pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0234010**
Facility Type	**Industrial**	APS ID	**1093760**
Major / Minor	**Minor**	Authorization ID	**1448973**

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

Applicant and Facility Information

Applicant Name	**The Pennsylvania Department of Transportation, Engineering District 2-0**	Facility Name	**I-99 ERPA Leachate Treatment Facility**
Applicant Address	70 PennDOT Drive Clearfield, PA 16830-6051	Facility Address	Worth Township Port Matilda, PA 16870
Applicant Contact	Thomas Prestash	Facility Contact	Steven Fantechi
Applicant Phone	(814) 765-0410	Facility Phone	(814) 765-0424
Client ID	62168	Site ID	743945
SIC Code	4953	Municipality	Worth Township
SIC Description	Trans. & Utilities - Refuse Systems	County	Centre
Date Application Received	July 26, 2023	EPA Waived?	Yes
Date Application Accepted	July 31, 2023	If No, Reason	
Purpose of Application	Renewal of an existing NPDES permit for the discharge of treated industrial waste.		

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.

Approve	Deny	Signatures	Date
X		Derek S. Garner / Project Manager	May 15, 2024
X		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	June 12, 204

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0045
Latitude	40º 49' 0.96"	Longitude	-78º 1' 52.01"
Quad Name	Port Matilda	Quad Code	40078
Wastewater Description:	IW Process Effluent without ELG		

Receiving Waters	Bald Eagle Creek (1)	Stream Code	22412
NHD Com ID	67180288	RMI	45.67
Drainage Area (mi^2)	36.4	Yield (cfs/mi^2)	0.018
Q_{7-10} Flow (cfs)	0.67	Q_{7-10} Basis	Streamgage No.01546000
Elevation (ft)	940	Slope (ft/ft)	n/a
Watershed No.	9-C	Chapter 93 Class.	TSF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	n/a		
Source(s) of Impairment	n/a		
TMDL Status	n/a	Name	n/a

Nearest Downstream Public Water Supply Intake	PA American Water Company		
PWS Waters	West Branch Susquehanna River	Flow at Intake (cfs)	679.73
PWS RMI	10.66	Distance from Outfall (mi)	100

(1) The discharge is to a forested wetland area upgradient of Bald Eagle Creek. This wetland was delineated prior to the original application submission in 2012 and is identified as “Wetland 17”. The point of first use (“POFU”) for this discharge is Bald Eagle Creek.

Facility Summary

During the test borings for the Interstate 99 (I-99) construction, PADOT missed the existence of (pyritic) acid rock in the future areas of disturbance. Following the I-99 construction, and as part of the acid rock drainage (ARD) remediation efforts, PADOT transported all the movable acid rock to a location known as the Engineered Rock Placement Area (ERPA). This immovable acid rock, needed for project stabilization and/or support, was left in place. To prevent future ARD, the immovable rock was covered with multiple layers of impermeable plastic, as well as lime kiln dust and synthetic webbing, to shield it from oxygen and precipitation. Prior to the construction of this Industrial Wastewater Treatment Facility (IWTF) leachate was pumped to an onsite storage tank and hauled offsite to an approved wastewater treatment facility. According to Skelly and Loy, the ERPA site was constructed to landfill specifications, including the leachate collection system. A liner system was included, which maintains an eight-foot separation between the bottom of the sub-base layer of the liner system and the top of the regional groundwater table. This system is designed to ensure that the pyritic rock stored within the area will not encounter the local groundwater.

The Department considers the leachate generated within the ERPA to be a residual waste. This leachate does not meet the definition of a hazardous waste and consists of leachate created by precipitation and/or groundwater which comes in contact with the naturally occurring pyritic materials. To treat this leachate, Skelly and Loy designed an IWTF consisting of Limestone Polishing Ponds (LPPs) and a settling pond, followed by an aerobic wetland. The passive treatment technology of the LPPs utilizes natural materials (high calcium carbonate limestone) to remove trace metals and suspended solids and to maintain appropriate pH levels prior to the discharge. This IWTF design was approved by Water Quality Management (WQM) permit #1412201, issued in November 2012. Existing leachate flows at the time of construction were 4,500 gallons per day (0.0045 MGD). Flow metering is employed.

Compliance History

The facility was most recently inspected by DEP on September 20, 2022 with a subsequent follow-up inspection on October 21, 2022. The September inspection report notes that there have been numerous effluent violations since the facility was last inspected. As a result of the numerous violations, the permitee submitted a corrective action plan ("CAP") dated September 22, 2021 that included plans for rehabilitation of the constructed wetland/finishing pond. Specifically, the existing compost media within the wetland will be removed and replaced with stone media and the existing liner will be replaced. The October follow-up inspection noted that the project was progressing with no deviations from the approved CAP.

A table has been attached (see Appendix B) citing numerous eDMR violations that have occurred during the existing permit's term. It appears that effluent violations have become less frequent after the abovementioned work was completed.

The following open violations are associated with the permittee:

Violation ID	Violation Date	Violation Code	Violation
853763	6/26/2019	C1A	Failure to meet design and construction standards
853764	6/26/2019	C1A	Failure to meet design and construction standards
8174388	2/5/2024	102.4(b)1	E&S Control Requirements - Person conducting earth disturbance activity failed to implement and maintain E & S BMPs to minimize the potential for accelerated erosion and sedimentation.
8174389	2/5/2024	102.5(A)	102 - Failure to obtain NPDES permit prior to commencing earth disturbance activity with at least one acre of disturbance
8174390	2/5/2024	CSL611	CSL - Failure to comply with DEP regulations or the Clean Streams Law

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0045
Latitude 40º 48' 57.5" **Longitude** -78º 1' 50.40"
Wastewater Description: IW Process Effluent without ELG

Effluent limits are the most stringent of technology-based effluent limitations ("TBELs"), water-quality based effluent limitations ("WQBELs"), or best professional judgment ("BPJ").

Technology-Based Limitations

Chapter 95 Industrial Waste Treatment Standards			
Parameter	**Limit (mg/l)**	**SBC**	**State Regulation**
pH (S.U.)	6.0	IMIN	95.2(1)
	9.0	IMAX	95.2(1)
Oil & Grease (1)	15	Average Monthly	95.2(2)
	30	IMAX	95.2(2)
Dissolved Iron (2)	7.0	IMAX	95.2(4)

(1) Oil and grease was not detected in the samples collected for the application and there doesn't appear to be potential for oil and grease to be introduced into the waste stream. Since there does not appear to be any potential to approach or exceed the abovementioned technology-based limits, DEP recommends that no limitations or reporting requirements for oil and grease are established in the permit.

(2) A maximum value of 0.405 mg/l was detected in the samples taken to satisfy existing permit requirements. Since the discharge does not demonstrate potential to approach or exceed the abovementioned technology-based limit, DEP recommends that the existing limit of 7 mg/l is removed from the permit.

Water Quality-Based Limitations

Water Quality Modeling

A water quality analysis was performed using the Toxics Management Spreadsheet v1.4 ("TMS"). Input data was either taken from sample results taken during the existing permit's term, or from the pollutant groups completed for the renewal application. If sample results were collected throughout the permit's term, the discrete results were entered into the TOXCONC spreadsheet to calculate an average monthly effluent concentration ("AMEC") and coefficient of variation ("CV"). The AMECs and CVs were then entered into TMS. If the pollutant group data was used, the TMS inputs were the reported maximum concentrations. TMS recommendations are as follows:

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Manganese	Report	Report	Report	Report	Report	mg/L	10.4	THH	Discharge Conc > 10% WQBEL (no RP)
Total Mercury	Report	Report	Report	Report	Report	µg/L	0.52	THH	Discharge Conc > 10% WQBEL (no RP)

TMDL

A Total Maximum Daily Load (TMDL) was developed for the West Branch Susquehanna River to address impairments noted in the 1996 PA 303(d) List. This stream is impaired for metals and pH caused by abandoned mine drainage (AMD). In order to comply with this TMDL, approved by EPA in 2009, the Department must limit the pollutants of concern to the water quality criteria values (specified in 25 PA § 93.7 and § 93.8c). By doing so, a proposed discharge cannot be expected to contribute to the impairment. As a major tributary to the West Branch Susquehanna River, Bald Eagle Creek must be held to the same quality standards. The existing permit contains limits for metals related to AMD set to criteria as follows (see next page):

Parameter	Limit (mg/l)	Basis
Total Aluminum	0.75	25 PA § 93.8c, TMDL
Total Iron	1.5	25 PA § 93.7, TMDL
Total Manganese	1.0	25 PA § 93.7, TMDL

eDMR data collected for these three parameters over the existing permit's term is summarized as follows:

Parameter	Average (mg/l)	Maximum (mg/l)	Limit (mg/l)
Total Aluminum	0.08	0.42	0.75
Total Iron	0.36	0.89	1.5
Total Manganese	0.45	2.2	1.0

As demonstrated by the chart above, the maximum sample results over the existing permit's term either approach (>50%) or exceed the limit. DEP recommends that the limits for these AMD-related metals remain in the permit. It should be noted that total aluminum's criterion of 0.75 mg/l is a maximum concentration; meaning, the average monthly and daily maximum limits should both be set to 0.75 mg/l to avoid water quality criteria exceedances. The previous permit incorrectly applied a multiplier to the average monthly concentration limit to develop the daily maximum concentration.

Best Professional Judgment (BPJ) Limitations

Since the ERPA site was built to landfill specifications, DEP utilized the Best Practicable Control (BPT) ELGs from 40 CFR § 445.21 (Non-Hazardous Waste Landfill). At the original permit issuance, DEP developed limitations for the parameters from the regulations that were present in the effluent. These are as follows:

Parameter	Limit (mg/l)	SBC
pH (S.U.)	6.0	IMIN
	9.0	IMAX
Total Zinc	0.11	Average Monthly
	0.2	Daily Maximum
Total Suspended Solids	27	Average Monthly
	88 (1)	Daily Maximum

(1) Instead of applying the daily maximum limit of 88 mg/l in 40 CFR § 445.21, the previous permits applied a 2x multiplier to the average monthly limit to get a daily maximum limit of 54 mg/l. DEP recommends the existing limit of 54 mg/l continues to be applied.

Additional Considerations

Total Dissolved Solids

DEP has developed "Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids (DEP #385-2100-002) to ensure that permitted facilities will comply with 25 PA § 95.10 (Treatment Requirements for New or Expanding Mass Loadings of TDS). As recommended by this guidance and in accordance with 25 PA § 95.10(a)(7), ERPA is classified as an "Exempt" facility since reported concentrations of TDS range from 344 mg/L (average) to 532 mg/L (maximum). This classification applies since the leachate is not related to natural gas wastewater and the discharge has no reasonable potential to challenge the daily TDS loadings as described in 25 PA § 95.10(a)(7) as equal to or less than 5,000 lb/day. DEP recommends the existing reporting requirements remain in the permit.

Chesapeake Bay

Per Phase 3 of the Wastewater Supplement to DEP's Chesapeake Bay Watershed Implementation Plan, this is a non-significant industrial wastewater discharge. It is not anticipated that this discharge will contribute a net loading increase of total nitrogen and total phosphorus to the watershed. Accordingly, per the Wastewater Supplement, no cap loads or reporting requirements for total nitrogen or total phosphorus are necessary.

Anti-Backsliding

Per 40 CFR 122.44(l)(2)(i)(B)(1), which allows for less stringent requirements when taking into consideration data that was not available at the time of previous permit issuance, and based on samples collected during the existing permit's term, DEP has recommended the following parameters be removed from the permit: dissolved iron, total arsenic, total

copper, and total thallium. DEP also recommends that total mercury remains in the permit, but that the numerical limits are replaced with reporting requirements.

Existing Effluent Limitations and Monitoring Requirements

The existing effluent limitations and monitoring requirements are as follows:

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	Report Inst Min	XXX	XXX	Report	1/week	Grab
Total Suspended Solids	1.0	2.0	XXX	27.0	54.0	65	2/month	24-Hr Composite
Total Dissolved Solids	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Aluminum, Total	0.03	0.06	XXX	0.75	1.50	1.87	2/month	24-Hr Composite
Arsenic, Total	0.0004	0.001	XXX	0.01	0.02	0.025	2/month	24-Hr Composite
Copper, Total	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Iron, Dissolved	XXX	XXX	XXX	XXX	XXX	7.0	2/month	Grab
Iron, Total	0.06	0.11	XXX	1.5	3.0	3.7	2/month	24-Hr Composite
Manganese, Total	0.04	0.08	XXX	1.0	2.0	2.5	2/month	24-Hr Composite
Mercury, Total (ug/L)	0.0000019	0.0000038	XXX	0.05	0.10	0.13	2/month	24-Hr Composite
Thallium, Total	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Zinc, Total	0.004	0.008	XXX	0.11	0.20	0.25	2/month	24-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

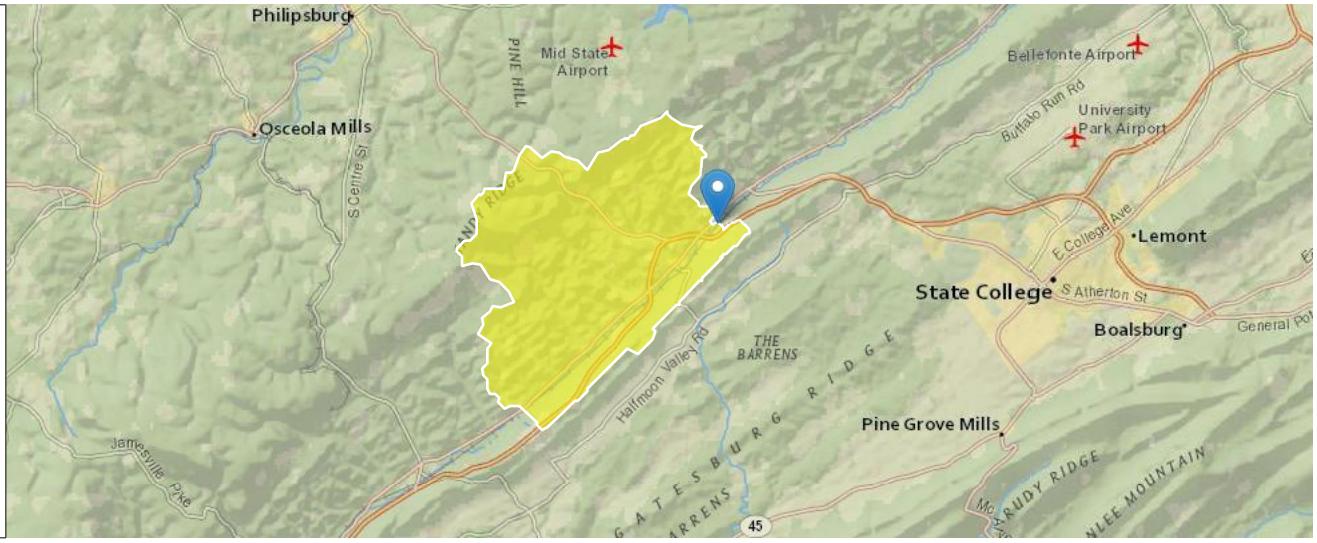
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are generally determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
Total Suspended Solids	1.0	2.0	XXX	27.0	54.0	65	2/month	24-Hr Composite
Total Dissolved Solids	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Aluminum, Total	0.03	0.03	XXX	0.75	0.75	0.75	2/month	24-Hr Composite
Iron, Total	0.06	0.11	XXX	1.5	3.0	3.7	2/month	24-Hr Composite
Manganese, Total	0.04	0.08	XXX	1.0	2.0	2.5	2/month	24-Hr Composite
Mercury, Total (ug/L)	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Zinc, Total	0.004	0.008	XXX	0.11	0.20	0.25	2/month	24-Hr Composite

Compliance Sampling Location: Outfall 001

APPENDIX A
Q7-10 DEVELOPMENT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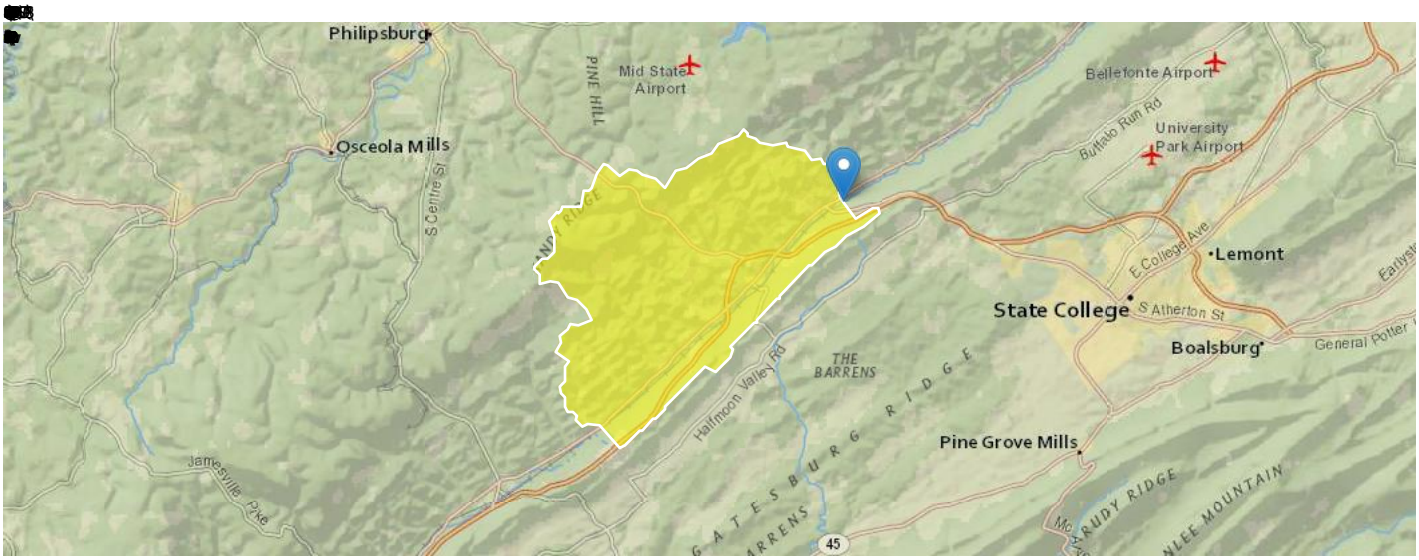
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Lemont
State College
S Atherton St
Boalsburg
General Potter
THE BARRENS
Halfmoon Valley Rd
Pine Grove Mills
Jamestown Pike
RUDY RIDGE
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USGS
science for a changing world

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Open-File Report 2011-1070

U.S. Department of the Interior
U.S. Geological Survey

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi^2, square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi^2)	Regulated[1]
01541303	West Branch Susquehanna River at Hyde, Pa.	41.005	-78.457	474	Y
01541308	Bradley Run near Ashville, Pa.	40.509	-78.584	6.77	N
01541500	Clearfield Creek at Dimeling, Pa.	40.972	-78.406	371	Y
01542000	Moshannon Creek at Osceola Mills, Pa.	40.850	-78.268	68.8	N
01542500	WB Susquehanna River at Karthaus, Pa.	41.118	-78.109	1,462	Y
01542810	Waldy Run near Emporium, Pa.	41.579	-78.293	5.24	N
01543000	Driftwood Branch Sinnemahoning Creek at Sterling Run, Pa.	41.413	-78.197	272	N
01543500	Sinnemahoning Creek at Sinnemahoning, Pa.	41.317	-78.103	685	N
01544000	First Fork Sinnemahoning Creek near Sinnemahoning, Pa.	41.402	-78.024	245	Y
01544500	Kettle Creek at Cross Fork, Pa.	41.476	-77.826	136	N
01545000	Kettle Creek near Westport, Pa.	41.320	-77.874	233	Y
01545500	West Branch Susquehanna River at Renovo, Pa.	41.325	-77.751	2,975	Y
01545600	Young Womans Creek near Renovo, Pa.	41.390	-77.691	46.2	N
01546000	North Bald Eagle Creek at Milesburg, Pa.	40.942	-77.794	119	N
01546400	Spring Creek at Houserville, Pa.	40.834	-77.828	58.5	N
01546500	Spring Creek near Axemann, Pa.	40.890	-77.794	87.2	N
01547100	Spring Creek at Milesburg, Pa.	40.932	-77.786	142	N
01547200	Bald Eagle Creek below Spring Creek at Milesburg, Pa.	40.943	-77.786	265	N
01547500	Bald Eagle Creek at Blanchard, Pa.	41.052	-77.604	339	Y
01547700	Marsh Creek at Blanchard, Pa.	41.060	-77.606	44.1	N
01547800	South Fork Beech Creek near Snow Shoe, Pa.	41.024	-77.904	12.2	N
01547950	Beech Creek at Monument, Pa.	41.112	-77.702	152	N
01548005	Bald Eagle Creek near Beech Creek Station, Pa.	41.081	-77.549	562	Y
01548500	Pine Creek at Cedar Run, Pa.	41.522	-77.447	604	N
01549000	Pine Creek near Waterville, Pa.	41.313	-77.379	750	N
01549500	Blockhouse Creek near English Center, Pa.	41.474	-77.231	37.7	N
01549700	Pine Creek below Little Pine Creek near Waterville, Pa.	41.274	-77.324	944	Y
01550000	Lycoming Creek near Trout Run, Pa.	41.418	-77.033	173	N
01551500	WB Susquehanna River at Williamsport, Pa.	41.236	-76.997	5,682	Y
01552000	Loyalsock Creek at Loyalsockville, Pa.	41.325	-76.912	435	N
01552500	Muncy Creek near Sonestown, Pa.	41.357	-76.535	23.8	N
01553130	Sand Spring Run near White Deer, Pa.	41.059	-77.077	4.93	N
01553500	West Branch Susquehanna River at Lewisburg, Pa.	40.968	-76.876	6,847	Y
01553700	Chillisquaque Creek at Washingtonville, Pa.	41.062	-76.680	51.3	N
01554000	Susquehanna River at Sunbury, Pa.	40.835	-76.827	18,300	Y
01554500	Shamokin Creek near Shamokin, Pa.	40.810	-76.584	54.2	N
01555000	Penns Creek at Penns Creek, Pa.	40.867	-77.048	301	N
01555500	East Mahantango Creek near Dalmatia, Pa.	40.611	-76.912	162	N
01556000	Frankstown Branch Juniata River at Williamsburg, Pa.	40.463	-78.200	291	N
01557500	Bald Eagle Creek at Tyrone, Pa.	40.684	-78.234	44.1	N
01558000	Little Juniata River at Spruce Creek, Pa.	40.613	-78.141	220	N
01559000	Juniata River at Huntingdon, Pa.	40.485	-78.019	816	LF
01559500	Standing Stone Creek near Huntingdon, Pa.	40.524	-77.971	128	N
01559700	Sulphur Springs Creek near Manns Choice, Pa.	39.978	-78.619	5.28	N
01560000	Dunning Creek at Belden, Pa.	40.072	-78.493	172	N

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01546000	1912–1934	17	1.8	2.2	6.8	3.7	12.1	11.2
01546400	1986–2008	23	13.5	14.0	19.6	15.4	22.3	18.7
01546500	1942–2008	67	26.8	29.0	41.3	31.2	44.2	33.7
01547100	1969–2008	40	102	105	128	111	133	117
01547200	1957–2008	52	99.4	101	132	106	142	115
01547500	[2]1971–2008	38	28.2	109	151	131	172	153
01547500	[3]1956–1969	14	90.0	94.9	123	98.1	131	105
01547700	1957–2008	52	.5	.6	2.7	1.1	3.9	2.2
01547800	1971–1981	11	1.6	1.8	2.4	2.1	2.9	3.5
01547950	1970–2008	39	12.1	13.6	28.2	17.3	36.4	23.8
01548005	[2]1971–2000	25	142	151	206	178	241	223
01548005	[3]1912–1969	58	105	114	147	125	165	140
01548500	1920–2008	89	21.2	24.2	50.1	33.6	68.6	49.3
01549000	1910–1920	11	26.0	32.9	78.0	46.4	106	89.8
01549500	1942–2008	67	.6	.8	2.5	1.4	3.9	2.6
01549700	1959–2008	50	33.3	37.2	83.8	51.2	117	78.4
01550000	1915–2008	94	6.6	7.6	16.8	11.2	24.6	18.6
01551500	[2]1963–2008	46	520	578	1,020	678	1,330	919
01551500	[3]1901–1961	61	400	439	742	523	943	752
01552000	1927–2008	80	20.5	22.2	49.5	29.2	69.8	49.6
01552500	1942–2008	67	.9	1.2	3.1	1.7	4.4	3.3
01553130	1969–1981	13	1.0	1.1	1.5	1.3	1.8	1.7
01553500	[2]1968–2008	41	760	838	1,440	1,000	1,850	1,470
01553500	[3]1941–1966	26	562	619	880	690	1,090	881
01553700	1981–2008	28	9.1	10.9	15.0	12.6	17.1	15.2
01554000	[2]1981–2008	28	1,830	1,990	3,270	2,320	4,210	3,160
01554000	[3]1939–1979	41	1,560	1,630	2,870	1,880	3,620	2,570
01554500	1941–1993	53	16.2	22.0	31.2	25.9	35.7	31.4
01555000	1931–2008	78	33.5	37.6	58.8	43.4	69.6	54.6
01555500	1931–2008	78	4.9	6.5	18.0	9.4	24.3	16.6
01556000	1918–2008	91	43.3	47.8	66.0	55.1	75.0	63.7
01557500	1946–2008	63	2.8	3.2	6.3	4.2	8.1	5.8
01558000	1940–2008	69	56.3	59.0	79.8	65.7	86.2	73.7
01559000	1943–2008	66	104	177	249	198	279	227
01559500	1931–1958	28	9.3	10.5	15.0	12.4	17.8	15.8
01559700	1963–1978	16	.1	.1	.2	.1	.3	.2
01560000	1941–2008	68	8.5	9.4	15.6	12.0	20.2	16.2
01561000	1932–1958	27	.4	.5	1.6	.8	2.5	1.7
01562000	1913–2008	96	64.1	67.1	106	77.4	122	94.5
01562500	1931–1957	27	1.1	1.6	3.8	2.3	5.4	3.7
01563200	[2]1974–2008	35	—	—	—	112	266	129
01563200	[3]1948–1972	25	10.3	28.2	86.1	64.5	113	95.5
01563500	[2]1974–2008	35	384	415	519	441	580	493
01563500	[3]1939–1972	34	153	242	343	278	399	333
01564500	1940–2008	69	3.6	4.2	10.0	6.2	14.4	10.6

Low-Flow (Q_{7-10}) Calculation

Facility: **I-99 ERPA Leachate Treatment Facility**
NPDES Permit No. **PA0234010**

Gage Information

Drainage Area: **119** mi^2
Q_{7-10}: **2.2** cfs
LFY: **0.018** cfsm

Outfall Information

Drainage Area: **36.4** mi^2
Q_{7-10}: **0.67** cfs

Downstream Locations

RMI: **43.96**
Drainage Area: **40.9** mi^2
Q_{7-10}: **0.756** cfs

RMI:
Drainage Area: mi^2
Q_{7-10}: cfs

RMI:
Drainage Area: mi^2
Q_{7-10}: c s

RMI:
Drainage Area: mi^2
Q_{7-10}: cfs

RMI:
Drainage Area: mi^2
Q_{7-10}: c s

RMI:
Drainage Area: mi^2
Q_{7-10}: cfs

RMI:
Drainage Area: mi^2
Q_{7-10}: c s

RMI:
Drainage Area: mi^2
Q_{7-10}: cfs

APPENDIX B
eDMR VIOLATIONS

Submission Date	Noncompliance Description	Parameter	Sample Value	Violation Condition	Permit Value	Unit	SBC
8/28/2019	Violation of permit condition	Manganese, Total	1.7	>	1	mg/L	Average Monthly
11/26/2019	Violation of permit condition	Manganese, Total	1.1	>	1	mg/L	Average Monthly
12/23/2019	Violation of permit condition	Aluminum, Total	< 0.08	>	0.03	lbs/day	Average Monthly
12/23/2019	Violation of permit condition	Aluminum, Total	0.2	>	0.06	lbs/day	Daily Maximum
12/23/2019	Violation of permit condition	Arsenic, Total	< 0.0010	>	0.0004	lbs/day	Average Monthly
12/23/2019	Violation of permit condition	Arsenic, Total	< 0.003	>	0.001	lbs/day	Daily Maximum
12/23/2019	Violation of permit condition	Iron, Total	0.2	>	0.06	lbs/day	Average Monthly
12/23/2019	Violation of permit condition	Iron, Total	0.3	>	0.11	lbs/day	Daily Maximum
12/23/2019	Violation of permit condition	Manganese, Total	0.1	>	0.04	lbs/day	Average Monthly
12/23/2019	Violation of permit condition	Manganese, Total	0.2	>	0.08	lbs/day	Daily Maximum
12/23/2019	Violation of permit condition	Mercury, Total	0.000002	>	0.0000019	lbs/day	Average Monthly
12/23/2019	Violation of permit condition	Mercury, Total	0.000005	>	0.0000038	lbs/day	Daily Maximum
12/23/2019	Violation of permit condition	Total Suspended Solids	4.2	>	1	lbs/day	Average Monthly
12/23/2019	Violation of permit condition	Total Suspended Solids	8.4	>	2	lbs/day	Daily Maximum
7/28/2020	Violation of permit condition	Manganese, Total	1.4	>	1	mg/L	Average Monthly
11/25/2020	Violation of permit condition	Aluminum, Total	< 0.05	>	0.03	lbs/day	Average Monthly
11/25/2020	Violation of permit condition	Aluminum, Total	< 0.10	>	0.06	lbs/day	Daily Maximum
11/25/2020	Violation of permit condition	Arsenic, Total	< 0.0100	>	0.0004	lbs/day	Average Monthly
11/25/2020	Violation of permit condition	Arsenic, Total	< 0.020	>	0.001	lbs/day	Daily Maximum
11/25/2020	Violation of permit condition	Manganese, Total	0.2	>	0.04	lbs/day	Average Monthly
11/25/2020	Violation of permit condition	Manganese, Total	0.4	>	0.08	lbs/day	Daily Maximum
11/25/2020	Violation of permit condition	Total Suspended Solids	< 1.5	>	1	lbs/day	Average Monthly
11/25/2020	Violation of permit condition	Total Suspended Solids	3	>	2	lbs/day	Daily Maximum
11/25/2020	Violation of permit condition	Zinc, Total	0.005	>	0.004	lbs/day	Average Monthly
11/25/2020	Violation of permit condition	Zinc, Total	0.01	>	0.008	lbs/day	Daily Maximum
12/24/2020	Violation of permit condition	Arsenic, Total	< 0.0005	>	0.0004	lbs/day	Average Monthly
1/28/2021	Violation of permit condition	Arsenic, Total	< 0.0030	>	0.0004	lbs/day	Average Monthly
1/28/2021	Violation of permit condition	Arsenic, Total	< 0.005	>	0.001	lbs/day	Daily Maximum
1/28/2021	Violation of permit condition	Iron, Total	0.08	>	0.06	lbs/day	Average Monthly
1/28/2021	Violation of permit condition	Manganese, Total	0.1	>	0.04	lbs/day	Average Monthly
1/28/2021	Violation of permit condition	Manganese, Total	0.2	>	0.08	lbs/day	Daily Maximum
1/28/2021	Violation of permit condition	Total Suspended Solids	< 1.2	>	1	lbs/day	Average Monthly
3/30/2021	Late DMR Submission	---	---	---	---	---	---
4/29/2021	Late DMR Submission	---	---	---	---	---	---
6/24/2021	Violation of permit condition	Manganese, Total	1.7	>	1	mg/L	Average Monthly
6/24/2021	Violation of permit condition	Manganese, Total	2.34	>	2	mg/L	Daily Maximum
9/29/2021	Violation of permit condition	Arsenic, Total	< 0.0005	>	0.0004	lbs/day	Average Monthly
9/29/2021	Violation of permit condition	Manganese, Total	0.09	>	0.04	lbs/day	Average Monthly
9/29/2021	Violation of permit condition	Manganese, Total	0.3	>	0.08	lbs/day	Daily Maximum
9/29/2021	Violation of permit condition	Manganese, Total	1.2	>	1	mg/L	Average Monthly
9/29/2021	Late DMR Submission	---	---	---	---	---	---
11/23/2021	Violation of permit condition	Arsenic, Total	< 0.0020	>	0.0004	lbs/day	Average Monthly
11/23/2021	Violation of permit condition	Arsenic, Total	< 0.0040	>	0.001	lbs/day	Daily Maximum
11/23/2021	Violation of permit condition	Iron, Total	0.2	>	0.06	lbs/day	Average Monthly
11/23/2021	Violation of permit condition	Iron, Total	0.4	>	0.11	lbs/day	Daily Maximum
11/23/2021	Violation of permit condition	Manganese, Total	0.2	>	0.04	lbs/day	Average Monthly
11/23/2021	Violation of permit condition	Manganese, Total	0.3	>	0.08	lbs/day	Daily Maximum
11/23/2021	Violation of permit condition	Total Suspended Solids	1.9	>	1	lbs/day	Average Monthly
11/23/2021	Violation of permit condition	Total Suspended Solids	3.8	>	2	lbs/day	Daily Maximum
11/23/2021	Violation of permit condition	Zinc, Total	< 0.005	>	0.004	lbs/day	Average Monthly
11/23/2021	Violation of permit condition	Zinc, Total	< 0.010	>	0.008	lbs/day	Daily Maximum
12/21/2021	Violation of permit condition	Aluminum, Total	< 1.00	>	0.03	lbs/day	Average Monthly
12/21/2021	Violation of permit condition	Aluminum, Total	< 2.94	>	0.06	lbs/day	Daily Maximum
12/21/2021	Violation of permit condition	Arsenic, Total	< 0.0040	>	0.0004	lbs/day	Average Monthly
12/21/2021	Violation of permit condition	Arsenic, Total	< 0.010	>	0.001	lbs/day	Daily Maximum
12/21/2021	Violation of permit condition	Iron, Total	< 0.40	>	0.06	lbs/day	Average Monthly
12/21/2021	Violation of permit condition	Iron, Total	< 0.90	>	0.11	lbs/day	Daily Maximum
12/21/2021	Violation of permit condition	Manganese, Total	0.2	>	0.04	lbs/day	Average Monthly
12/21/2021	Violation of permit condition	Manganese, Total	0.5	>	0.08	lbs/day	Daily Maximum
12/21/2021	Violation of permit condition	Total Suspended Solids	< 1.5	>	1	lbs/day	Average Monthly
12/21/2021	Violation of permit condition	Total Suspended Solids	< 2.3	>	2	lbs/day	Daily Maximum
12/21/2021	Violation of permit condition	Zinc, Total	< 0.010	>	0.004	lbs/day	Average Monthly
12/21/2021	Violation of permit condition	Zinc, Total	< 0.030	>	0.008	lbs/day	Daily Maximum
1/26/2022	Violation of permit condition	Arsenic, Total	< 0.0005	>	0.0004	lbs/day	Average Monthly
4/25/2022	Violation of permit condition	Arsenic, Total	< 0.0020	>	0.0004	lbs/day	Average Monthly
4/25/2022	Violation of permit condition	Arsenic, Total	< 0.005	>	0.001	lbs/day	Daily Maximum
4/25/2022	Violation of permit condition	Iron, Total	< 0.08	>	0.06	lbs/day	Average Monthly
4/25/2022	Violation of permit condition	Iron, Total	< 0.20	>	0.11	lbs/day	Daily Maximum
4/25/2022	Violation of permit condition	Zinc, Total	< 0.010	>	0.008	lbs/day	Daily Maximum
5/27/2022	Violation of permit condition	Arsenic, Total	< 0.0020	>	0.0004	lbs/day	Average Monthly
5/27/2022	Violation of permit condition	Arsenic, Total	0.006	>	0.001	lbs/day	Daily Maximum
5/27/2022	Violation of permit condition	Manganese, Total	0.1	>	0.08	lbs/day	Daily Maximum
5/27/2022	Violation of permit condition	Total Suspended Solids	1.3	>	1	lbs/day	Average Monthly
5/27/2022	Violation of permit condition	Total Suspended Solids	3.7	>	2	lbs/day	Daily Maximum
9/28/2022	Violation of permit condition	Manganese, Total	2.2	>	1	mg/L	Average Monthly
9/28/2022	Violation of permit condition	Manganese, Total	3.76	>	2	mg/L	Daily Maximum
10/29/2022	Violation of permit condition	Arsenic, Total	< 0.0006	>	0.0004	lbs/day	Average Monthly
10/29/2022	Violation of permit condition	Iron, Total	0.1	>	0.06	lbs/day	Average Monthly
10/29/2022	Violation of permit condition	Iron, Total	0.2	>	0.11	lbs/day	Daily Maximum
10/29/2022	Violation of permit condition	Manganese, Total	0.1	>	0.04	lbs/day	Average Monthly
10/29/2022	Violation of permit condition	Manganese, Total	0.3	>	0.08	lbs/day	Daily Maximum
10/29/2022	Violation of permit condition	Total Suspended Solids	< 1.1	>	1	lbs/day	Average Monthly
10/29/2022	Late DMR Submission	---	---	---	---	---	---
11/30/2022	Late DMR Submission	---	---	---	---	---	---
1/5/2023	Late DMR Submission	---	---	---	---	---	---
2/10/2023	Late DMR Submission	---	---	---	---	---	---
3/6/2023	Late DMR Submission	---	---	---	---	---	---
3/30/2023	Late DMR Submission	---	---	---	---	---	---
6/29/2023	Violation of permit condition	Mercury, Total	< 0.00001000	>	0.0000019	lbs/day	Average Monthly
6/29/2023	Violation of permit condition	Mercury, Total	< 0.0000200	>	0.0000038	lbs/day	Daily Maximum
6/29/2023	Violation of permit condition	Mercury, Total	< 0.06	>	0.05	ug/L	Average Monthly
6/29/2023	Late DMR Submission	---	---	---	---	---	---
7/31/2023	Violation of permit condition	Mercury, Total	< 0.0000040	>	0.0000019	lbs/day	Average Monthly
7/31/2023	Violation of permit condition	Mercury, Total	< 0.000008000	>	0.0000038	lbs/day	Daily Maximum
7/31/2023	Late DMR Submission	---	---	---	---	---	---
9/14/2023	Late DMR Submission	---	---	---	---	---	---
10/30/2023	Late DMR Submission	---	---	---	---	---	---
11/29/2023	Late DMR Submission	---	---	---	---	---	---
1/29/2024	Late DMR Submission	---	---	---	---	---	---
2/29/2024	Late DMR Submission	---	---	---	---	---	---

APPENDIX C
WATER QUALITY MODELING

Facility: I-99 ERPA Leachate Treatment Facility
NPDES #: PA0234010
Outfall No: 001
n (Samples/Month): 4
Reviewer/Permit Engineer: Derek Garner

Parameter Name	Aluminum, Total	Arsenic, Total	Copper, Total	Iron, Dissolved	Iron, Total	Manganese, Total		Thallium, Total	TDS	Zinc, Total	Mercury, Total
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg/L	µg/L
Detection Limit	0.435	0.008	0.01	0.2	0.2			0.02		0.02	0.0932
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*										
	0.07	ND	ND	ND	0.12	0.1		ND	341	0.008	0.0011
	0.17	ND	ND	0.07	0.33	0.21		ND	417	0.012	0.001
	0.09	ND	ND	0.08	0.22	0.35		ND	360	0.012	0.0024
	ND	ND	ND	0.1	0.4	1.63		ND	377	0.02	0.004
	0.13	ND	ND	0.14	0.81	1.93		ND	360	0.021	0.0042
	0.07	ND	ND	0.09	0.3	0.65		ND	374	0.013	0.00024
	ND	ND	ND	0.05	0.23	1.06		ND	388	0.011	0.007
	0.58	ND	ND	0.19	1.03	1.84		ND	405	0.014	0.0031
	0.28	ND	ND	0.05	0.59	0.39		ND	551	0.007	0.009
	0.06	ND	ND	0.12	0.38	0.27		ND	515	0.018	0.002
	0.08	ND	ND	ND	0.15	0.11		ND	448	0.01	0.002
	0.05	ND	ND	0.05	0.19	0.11		ND	422	0.007	ND
	ND	ND	ND	ND	0.2	0.15		ND	411	0.012	ND
	ND	ND	ND	ND	0.14	0.33		ND	378	0.11	0.002
	0.12	ND	ND	0.13	0.76	1.38		ND	376	0.02	0.0014
	ND	ND	ND	0.19	0.9	1.55		ND	364	0.012	0.002
	ND	ND	0.005	ND	0.14	0.63		ND	337	0.006	0.0021
	ND	0.006	ND	0.08	0.2	0.9		ND	694	0.008	0.003
	ND	ND	ND	0.06	0.11	0.38		ND	686	0.01	0.0014
	0.09	ND	ND	0.07	0.21	0.11		ND	498	0.011	0.0012
	0.09	0.005	0.005	0.06	0.47	0.57		ND	534	0.009	0.0003
	ND	ND	ND	ND	0.09	0.12		ND	475	0.006	ND
	0.06	ND	ND	ND	0.22	0.19		ND	331	0.007	0.001
	ND	ND	ND	ND	0.334	0.35		ND	690	ND	0.0002
	ND	ND	ND	ND	0.5	2.34		ND	372	ND	0.0021
	ND	ND	ND	ND	0.255	0.669		ND	1470	ND	0.0024
	ND	ND	ND	ND	0.283	0.523		ND	394	ND	0.0017
	ND	ND	ND	0.203	0.83	1.47		ND	402	ND	0.0018
	0.154	ND	ND	ND	0.31	0.262		ND	336	ND	0.001
	ND	ND	ND	ND	0.0224	0.578		ND	414	ND	ND
	1.04	ND	ND	ND	0.562	0.3		ND	386	ND	ND
	0.0785	ND	ND	ND	0.608	0.312		ND	436	ND	0.0016
	0.06	ND	ND	ND	0.569	0.32		ND	464	0.0145	ND
	0.0942	ND	ND	ND	0.37	0.276		ND	308	0.0238	ND
	ND	ND	ND	ND	ND	0.157		ND	304	ND	ND
	0.0543	0.00863	ND	ND	0.185	0.229		ND	322	ND	0.0012
	0.0435	0.00699	ND	ND	0.85	1.32		ND	348	ND	0.0018
	0.0761	0.01	ND	0.218	0.912	1.08		ND	468	ND	0.002
	ND	ND	ND	ND	0.462	0.777		ND	266	ND	0.0012
	ND	0.00599	ND	0.187	0.578	3.76		ND	298	ND	0.0021
	ND	0.00426	ND	0.207	0.752	1.02		ND	532	ND	0.0013
	ND	ND	ND	ND	0.483	0.267		ND	412	0.0499	ND
	0.137	ND	ND	ND	0.289	0.16		ND	434	ND	0.0015
	0.0457	0.00714	ND	ND	0.237	0.135		ND	444	ND	0.002
	0.0557	ND	ND	ND	0.191	0.0857		ND	362	ND	0.005
	ND	0.0051	ND	ND	0.484	0.226		ND	366	0.0185	0.000856
	0.0636	ND	ND	ND	0.416	0.398		ND	392	0.0119	0.00159
	ND	ND	ND	ND	0.62	0.546		ND	432	ND	0.00118
	ND	ND	ND	ND	0.33	0.506		ND	314	ND	ND
	0.0162	ND	ND	ND	ND	0.0991		ND	436	ND	ND
	0.0196	0.00509	ND	ND	ND	0.404		ND	382	ND	0.000901
	0.00931	ND	ND	ND	ND	0.333		ND	378	ND	0.000627
	ND	0.00556	ND	ND	0.195	0.203		ND	362	0.00225	0.001
	0.0189	ND	ND	ND	0.223	0.0571		ND	440	0.00285	0.00108
	0.0396	ND	ND	0.405	0.414	0.432		ND	498	0.0394	0.00082
	ND	ND	ND	ND	0.856	0.459		ND	524	0.00855	0.000932
	0.0711	ND	ND	0.215	0.389	0.238		ND	338	0.00626	0.00189
	0.0351	ND	ND	ND	0.468	0.161		ND	364	0.00669	0.000686

Reviewer/Permit Engineer: Derek Garner

Facility: I-99 ERPA Leachate Treatment Facility
NPDES #: PA0234010
Outfall No: 001
n (Samples/Month): 4

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Aluminum, Total (mg/L)	Delta-Lognormal	0.7471023	0.4819968
Arsenic, Total (mg/L)	Delta-Lognormal	0.1254978	0.0083296
Copper, Total (mg/L)	Delta-Lognormal	0.0928334	0.0100000
Iron, Dissolved (mg/L)	Delta-Lognormal	0.3611916	0.2419801
Iron, Total (mg/L)	Delta-Lognormal	0.6948909	0.8433226
Manganese, Total (mg/L)	Lognormal	1.2013894	1.8906211
Thallium, Total (mg/L)	Delta-Lognormal	#DIV/0!	#DIV/0!
TDS (mg/L)	Lognormal	0.2665894	580.4175201
Zinc, Total (mg/L)	Delta-Lognormal	0.5925445	0.0305555
Mercury, Total (µg/L)	Delta-Lognormal	1.8582368	0.0932000

Discharge Information

Instructions | Discharge | Stream

Facility: **I-99 ERPA Leachate Treatment Facility** NPDES Permit No.: **PA0234010** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **I-99 ERPA 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
0.045	350	7						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		580.41752			0.2666						
	Chloride (PWS)	mg/L		7.45									
	Bromide	mg/L	<	0.072									
	Sulfate (PWS)	mg/L		119									
	Fluoride (PWS)	mg/L		0.65									
Group 2	Total Aluminum	mg/L		0.4819968			0.7471						
	Total Antimony	µg/L	<	0.348									
	Total Arsenic	mg/L		0.0083296			0.1255						
	Total Barium	µg/L		210									
	Total Beryllium	µg/L	<	0.676									
	Total Boron	µg/L	<	56.5									
	Total Cadmium	µg/L	<	0.123									
	Total Chromium (III)	µg/L		1.99									
	Hexavalent Chromium	µg/L	<	0.25									
	Total Cobalt	µg/L		0.404									
	Total Copper	mg/L		0.01			0.0928						
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	6									
	Dissolved Iron	mg/L		0.2419801			0.3612						
	Total Iron	mg/L		0.6948909			0.8433						
	Total Lead	µg/L	<	0.172									
	Total Manganese	mg/L		1.8906211			1.2014						
	Total Mercury	µg/L		0.0932			1.8582						
	Total Nickel	µg/L		3.23									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	2.5									
	Total Silver	µg/L	<	0.274									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	mg/L		0.0305555			0.5925						
	Total Molybdenum	µg/L		0.529									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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

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

Stream / Surface Water Information

I-99 ERPA Leachate Treatment Facility, NPDES Permit No. PA0234010, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Bald Eagle Creek**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	022412	45.67	940	36.4			Yes
End of Reach 1	022412	43.96	906	40.9			Yes

Q *7-10*

Location	RMI	LFY (cfs/mi²)*	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	45.67	0.018										602	7		
End of Reach 1	43.96	0.018										602	7		

Q *h*

Location	RMI	LFY (cfs/mi²)	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	45.67														
End of Reach 1	43.96														

Model Results

I-99 ERPA Leachate Treatment Facility, NPDES Permit No. PA0234010, Outfall 001

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All ( ) Inputs ( ) Results ( ) Limits

☑ ***Hydrodynamics***

Q 7-10

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
45.67	0.66		0.66	0.07	0.004	0.53	17.606	33.232	0.078	1.345	14.671
43.96	0.74		0.736								

Q h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
45.67	5.13		5.13	0.07	0.004	1.261	17.606	13.959	0.234	0.446	4.758
43.96	5.685		5.69								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 14.671 PMF: 1 Analysis Hardness (mg/l): 577.8 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	7,809	
Total Antimony	0	0		0	1,100	1,100	11,453	
Total Arsenic	0	0		0	340	340	3,540	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	218,647	
Total Boron	0	0		0	8,100	8,100	84,335	
Total Cadmium	0	0		0	11.048	12.7	132	Chem Translator of 0.871 applied
Total Chromium (III)	0	0		0	2396.560	7,584	78,963	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	170	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	989	
Total Copper	0	0		0	70.164	73.1	761	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	407.718	761	7,929	Chem Translator of 0.535 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	17.1	Chem Translator of 0.85 applied
Total Nickel	0	0		0	2065.029	2,069	21,544	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	65.716	77.3	805	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	677	
Total Zinc	0	0		0	517.973	530	5,514	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 14.671 PMF: 1 Analysis Hardness (mg/l): 577.8 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	2,291	
Total Arsenic	0	0		0	150	150	1,562	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	42,688	
Total Boron	0	0		0	1,600	1,600	16,659	
Total Cadmium	0	0		0	0.829	0.99	10.3	Chem Translator of 0.836 applied
Total Chromium (III)	0	0		0	311.743	362	3,774	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	108	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	198	
Total Copper	0	0		0	40.090	41.8	435	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	15,618	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	15.888	29.7	309	Chem Translator of 0.535 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	9.43	Chem Translator of 0.85 applied
Total Nickel	0	0		0	229.361	230	2,395	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	51.9	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	135	
Total Zinc	0	0		0	522.210	530	5,514	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 14.671 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	58.3	
Total Arsenic	0	0		0	10	10.0	104	
Total Barium	0	0		0	2,400	2,400	24,988	
Total Boron	0	0		0	3,100	3,100	32,276	
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	3,124	
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	10,412	
Total Mercury	0	0		0	0.050	0.05	0.52	
Total Nickel	0	0		0	610	610	6,351	
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	2.5	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 4.758 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

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Manganese	Report	Report	Report	Report	Report	mg/L	10.4	THH	Discharge Conc > 10% WQBEL (no RP)
Total Mercury	Report	Report	Report	Report	Report	µg/L	0.52	THH	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	6.32	mg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	0.1	mg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	24,988	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	16,659	µg/L	Discharge Conc < TQL
Total Cadmium	10.3	µg/L	Discharge Conc < TQL
Total Chromium (III)	3,774	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	108	µg/L	Discharge Conc < TQL
Total Cobalt	198	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	0.32	mg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	3.12	mg/L	Discharge Conc ≤ 10% WQBEL

Total Iron	15.6	mg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	309	µg/L	Discharge Conc < TQL
Total Nickel	2,395	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	51.9	µg/L	Discharge Conc < TQL
Total Silver	516	µg/L	Discharge Conc < TQL
Total Thallium	2.5	µg/L	Discharge Conc < TQL
Total Zinc	3.87	mg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS