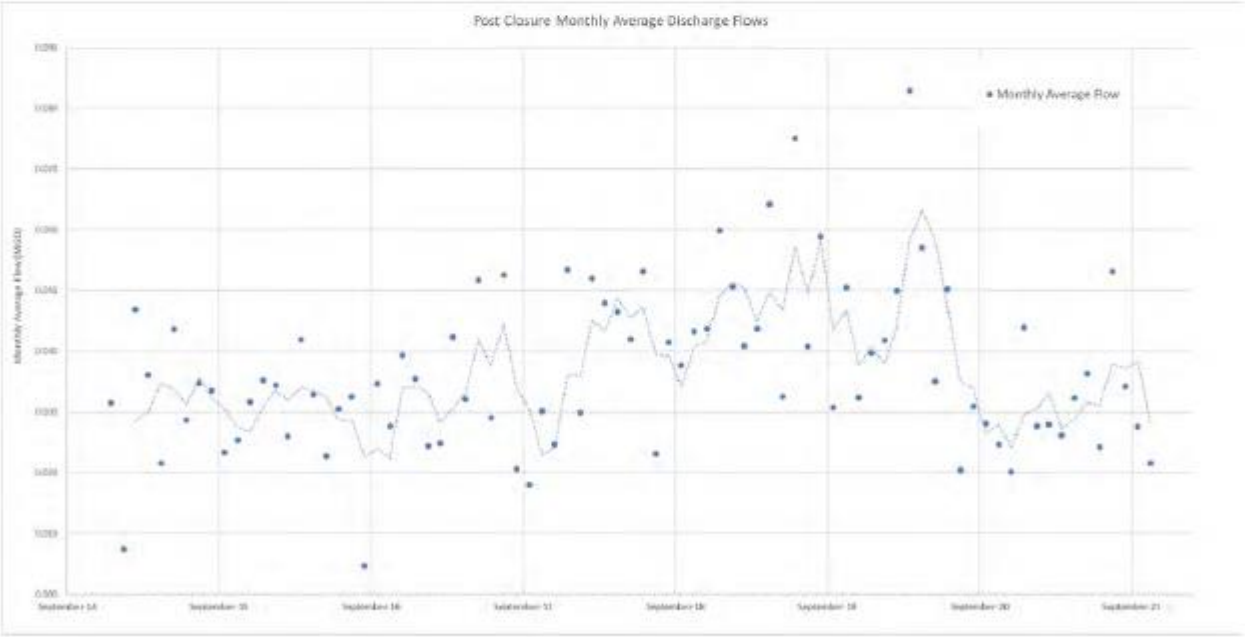
As we previously noted in our July 12, 2022 comments on the draft permit renewal, CEC has reviewed the available information and is questioning the use of discharge volume of 0.114 MGD in the PADEP modelling from which the proposed water quality-based effluent limitations were derived:

Table 3: Water Quality Based Effluent Limitations at Outfall 001

Parameters	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant Maximum (mg/L)
Total Arsenic	0.105	0.163	0.262
Total Boron	16.751	26.134	41.877
Total Selenium	0.0522	0.0815	0.131

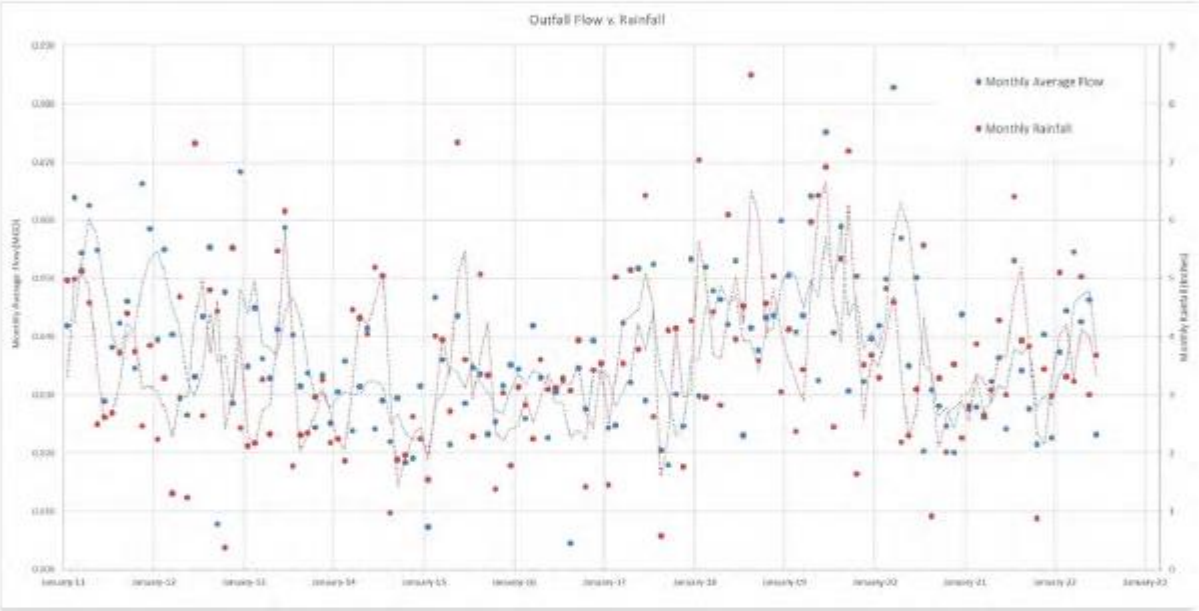
3.0 MONTHLY AVERAGE FLOWS

CEC reviewed monthly average leachate flow data for Outfall 001 from January 2011 to July 2022. Post closure monthly average flow data (January 2015 to July 2022) are shown in the following graph:



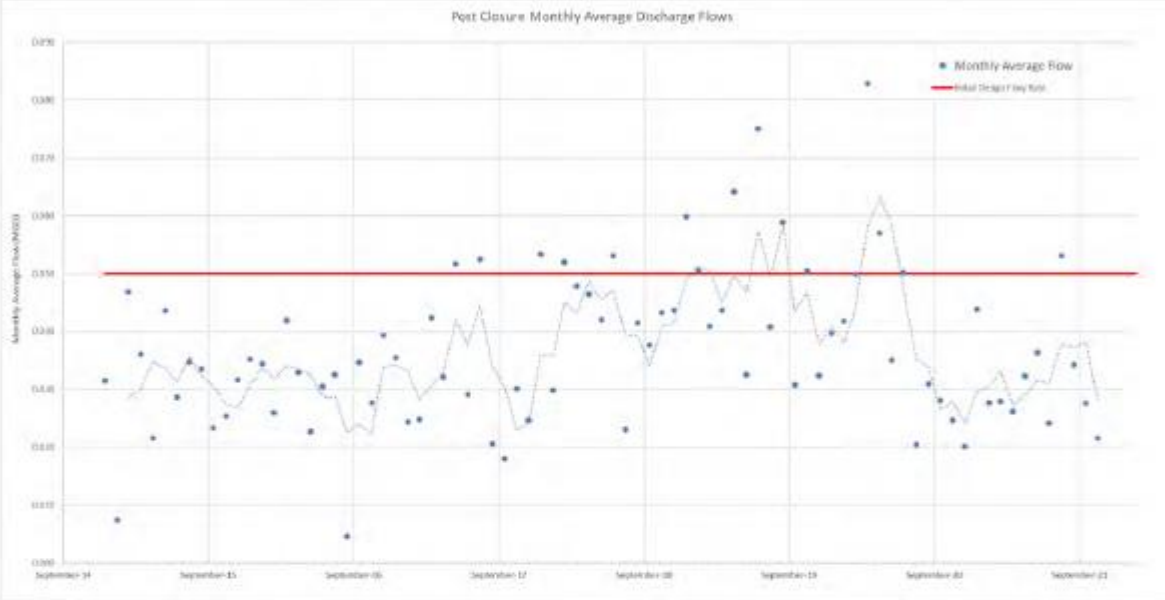
Long-term average and median average monthly flows for the entire monitoring period and the post-closure period were identical at 0.037 and 0.035 MGD, respectively.

Monthly rainfall totals from the National Oceanic and Atmospheric Association (NOAA) weather station at the Pittsburgh International Airport were compared to the monthly average discharge rates for Outfall 001:



The data indicates a general correlation between rainfall and flow from the outfall.

In order to assess the impact of a pumping system which could provide a more consistent flow from Outfall 001, CEC considered a flow of 0.05 MGD as an initial design discharge rate:



4.0 RACCOON CREEK FLOW DATA

The United States Geological Society and PADEP maintain a gaging station on Raccoon Creek at Moffatts Mill, Pennsylvania (Station No. 03108000). The gaging station is located at Latitude 40 37' 40", Longitude 80 20' 16" and has a drainage area of 178 square miles. The gage's location was used as an input to the U.S. Geological Survey (USGS) StreamStats program to derive the low flow statistics for that drainage basin. The StreamStats printout for the location of the USGS gaging station at Moffatts Mill is included in Attachment A.

The low flow statistics for the Moffatts Mill Gaging Station Location are shown below:

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

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	9.72	ft^3/s	43	43
30 Day 2 Year Low Flow	14.7	ft^3/s	38	38
7 Day 10 Year Low Flow	4.73	ft^3/s	66	66
30 Day 10 Year Low Flow	6.81	ft^3/s	54	54
90 Day 10 Year Low Flow	10.6	ft^3/s	41	41

The low flow statistics for the Paris Landfill Discharge Location are shown below:

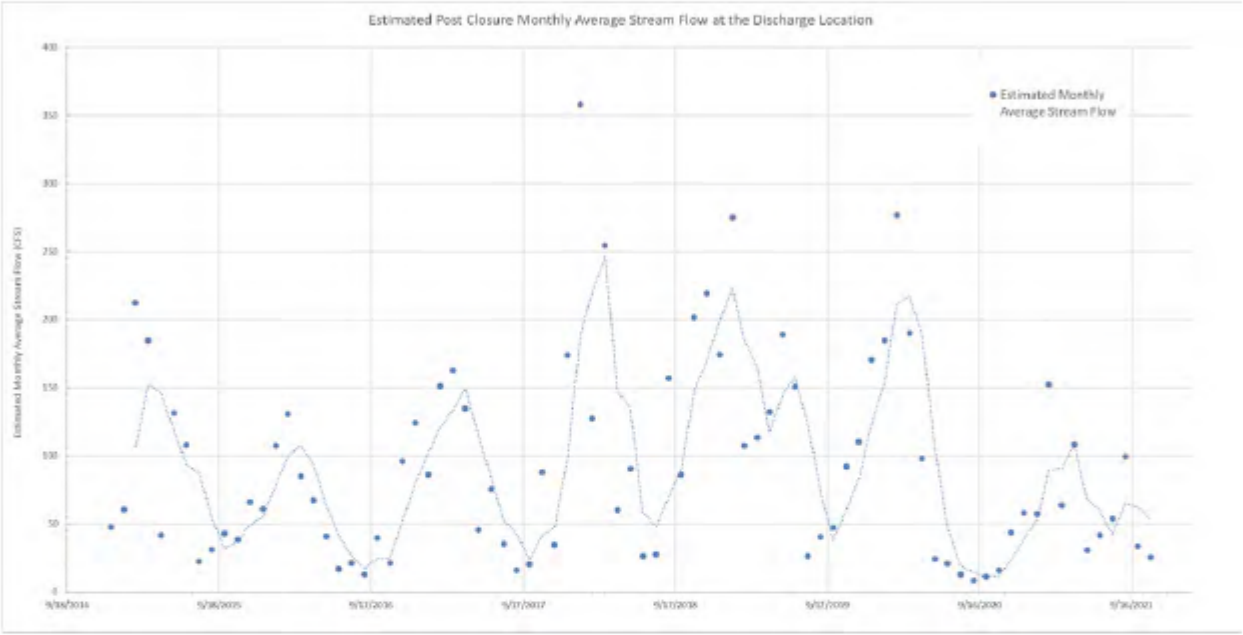
Low-Flow Statistics Flow Report [Low Flow Region 4]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	3.74	ft^3/s	43	43
30 Day 2 Year Low Flow	5.88	ft^3/s	38	38
7 Day 10 Year Low Flow	1.67	ft^3/s	66	66
30 Day 10 Year Low Flow	2.57	ft^3/s	54	54
90 Day 10 Year Low Flow	4.21	ft^3/s	41	41

Using the PADEP's StreamStats model for both the discharge and the gaging station, the discharge location has approximately 42% of the drainage area and median flows of the discharge location and an average of 38% of the statistical low flow values.

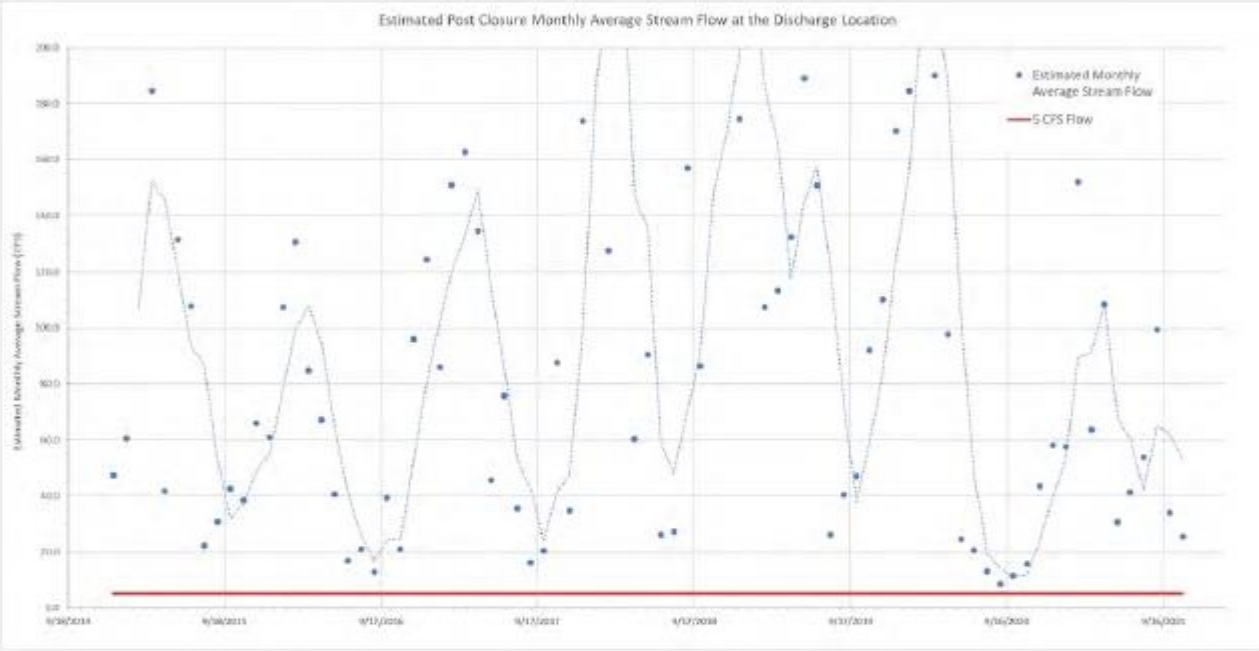
Average monthly stream flow data from the Moffatts Mill gaging station were used to estimate Raccoon Creek flows at the discharge location by multiplying the recorded flows by the average low flow ratio (0.38):



5.0 TOXIC MANAGEMENT SPREADSHEET MODELLING

Using the PADEP's Toxic Management Spreadsheet model, with the analytical data included with the original permit application and a discharge rate of 0.05 MGD in an iterative fashion, CEC calculated the minimum stream flows which would be required to provide sufficient dilution to the boron loading from the landfill discharge. Based on the Toxic Management Spreadsheet, a 4.25 cubic feet per second (CFS) flow in Raccoon Creek at the discharge location would provide an average monthly boron concentration limit above the highest sample results (89.5 mg/l versus the highest sample's 88.9 mg/l). A minimum flow of 5 CFS results in a calculated average monthly boron limit of 105 mg/l. Printouts for the Toxic Management Spreadsheet runs are included in Attachment B.

A minimum flow of 5 CFS relative to the estimated monthly average flows for Raccoon Creek is shown below:



As previously noted, the discharge from the closed facility is pumped with real time flow monitoring, and the discharge system includes a large basin, which can hold approximately 70 days of leachate production at the long-term average leachate discharge rate. Therefore, Paris has the ability to control the discharge rate, maintain the average discharge rate over extended time periods, and operate the holding pond with sufficient volume to hold leachate for an extended period of low flow in Raccoon Creek.

Based on these estimated flows, the results of the Toxics Management Spreadsheet analyses and the ability to manage the discharge from the Alex Paris Flyash Landfill, we believe that a stream flow based permit condition can be developed which could be reliably implemented and protective of the stream biotic community and potential recreational and fish consumption related human health.

Mr. Adam Olesnanik, Project Manager
CEC Project 324-728
Page 9
September 2, 2022

CEC appreciates the opportunity to provide these comments to the Draft NPDES Permit on behalf of Paris. Please contact us if you have any questions regarding these comments.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Scott Rasmussen
Principal

Robert C. Dlugos, P.G.
Principal

SR:RCD/ad:jg
Attachments

cc: Scott Putnam, Alex E. Paris Contracting Co., Inc.

P-324728.S2/P

Civil & Environmental Consultants, Inc.

January17, 2023

Mr. Adam Olesnanik, Project Manager
Clean Water Program
Pennsylvania Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania 15222-4745

Dear Mr. Olesnanik:

Subject: Revised Analysis
Proposed Discharge Flows
NPDES Permit Discharge
Paris Flyash Landfill
Application No. PA0091910
Hanover Township, Beaver County
CEC Project 324-728

On behalf of our client, Alex E. Paris Contracting Co., Inc. (Paris), Civil & Environmental Consultants, Inc. (CEC) presents the following additional information regarding flows from Outfall 001 at the Paris Flyash Landfill (NPDES Permit Application PA0091910). In response to a telephone message received after our December 13, 2022 Teams Conference, CEC has prepared additional flow analyses to develop a more conservative proposed controlled pumping plan for Outfall 001 based upon demonstrating a no reasonable potential flow scenario.

1.0 BACKGROUND

The draft permit contains a major special condition consisting of the requirement to perform a Toxics Reduction Evaluation (TRE) for selenium, arsenic, and boron. The final effluent limits for selenium, arsenic, and boron will become effective three (3) years after permit issuance.

A comparison of the Final Effluent Limits for these metals and the maximum and long-term average values provided in the permit renewal application are shown in the following table:

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2.0 FACILITY BACKGROUND

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Elevation (ft)	860
Slope	0.0049

3.0 MONTHLY AVERAGE FLOWS FROM OUTFALL 001

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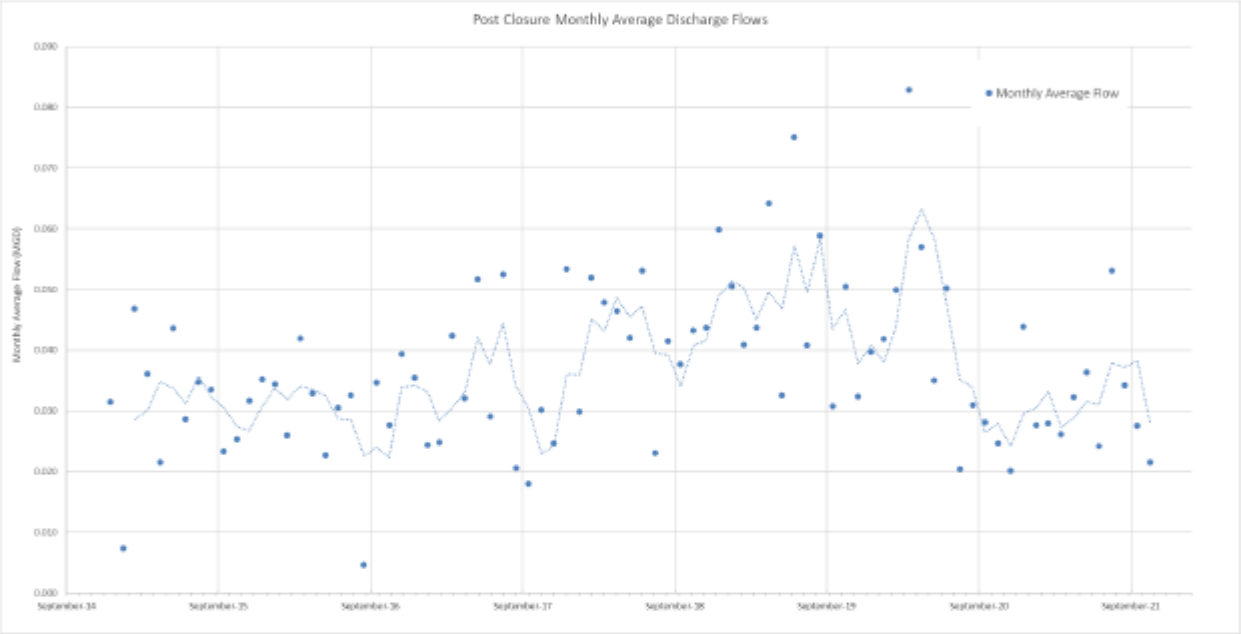
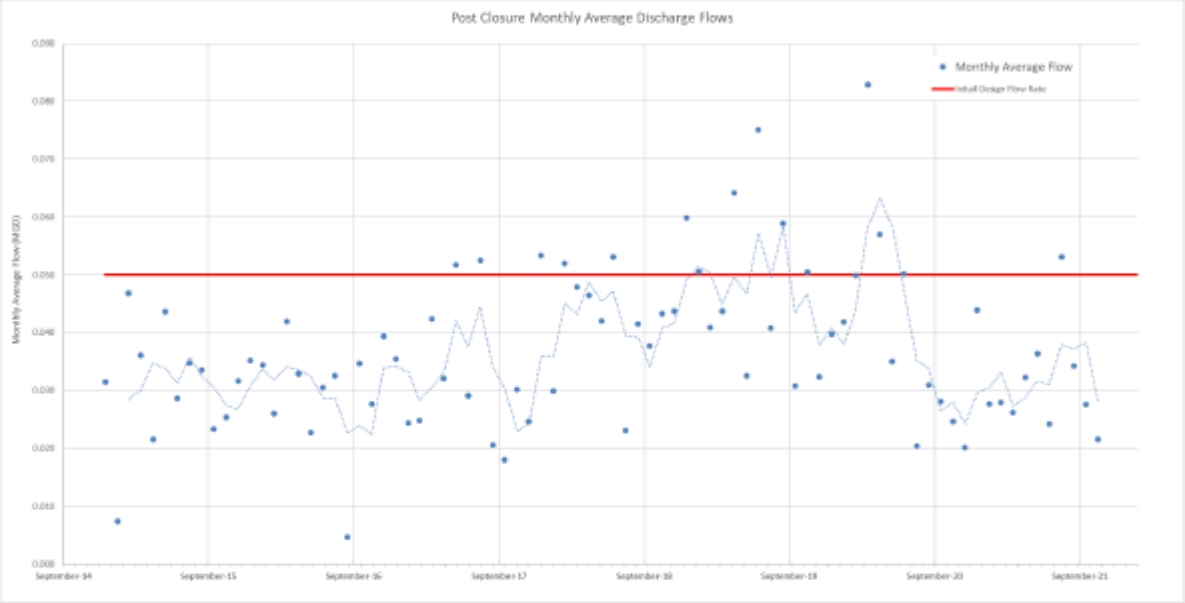


Long-term average and median average monthly flows for the entire monitoring period and the post-closure period were identical at 0.037 and 0.035 MGD, respectively.

Monthly rainfall totals from the National Oceanic and Atmospheric Association (NOAA) weather station at the Pittsburgh International Airport were compared to the monthly average discharge rates for Outfall 001. The data indicates a general correlation between rainfall and flow from the outfall.

In order to assess the impact of a pumping system which could provide a more consistent flow from Outfall 001, CEC considered a flow of 0.05 MGD as design discharge rate which would provide a more consistent flow to Raccoon and still have the capacity to maintain maximum water storage capacity in the current leachate collection pond:



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The low flow statistics for the Moffatts Mill Gaging Station Location are shown below:

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Statistic	Value	Unit	SE	ASEp
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30 Day 10 Year Low Flow	6.81	ft^3/s	54	54
90 Day 10 Year Low Flow	10.6	ft^3/s	41	41

The low flow statistics for the Paris Landfill Discharge Location are shown below:

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

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

Statistic	Value	Unit	SE	ASEp
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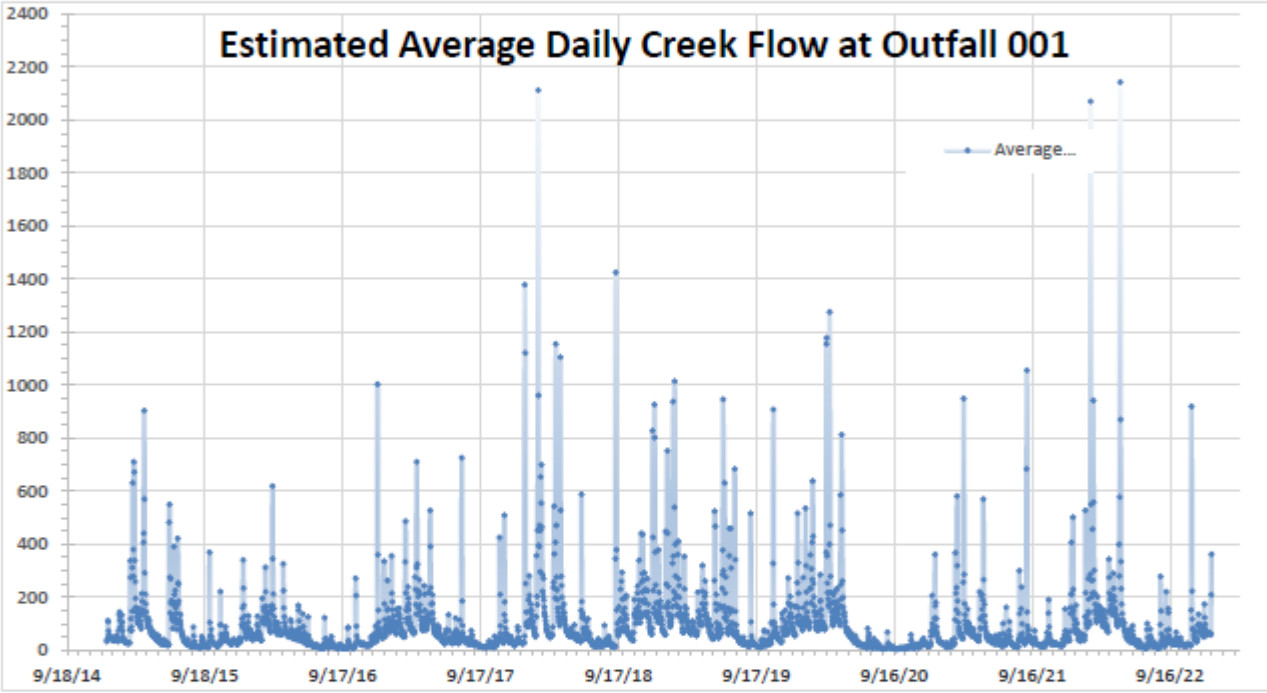
90 Day 10 Year Low Flow	4.21	ft^3/s	41	41

Using the PADEP's StreamStats model for both the discharge and the gaging station, the discharge location has approximately 42% of the drainage area and median flows of the discharge location and an average of 38% of the statistical low flow values.

Average daily stream flow data from the Moffatts Mill gaging station were used to estimate Raccoon Creek flows at the discharge location by multiplying the recorded flows by the average low flow ratio (0.38):



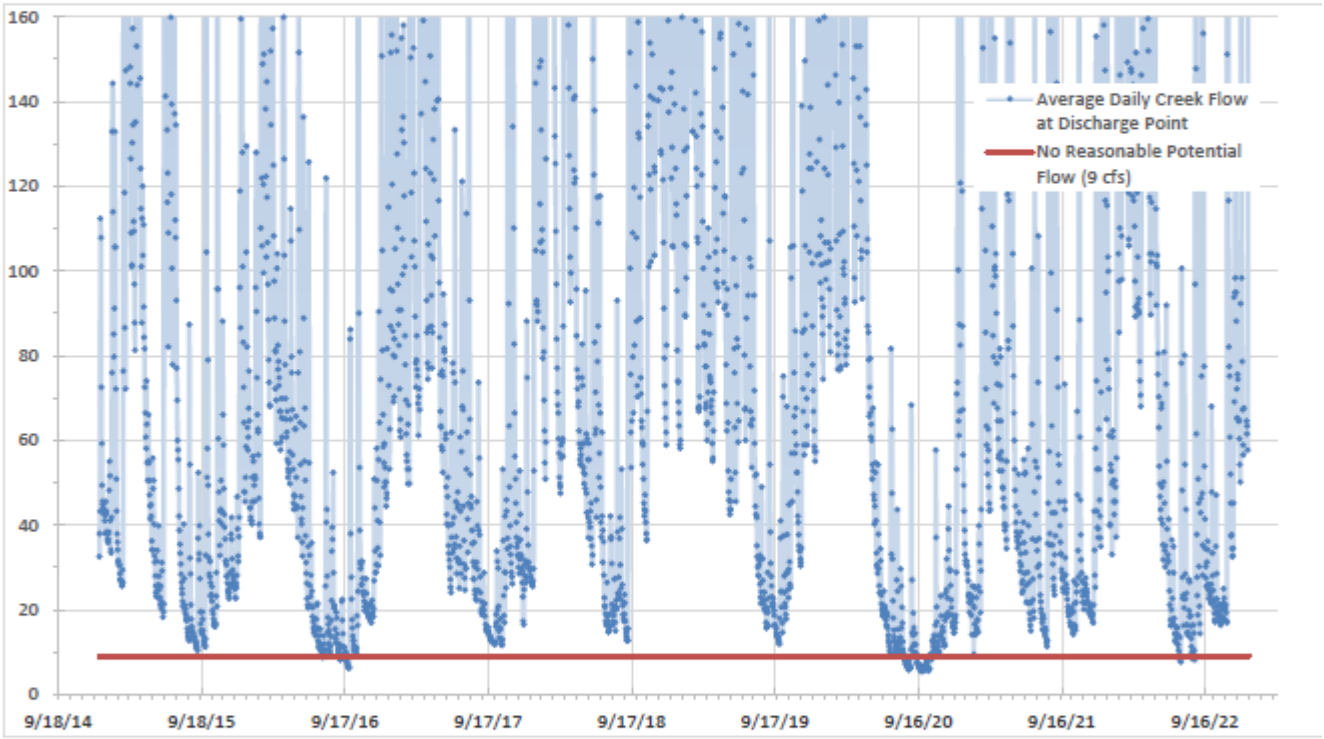
5.0 TOXIC MANAGEMENT SPREADSHEET MODELLING

As noted in the code of federal regulations (CFR) for the enforcement of the Clean Water Act, 40 CFR 122.4 (d) (1)(ii) states that: *"When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water."*

Using the PADEP's Toxic Management Spreadsheet model, with the analytical data included with the original permit application and a discharge rate of 0.05 MGD in an iterative fashion, CEC calculated the stream flow which would be required to provide sufficient dilution to the boron loading from the

landfill discharge to achieve a no Reasonable Potential scenario. Based on the Toxic Management Spreadsheet, a 9 cubic feet per second (CFS) flow in Raccoon Creek at the discharge location would provide a situation in which there would be no reasonable potential for an exceedance of the boron water quality criteria. A printout for the Toxic Management Spreadsheet run is included in Attachment A.

A minimum flow of 9 CFS relative to the daily average flows for Raccoon Creek at the discharge point is shown below:



As previously noted, the discharge system includes a large basin, which can hold approximately 70 days of leachate production at the long-term average leachate discharge rate. Therefore, Paris has the ability to control the discharge rate, maintain the average discharge rate over extended time periods, and operate the holding pond with sufficient volume to hold leachate for an extended period of low flow in Raccoon Creek.

Mr. Adam Olesnanik, Project Manager
CEC Project 324-728
Page 8
January 17, 2023

Based on these estimated flows, the results of the Toxics Management Spreadsheet analyses and the ability to manage the discharge from the Alex Paris Flyash Landfill, we believe the discharge represents a "control on the discharge" and the use of that control coupled with an appropriate and achievable "dilution of the effluent in the receiving water" which would meet the intent of 40 CFR 122.4.

CEC appreciates the opportunity to provide these comments to the Draft NPDES Permit on behalf of Paris. Please contact us if you have any questions regarding these comments.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Scott Rasmussen
Principal

Robert C. Dlugos, P.G.
Principal

SR:RCD/ad:jg
Attachment

cc: Scott Putnam, Alex E. Paris Contracting Co., Inc.

P-324728.Jan17/P

Olesnanik, Adam

From:	Olesnanik, Adam
Sent:	Tuesday, March 14, 2023 10:31 AM
To:	Rasmussen, Scott
Cc:	Alex Paris; Scott Putnam; Dlugos, Rob; Fifth, Michael
Subject:	RE: [External] Revised Discharge Flow Assessment Report; Draft Permit PA0091910

Hello Scott,

The Department has reviewed the Revised Discharge Flow Assessment Report for the Paris Flyash Landfill and has determined that we cannot accept Civil and Environmental Consultants' solution to determining applicable water quality limitations on the discharge from the Paris Flyash Landfill.

CEC's solution incorporates a real-time management approach for achieving WQBELs by only discharging when the stream flow is large enough that when using in the Department's Toxics Management Spread Sheet, no limitations would apply to the discharge. In this scenario, Alex E. Paris Contracting Co., Inc. would hold the leachate in ponds until such a time that the stream flow was great enough to discharge.

The Department cannot approve such an approach because it ignores the requirements is 25 Pa Code Chapter 96. 25 Pa Code 96.4(g) requires the Department to determine the WQBELs for receiving streams using Q_{7-10} Flows. The flow that CEC is suggesting that the Department use as the stream flow is not the Q_{7-10} at the discharge point. This method of managing flows on a real-time basis presents several problems, most notably compliance with Federal and State regulatory water quality standards. The Q7-10 design flow condition was not arbitrarily selected. It was designed to match the flow profile of natural free-flowing surface waters with the dose response toxicity profile of the pollutant, and thereby achieve the underlying frequency and duration components of the water quality criteria. Use of the steady-state Q7-10 design flow condition is the standard in NPDES permitting at both the State and Federal level for most pollutants. Real-time flow management is inconsistent with the underlying frequency and duration components of the water quality criteria and violates the criterion as surely as if the instream concentration exceeds the criterion magnitude. Failure to achieve the frequency and duration components of the water quality criteria has real-world consequences in terms of biological and other impacts.

However, the Department is willing to accept and re-evaluated the WQBELs in the Toxics Management Spreadsheet using the re-evaluated design flow from the report, 0.05 MGD. Using this discharge flow, the WQBELs are less stringent but Paris will still not be able to meet them upon permit issuance. Therefore, Paris will still need to evaluate the discharge and determine how it plans to achieve the new WQBELs. A few solutions that the Department would like to point out, other than installing treatment, would be re-routing the discharge to a point where the Q7-10 flow is great enough to handle the discharge or using a very reduced flow rate with additional storage.

If Paris doesn't have a solution in mind right now, and would like time to evaluate potential solutions, the Department can develop the NPDES permit with the WQBELs using the re-evaluated design flow and give Paris a compliance schedule. The new WQBELs wouldn't be effective upon permit issuance and the parameters would have reporting requirements until such time when the new limits become effective. If this is the route Paris wants to go, how much time would Paris need to achieve this limits?

Please respond back to this email within the next 30 days letting me know your thoughts and what Paris would like to do at this time.

Thank you,

1

Adam Olesnanik, E.I.T | Project Manager
Department of Environmental Protection | Clean Water Program
Southwest Regional Office
400 Waterfront Dr| Pgh, PA 15222
Phone: 412.442.4254
www.dep.pa.gov

From: Rasmussen, Scott <srasmussen@cecinc.com>
Sent: Tuesday, January 17, 2023 4:04 PM
To: Olesnanik, Adam <aolesnanik@pa.gov>; Fifth, Michael <mfifth@pa.gov>
Cc: Alex Paris <aparis@alexparis.com>; Scott Putnam <sputnam@alexparis.com>; Dlugos, Rob <rdlugos@cecinc.com>
Subject: [External] Revised Discharge Flow Assessment Report; Draft Permit PA0091910

Adam and Mike,

Attached is a revised analysis of the proposed discharge flows from the Alex Paris Flyash Landfill. We have developed a more conservative proposed pumping and management plan that we believe is both achievable using a combination of the existing facility and revised pumping equipment and, would concur with the intent of the No Reasonable Potential regulations detailed in 40 CFR 122.4.

Please call or email if you have any questions.

Thank you

Scott Rasmussen | *Principal*
Civil & Environmental Consultants, Inc.
4350 Northern Pike, Suite 141, Monroeville, PA 15146
direct 724.387.6359 **office** 724.327.5200 **mobile** 412.930.9436
www.cecinc.com

Civil & Environmental Consultants, Inc.

April 14, 2023

Mr. Adam Olesnanik, Project Manager
Clean Water Program
Pennsylvania Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania 15222-4745

Dear Mr. Olesnanik:

Subject: Response to Email
Proposed Discharge Flows
NPDES Permit Discharge
Paris Flyash Landfill
Application No. PA0091910
Hanover Township, Beaver County
CEC Project 324-728

On behalf of our client, Alex E. Paris Contracting Co., Inc. (Paris), Civil & Environmental Consultants, Inc. (CEC) presents the following response to the Pennsylvania Department of Environmental Protection's (PADEP's) email regarding the permitting of flows from Outfall 001 at the Paris Flyash Landfill (NPDES Permit Application PA0091910).

In an email received on March 14, 2023, the PADEP noted that it had reviewed the Revised Discharge Flow Assessment Report for the Paris Flyash Landfill and determined that they could not accept the proposed solution to determining applicable water quality limitations on the discharge from the Paris Flyash Landfill.

The proposed solution incorporated a real-time management approach for achieving Water Quality-based Effluent Limitations (WQBELs) by only discharging when the stream flow is large enough that when using in the PADEP's Toxics Management Spread Sheet, achievable limitations would apply to the discharge without the need for expensive, energy intensive, and waste producing advanced wastewater treatment. In this scenario, Paris would hold the leachate in ponds until such a time that the stream flow was great enough to discharge.

The PADEP indicated it could not approve such an approach because it "ignores the requirements in 25 Pa Code Chapter 96. 25 Pa Code 96.4(g) which requires the Department to determine the WQBELs for receiving streams using Q7-10 Flows". However, CEC notes that portion of the Pa Code actually states: "(g) Mathematical modeling at the design flow conditions listed in Table 1 shall be used *as applicable* (emphasis added) to develop TMDLs and WQBELs for point source discharges."

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Mr. Adam Olesnanik, Project Manager
CEC Project 324-728
Page 2
April 14, 2023

We also believe the discharge represents a "control on the discharge" and the use of that control coupled with an appropriate and achievable "dilution of the effluent in the receiving water" which would meet the intent of 40 CFR 122.44(d)(1)(ii):

"When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use *procedures which account for existing controls* (emphasis added) on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and *where appropriate, the dilution of the effluent in the receiving water* (emphasis added).

The draft permit contains a major special condition consisting of the requirement to perform a Toxics Reduction Evaluation (TRE) for selenium, arsenic, and boron. The final effluent limits for selenium, arsenic, and boron will become effective three (3) years after permit issuance.

On behalf of Paris, we would like to request a meeting with the appropriate PADEP technical staff to further explore workable solutions that would result in the protection of Raccoon Creek water quality without the requirement to build and maintain a costly and energy intensive advanced wastewater treatment plant. CEC appreciates the opportunity to provide these comments to the Draft NPDES Permit on behalf of Paris. Please contact us if you have any questions regarding these comments.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Scott Rasmussen
Principal

Robert C. Dlugos, P.G.
Principal

SR:RCD/jg

cc: Scott Putnam, Alex E. Paris Contracting Co., Inc.

L-324728.Apr14/P

Civil & Environmental Consultants, Inc.

July 18, 2023

Mr. Adam Olesnanik, Project Manager
Clean Water Program
Pennsylvania Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania 15222-4745

Dear Mr. Olesnanik:

Subject: Additional Information
Proposed Discharge Flows
NPDES Permit Discharge
Paris Flyash Landfill
Application No. PA0091910
Hanover Township, Beaver County
CEC Project 324-728

On behalf of our client, Alex E. Paris Contracting Co., Inc. (Paris), Civil & Environmental Consultants, Inc. (CEC) presents the following additional information in response to suggestions and questions raised during our Teams meeting on June 22, 2023 regarding the permitting of flows from Outfall 001 at the Paris Flyash Landfill (NPDES Permit Application PA0091910).

1.0 BACKGROUND

In an email received on March 14, 2023, the Pennsylvania Department of Environmental Protection (PADEP) noted that it had reviewed the Revised Discharge Flow Assessment Report for the Paris Flyash Landfill and determined that they could not accept the proposed solution to determining applicable water quality limitations on the discharge from the Paris Flyash Landfill.

The proposed solution incorporated a real-time management approach for achieving Water Quality-based Effluent Limitations (WQBELs) by only discharging when the stream flow is large enough that when using in the PADEP's Toxics Management Spreadsheet (TMS), achievable limitations would apply to the discharge without the need for expensive, energy intensive, and waste producing advanced wastewater treatment. In this scenario, Paris would hold the leachate in ponds until such a time that the stream flow was great enough to discharge.

The PADEP indicated it could not approve such an approach because it "ignores the requirements in 25 Pa Code Chapter 96. 25 Pa Code 96.4(g) which requires the Department to determine the WQBELs for receiving streams using Q7-10 Flows". CEC noted that portion of the Pa Code states: "(g) Mathematical modeling at the design flow conditions listed in Table 1 shall be used *as applicable* (emphasis added) to develop TMDLs and WQBELs for point source discharges."

During the Teams meeting, PADEP personnel indicated that they would consult with other technical staff at the PADEP Main Office for potential alternatives to having to consider only a 7Q10 flow in the receiving stream for input into the PADEP TMS model.

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PADEP also suggested that Paris investigate potential relationships between the discharges from the landfill, precipitation, and stream flows.

2.0 ADDITIONAL FLOW ANALYSES

As noted in previous correspondence, CEC used the U.S. Geological Survey (USGS) Stream Stats modelling and data from the USGS gaging station on Raccoon Creek at Moffatts Mill, Pennsylvania to estimate stream flows at the existing discharge location. This information was combined with historic monthly precipitation data from the National Oceanic and Atmospheric Association (NOAA) Online Weather Data for the Pittsburgh Station at the Pittsburgh International Airport. Graphs of the data are included in Attachment A.

Because the discharge pump at the Paris Flyash Landfill is currently manually controlled, the flows from the landfill do not correlate well with the estimated stream flows on either a daily or monthly basis (Graphs 1 and 2 in Attachment A). However, it should also be noted that the precipitation data from the nearest NOAA weather station (the Pittsburgh International Airport, located approximately 6.1 miles east of the discharge point) also does not correlate well with the estimated stream flow data (Graph 3). The other NOAA weather station in the region is located approximately 25.6 miles southwest of the discharge location.

3.0 ADDITIONAL FLOW MODELLING

CEC used the TMS model to calculate the stream flow which would be required to provide a discharge limitation for boron which would be a minimum of 20% higher than the maximum detected boron concentration in the landfill discharge (88.9 mg/l + 20% = 106.7 mg/l). This flow was converted to million gallons per day (MGD) so a ratio of the TMS derived flow to the monthly average discharge rate could be calculated. The TMS model run is included in Attachment B. The TMS calculated flow that would result in an effluent limit of at least 106.7 mg/l (actual 110.5 mg/l) is 4 cubic feet per second (CFS) which equals 2.58 MGD for a ratio of stream flow to discharge of 67.9:1.

As a back check, the Chapter 93 aquatic water quality standard for Boron is 1.6 mg/l; so, a minimum dilution of 106.7/1.6 = 66.7:1 would be required to dilute the discharge to the Chapter 93 standard for boron. This compares favorably to the modelled 67.9:1. The minimum dilution ratio (67.9:1) was then compared to the stream to discharge ratios calculated using average monthly discharge rates and stream flows from January 2011 to December 2022, the most recent monthly stream data available from USGS. This comparison is shown in Graphs 4 and 5 in Attachment A. Due to the high dilution ratios noted in some of the data, Graph 5 is an expanded version of Graph 4, showing the lowest calculated stream flow ratios. Graph 6 shows the results of the stream flow to discharge ratios if the overall discharge average of 0.038 MGD is used. The lowest estimated dilution ratio, based on the monthly flow data, is two and a half times the minimum modelled dilution ratio (172.8:1 versus the modelled 67.9:1). If discharge flows were fixed at the average flow rate, the estimated dilution ratio would be more than twice the minimum modelled dilution ratio (145.4:1 versus 67.9:1).

4.0 CONCLUSIONS

Because the existing pumped discharge at the landfill is manually operated, there is not a clear relationship between the dry periods of the year, represented by periods of lower stream flows and the pumping rates while the landfill pump operates. However, the lower frequency of pumping required to manage the collection of the landfill leachate is visible in Graph 1.

If the pump controls were changed to an average discharge rate (0.038 MGD or approximately 26 gallons per minute), then the risk of pumping at too high of a rate during the dry portions of the year would be minimized. In addition, it is reasonable to conclude that by working with a float system, the leachate collection pond would be pumped down during these periods and no discharge would occur.

We believe the enhanced management of the discharge with the pump rate limited to the long-term average discharge rate and a float system in the leachate collection pond represents a "control on the discharge" and the use of that control coupled with an appropriate and achievable "dilution of the effluent in the receiving water" which would meet the intent of 40 CFR 122.44(d)(1)(ii).

The draft permit contains a major special condition consisting of the requirement to perform a Toxics Reduction Evaluation (TRE) for selenium, arsenic, and boron. The final effluent limits for selenium, arsenic, and boron will become effective three (3) years after permit issuance.

On behalf of Paris, we would like to thank you for the June 22nd meeting with the PADEP technical staff to further explore workable solutions that would result in the protection of Raccoon Creek water quality without the requirement to build and maintain a costly and energy intensive advanced wastewater treatment plant. CEC appreciates the opportunity to provide this additional analysis on behalf of Paris and hopes it may be useful in your discussions with other PADEP technical staff. Please contact us if you have any questions regarding these comments.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Scott Rasmussen
Principal

Robert C. Dlugos, P.G.
Principal

SR:RCD/jg
Attachments

cc: Scott Putnam, Alex E. Paris Contracting Co., Inc.

L-324728.Jul18/P

Attachment B:

Outfall 001 Toxics Management Spreadsheet

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Paris Fly Ash Landfill** NPDES Permit No.: **PA0091910** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Flyash Leachate**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.038	5063	7.86						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		9640									
	Chloride (PWS)	mg/L		1150									
	Bromide	mg/L		15.6									
	Sulfate (PWS)	mg/L		3590									
	Fluoride (PWS)	mg/L		5.66									
Group 2	Total Aluminum	µg/L		25									
	Total Antimony	µg/L		4.5									
	Total Arsenic	µg/L		97									
	Total Barium	µg/L		33									
	Total Beryllium	µg/L	<	0.3									
	Total Boron	µg/L		88900									
	Total Cadmium	µg/L		0.82									
	Total Chromium (III)	µg/L		0.9									
	Hexavalent Chromium	µg/L	<	5									
	Total Cobalt	µg/L		1									
	Total Copper	µg/L		70									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		10									
	Dissolved Iron	µg/L		7									
	Total Iron	µg/L		147									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		162									
	Total Mercury	µg/L	<	0.04									
	Total Nickel	µg/L		2									
	Total Phenols (Phenolics) (PWS)	µg/L		6									
	Total Selenium	µg/L		29									
	Total Silver	µg/L	<	0.5									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L		6									
	Total Molybdenum	µg/L		1580									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Paris Fly Ash Landfill, NPDES Permit No. PA0091910, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: Raccoon Creek

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	033564	27.7	860	76.1	0.0049		Yes
End of Reach 1	033564	23.8	840	92..7	0.0049		Yes

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

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	27.7	0.0219448	1.67									100	7		
End of Reach 1	23.8	0.0228695	2.12												

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	27.7														
End of Reach 1	23.8														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Paris Fly Ash Landfill, NPDES Permit No. PA0091910, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.786 Analysis Hardness (mg/l): 312.84 Analysis pH: 7.02

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	17,488	
Total Antimony	0	0		0	1,100	1,100	25,650	
Total Arsenic	0	0		0	340	340	7,928	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	489,678	
Total Boron	0	0		0	8,100	8,100	188,876	
Total Cadmium	0	0		0	6.096	6.8	159	Chem Translator of 0.896 applied
Total Chromium (III)	0	0		0	1449.985	4,589	106,996	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	380	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	2,215	
Total Copper	0	0		0	39.361	41.0	956	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	217.884	349	8,131	Chem Translator of 0.625 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	38.4	Chem Translator of 0.85 applied
Total Nickel	0	0		0	1228.874	1,231	28,712	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	22.876	26.9	628	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	1,516	
Total Zinc	0	0		0	307.994	315	7,343	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): 24.303 PMF: 1 Analysis Hardness (mg/l): 268.76 Analysis pH: 7.01

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	6,470	
Total Arsenic	0	0		0	150	150	4,411	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	120,573	
Total Boron	0	0		0	1,600	1,600	47,053	
Total Cadmium	0	0		0	0.488	0.56	16.6	Chem Translator of 0.868 applied
Total Chromium (III)	0	0		0	166.555	194	5,695	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	306	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	559	
Total Copper	0	0		0	20.845	21.7	639	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	44,112	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	7.246	11.2	329	Chem Translator of 0.647 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	26.6	Chem Translator of 0.85 applied
Total Nickel	0	0		0	120.034	120	3,541	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	147	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	382	
Total Zinc	0	0		0	273.022	277	8,143	Chem Translator of 0.986 applied

☑ *THH* CCT (min): 24.303 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	165	
Total Arsenic	0	0		0	10	10.0	294	
Total Barium	0	0		0	2,400	2,400	70,579	
Total Boron	0	0		0	3,100	3,100	91,165	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	

Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	8,822	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	29,408	
Total Mercury	0	0		0	0.050	0.05	1.47	
Total Nickel	0	0		0	610	610	17,939	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	7.06	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): 7.303 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

Pollutants	*Mass Limits*		*Concentration Limits*				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Arsenic	Report	Report	Report	Report	Report	µg/L	294	THH	Discharge Conc > 10% WQBEL (no RP)
Total Boron	14.9	23.3	47,053	73,410	117,632	µg/L	47,053	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	613	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	147	CFC	Discharge Conc > 10% WQBEL (no RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	11,209	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	165	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	70,579	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Cadmium	16.6	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	5,695	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	244	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	559	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	8,822	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	44,112	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	329	µg/L	Discharge Conc < TQL
Total Manganese	29,408	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	1.47	µg/L	Discharge Conc < TQL
Total Nickel	3,541	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Silver	402	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	7.06	µg/L	Discharge Conc < TQL
Total Zinc	4,707	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS