Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0009229**
Facility Type	**Industrial**	APS ID	**45615**
Major / Minor	**Minor**	Authorization ID	**1479008**

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

Applicant and Facility Information

Applicant Name	**Norfolk Southern Railway Company**	Facility Name	**Norfolk Southern Enola Train Yard**
Applicant Address	650 W Peachtree Street NW PO Box 27	Facility Address	218 N Enola Road
	Atlanta, GA 30308-1925		Enola, PA 17025-2413
Applicant Contact	Terri Allen	Facility Contact	Kirk Bradley
Applicant Phone	(404) 904-5122	Facility Phone	(717) 418-4265
Client ID	87064	Site ID	251626
SIC Code	4011	Municipality	East Pennsboro Township
SIC Description	Trans. & Utilities - Railroads, Line-Haul Operating	County	Cumberland
Date Application Received	April 2, 2024	EPA Waived?	No
Date Application Accepted	April 17, 2024	If No, Reason	Significant CB Discharge
Purpose of Application	NPDES Permit Renewal.		

Summary of Review

Norfolk Southern Railway Co. (NSRC) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on September 30, 2019 and became effective on October 1, 2019. The permit expired on September 30, 2024 but the terms and conditions of the permit have been extended since that time.

Based on the review, it is recommended that the permit be drafted.

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		Jinsu Kim Jinsu Kim / Environmental Engineering Specialist	January 22, 2025
x		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	January 28, 2025
x		Maria D. Bebenek Maria D. Bebenek, P.E. / Program Manager	January 28, 2025

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.5
Latitude	40º 17' 19"	Longitude	-76º 55' 21"
Quad Name	Harrisburg West	Quad Code	1630
Wastewater Description:	Treated industrial waste, Sewage, and Stormwater		
Receiving Waters	Susquehanna River	Stream Code	06685
NHD Com ID	56402771	RMI	73.7
Drainage Area	23,600 sq.mi.	Yield (cfs/mi^2)	0.116
Q_{7-10} Flow (cfs)	2730	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-B	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	See Comments		
Cause(s) of Impairment	See Comments		
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Steelton Borough		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	68.36	Distance from Outfall (mi)	5.3

Drainage Area
The discharge is to Susquehanna River at RMI 73.7. A drainage area upstream of the point of discharge is estimated to be 23,600 sq.mi. according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow
USGS StreamStats produced a Q7-10 flow of 2,730 cfs (are-averaged) at the point of discharge, resulting a low flow yield of 2730 cfs / 23,600 sq.mi. = 0.116 cfs/sq.mi.

Susquehanna River
Under 25 Pa Code §93.9o, Susquehanna River from Juniata River to PA-MD State Border is designated as warm water fishes and supports migratory fishes. No special protection water is therefore impacted by this discharge and no Class A Wild Trout fishery is impacted by this discharge. DEP's 2016 integrated water quality report indicates that the Susquehanna River at the point of discharge has not yet been assessed for aquatic life use, is supporting for recreational use and is impaired for fish consumption use due to PCB. All permit requirements will be developed for the upcoming permit renewal to ensure that the discharge will not contribute or cause to any impairment.

Public Water Supply Intake
The fact sheet prepared during the last permit reissuance indicated that the nearest downstream potable public water supply intake is the Steelton Borough located on the Susquehanna River, approximately 5.3 miles from the discharge. Given the fact that the intake is located on the other side of the river bank and significant dilution available within the river, the discharge is not expected to significantly impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Norfolk Southern Enola				
WQM Permit No.	**Issuance Date**			
2112202	07/19/2012			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Industrial	Tertiary	Sedimentation/Flocculation/ Filtration	Sodium Hypochlorite	0.5
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.5	N/A	N/A	Dewatering/Press	Landfill

NSRC owns and operates the Enola Yard located in East Pennsboro Township, Cumberland County. At this site, NSRC performs the servicing, repair, fueling, and lubrication of diesel electric locomotives (locomotive shop) and the inspection and repair of railcars (car repair shop). The Standard Industrial Classification (SIC) Codes of 4011 and 4013 are applicable to this facility. NSRC does not perform electroplating, electroless plating, anodizing, coating, chemical etching and milling, and printed circuit board manufacturing at this site. According to the application, NSRC currently has a minor source operating permit from DEP Air Quality Program and Storage Tank Registration/Permitting Authorization from DEP Storage Tank Program.

All wastewater generated by industrial operations as well as stormwater drained from the site are currently being treated via an on-site wastewater treatment plant (WWTP) operated by NSRC. The breakdown of the flow composition is as follows:

- Locomotive Shop: 4000 gpd (primarily cleaning/washing locomotives and facility itself); sanitary 1,200 gpd;
- Locomotive Inbound Facility: 2000 gpd (cleaning and flushing etanks);
- Car Repair Shop? 1000 gpd (mainly due to washing the facility floors, etc, soap and water); sanitary 300 gpd;
- Transportation and MOW welfare building: 150 people on a daily basis, showers, toilets, etc – 1,800 gpd;
- Approximately 90 acres of stormwater drains to WWTP.

All non-stormwater flow totals about 0.0103 MGD. Effluent discharged via the outfall which is composed of mostly stormwater runoff from the facility.

The WWTP mainly utilizes sedimentation, flocculation and filtration treatment processes at this time. According to the application, the WWTP currently consists of an inlet basin/separator for oil removal, grit chambers for sediment removal, flash mixers along with flocculation basins and settling tanks for flocculation, and Dissolved Air Flotation (DAF) system and Carbon Filtration System for additional solids removal. Two (2) chlorine contact tanks with liquid sodium hypochlorite are utilized for disinfection. Two (2) sludge storage tanks, thickener and filter press are available for sludge process. Filter cake from filter press is sent to Republic Services landfill for ultimate disposal. A 10,000-gallon waste oil tank is available and an equalization tank with pump station was installed to accommodate flows during elevated flow periods (i.e., flow greater than 420 GPM). The Water Quality Management (WQM) permit no. 2112202 was issued on July 19, 2012 to construct this 1,000,000-gallon equalization tank and associated diversion channel, pump station and controls to operate system.

Compliance History	
Summary of DMRs:	A summary of past 12 months DMR data is presented on the next page.
Summary of Inspections:	07/24/2024: DEP conducted a routine inspection. No significant issues were found at the time of inspection.
Other Comments:	DEP's record shows that the facility had a number of permit violations since the last permit reissuance. These violations are shown below. There is a number of open violations associated with this permittee or facility. A draft permit cover letter will include that the final permit may not be issued until all violations are resolved and closed.

Permit Violations Since Last Permit Reissuance

Date	Description	Parameter	Results	Limits	Units	SBC
10/1/2019	Unauthorized Discharges					
5/1/2020	Sample collection less frequent than required					
1/1/2021	Violation of permit condition	Carbonaceous Biochemical Oxygen Demand (CBOD5)	67.2	50	mg/L	Daily Maximum
7/1/2021	Unauthorized Discharges					
9/1/2021	Unauthorized Discharges					
9/1/2021	Unauthorized Discharges					
5/1/2022	Unauthorized Discharges					
9/1/2022	Unauthorized Discharges					
10/1/2022	Violation of permit condition	Total Nitrogen (Total Load, lbs)	< 2557	2539	lbs	Total Annual
5/1/2023	Unauthorized Discharges					
5/1/2023	Violation of permit condition	Oil and Grease	16.9	15	mg/L	Daily Maximum

Effluent Data

DMR Data for Outfall 001 (from December 1, 2023 to November 30, 2024)

Parameter	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23
Flow (MGD) Average Monthly	0.082607	0.122405	0.97251	0.222692	0.114130	0.142853	0.2196313	0.231953	0.19858831	0.1667506	0.274193	0.181689
Flow (MGD) Daily Maximum	0.143142	0.324805	0.120819	1.632364	0.221591	0.274188	0.378194	1.122115	0.305536	0.329803	0.768786	0.361926
pH (S.U.) Instantaneous Minimum	7.54	7.39	6.62	7.14	7.3	7.2	7.29	7.31	7.22	7.22	7.25	7.07
pH (S.U.) Instantaneous Maximum	8.54	8.13	8.41	7.7	7.61	7.77	7.69	8.18	7.62	7.8	7.6	7.9
DO (mg/L) Instantaneous Minimum	7.59	8.53	7.61	7.63	6.55	7.49	8.0	6.83	8.04	8.73	8.06	8.03
TRC (mg/L) Average Monthly	< 0.02	< 0.01	0.1	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
TRC (mg/L) Daily Maximum	0.17	0.03	0.07	0.03	0.09	0.06	0.08	0.03	0.03	0.04	0.11	0.01
CBOD5 (lbs/day) Average Monthly	< 1.79	< 2.29	< 1.68	< 9.32	< 1.83	< 3.35	< 4.28	25.91	7.97	6.88	< 14.23	< 3.5
CBOD5 (lbs/day) Daily Maximum	2.67	4.6	2.01	42.20	< 2.28	< 4.3	< 6.06	71.12	11.89	9.66	30.53	< 3.61
CBOD5 (mg/L) Average Monthly	< 2.37	< 2.04	< 2.08	< 2.25	< 2.0	< 2.33	< 2.72	9.22	4.6	4.52	< 3.9	< 2.13
CBOD5 (mg/L) Daily Maximum	3.1	2.2	2.2	3.1	< 2.0	3.3	3.8	14.0	5.6	6.4	5.7	2.5
TSS (lbs/day) Average Monthly	< 4.55	< 5.52	< 4.75	< 17.70	< 7.46	< 8.58	< 8.52	< 31.97	27.44	< 16.07	< 36.91	< 9.15
TSS (lbs/day) Daily Maximum	6.89	< 10.46	7.03	68.07	13.66	10.75	< 15.15	102.94	20.20	21.63	107.12	< 13.2
TSS (mg/L) Average Monthly	< 6.0	< 5.0	< 5.75	< 5.67	< 8.0	< 6.0	< 5.0	< 9.2	15.75	< 11.0	< 9.83	< 5.5
TSS (mg/L) Daily Maximum	8.0	5.0	7.0	7.0	12.0	9.0	< 5.0	15.0	46.0	16.0	20.0	6.0
Total Dissolved Solids (lbs/day) Average Monthly	466.09	465.12	428.98	1605.45	484.1	697.17	759.45	1170.24	1805.68	751.57	1530.88	732.67
Total Dissolved Solids (lbs/day) Daily Maximum	706.8	836.45	532.37	6480.22	646.42	886.19	1224.04	3312.89	4828.39	973.37	2080.31	1145.39

Parameter	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23
Total Dissolved Solids (mg/L) Average Monthly	610	431.2	529.25	474.17	524	479	466.8	413.6	1060	485.2	417.33	435
Total Dissolved Solids (mg/L) Daily Maximum	865	496	554	528	568	536	560	458	2820	540	472	468
Oil and Grease (lbs/day) Average Monthly	< 2.46	< 4.21	< 3.03	< 5.18	< 3.85	< 5.78	< 6.26	< 15.27	< 7.77	< 5.78	< 10.95	< 1.78
Oil and Grease (lbs/day) Daily Maximum	< 3.19	< 7.95	< 3.72	8.02	< 5.07	< 7.96	< 10.91	45.86	12.01	< 7.3	< 23.72	< 2.64
Oil and Grease (mg/L) Daily Maximum	< 3.7	4.1	< 3.8	4.3	< 5.5	4.2	< 3.8	4.9	7.8	< 3.8	4.2	< 1.2
Fecal Coliform (No./100 ml) Average Monthly	14.25	2.0	< 1.32	13.33	< 1.86	33.63	< 6.59	82.04	< 3.35	< 1	2.78	2.58
Fecal Coliform (No./100 ml) Instantaneous Maximum	96	16	3.0	59.0	12	649	115	1730	126	< 1	20	11
Nitrate-Nitrite (mg/L) Average Monthly	0.5	0.26	0.2	0.28	0.32	0.33	5.13	1.56	2.47	2.32	2.9	2.02
Nitrate-Nitrite (lbs) Total Monthly	10.25	8.31	3.98	25.65	8.97	12.65	353.56	140.79	127.41	93.18	298.17	129.12
Total Nitrogen (mg/L) Average Monthly	4.61	2.09	2.04	2.28	2.7	2.4	6.55	< 8.66	4.11	4.46	4.78	3.2
Total Nitrogen (lbs) Effluent Net Total Monthly	< 82.49	< 65.18	42.75	213.49	75.47	71.97	422.89	< 259.92	210.68	178	467.05	199.52
Total Nitrogen (lbs) Total Monthly	82.49	65.18	42.75	< 213.49	75.47	71.97	422.89	< 259.92	210.68	178	467.05	199.52
Total Nitrogen (lbs) Effluent Net Total Annual			< 2347									
Total Nitrogen (lbs) Total Annual			< 2347									
Ammonia (mg/L) Average Monthly	1.18	< 0.7	0.31	< 1.03	1.55	1.14	< 0.7	0.48	0.55	0.65	0.75	0.47
Ammonia (lbs) Total Monthly	23.07	< 17.97	6.51	< 104.44	43.73	39.78	< 39.03	< 36.72	28.28	26.13	73.19	33.08

Parameter	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23
Ammonia (lbs) Total Annual			< 456									
TKN (mg/L) Average Monthly	4.11	< 1.83	1.84	< 2.0	2.38	1.73	1.42	1.67	2.69	2.13	1.88	1.19
TKN (lbs) Total Monthly	72.25	< 56.87	38.77	< 187.84	66.51	59.32	69.33	119.13	88.26	84.82	168.89	70.39
Total Phosphorus (lbs/day) Average Monthly	< 0.05	< 0.1	< 0.08	< 0.31	< 0.11	< 0.13	< 0.37	0.29	< 0.24	< 0.15	< 0.32	< 0.15
Total Phosphorus (lbs/day) Daily Maximum	0.086	< 0.212	0.116	1.77	0.16	0.215	1.963	0.347	0.875	0.217	0.696	< 0.257
Total Phosphorus (mg/L) Average Monthly	< 0.08	< 0.1	< 0.11	< 0.12	< 0.13	0.11	< 0.19	0.14	< 0.13	< 0.11	< 0.11	< 0.085
Total Phosphorus (mg/L) Daily Maximum	0.12	< 0.1	0.12	0.21	0.16	0.17	0.86	0.21	0.39	0.17	0.15	< 0.085
Total Phosphorus (lbs) Effluent Net Total Monthly	< 1.55	< 3.25	< 2.27	< 9.61	< 3.55	< 3.98	< 11.41	8.67	< 7.39	< 4.38	< 9.87	< 4.59
Total Phosphorus (lbs) Total Monthly	< 1.55	< 3.25	< 2.27	< 9.61	< 3.55	< 3.98	< 11.41	8.67	< 7.39	< 4.38	< 9.87	< 4.59
Total Phosphorus (lbs) Effluent Net Total Annual			< 72									
Total Phosphorus (lbs) Total Annual			< 72									
Sulfate (lbs/day) Average Monthly	25.8	47.62	32.99	127.17	38.72	91.01	122.38	168.89	107.04	114.13	263.34	117.13
Sulfate (lbs/day) Daily Maximum	27.77	106.2	48.44	484.66	43.02	126.26	202.12	518.46	133.53	203.16	548.84	205.85
Sulfate (mg/L) Average Monthly	34.1	41.16	40.3	38.85	43.13	60.1	71.56	54.72	64.2	71.2	67.37	65.28
Sulfate (mg/L) Daily Maximum	38.1	52.0	55.4	52.20	53.4	66.5	107.0	63.6	66.9	103	85.6	78.0
Chloride (lbs/day) Average Monthly	80.12	100.88	97.8	337.43	126.72	151.24	164.44	233.73	199.88	240.22	323.39	190.02
Chloride (lbs/day) Daily Maximum	91.52	150.35	113.51	1388.62	150.22	185.2	243.67	646.67	287.27	319.53	557.82	125.54

Parameter	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23
Chloride (mg/L) Average Monthly	105.9	98.0	120.5	98.63	138.25	105.35	102.98	85.14	118	149.9	88.83	76.38
Chloride (mg/L) Daily Maximum	112	116.0	129	134	163	121	129.0	101.0	128	178.0	103	90.6
Bromide (lbs/day) Average Monthly	< 1.82	< 1.34	< 1.4	< 6.79	< 1.53	< 1.9	< 2.27	< 3.06	< 1.61	< 3.66	< 4.58	< 1.48
Bromide (lbs/day) Daily Maximum	< 1.47	< 2.09	< 2.19	34.03	< 0.3	< 2.64	< 4.72	< 9.36	2.24	< 4.93	6.44	< 2.11
Bromide (mg/L) Average Monthly	< 2.0	< 1.3	< 1.75	< 1.25	< 1.75	< 1.38	< 1.0	< 1.0	< 0.95	< 2.24	< 1.35	< 0.88
Bromide (mg/L) Daily Maximum	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 1.0	< 1.0	1	< 2.50	< 2.5	1.1

Existing Effluent Limits and Monitoring Requirements

The table summarizes effluent limits and monitoring requirements specified in the existing permit:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	1.0	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	Report	Report	XXX	25.0	50.0	62	1/week	24-Hr Composite
Total Suspended Solids	Report	Report	XXX	30.0	60.0	75	1/week	24-Hr Composite
Total Dissolved Solids	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Oil and Grease	Report	Report	XXX	15 Daily Max	XXX	30	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200	XXX	1000	1/week	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus	Report	Report	XXX	2.0	4.0	5	2/week	24-Hr Composite
Sulfate, Total	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	2539	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	93	XXX	XXX	XXX	XXX	1/month	Calculation

Development of Effluent Limitations and Monitoring Requirements

Outfall No. 001 **Design Flow (MGD)** .5
Latitude 40º 17' 13.00" **Longitude** -76º 55' 21.00"
Wastewater Description: IW Process Effluent without ELG, Sewage Effluent, Stormwater

Technology-Based Limitations

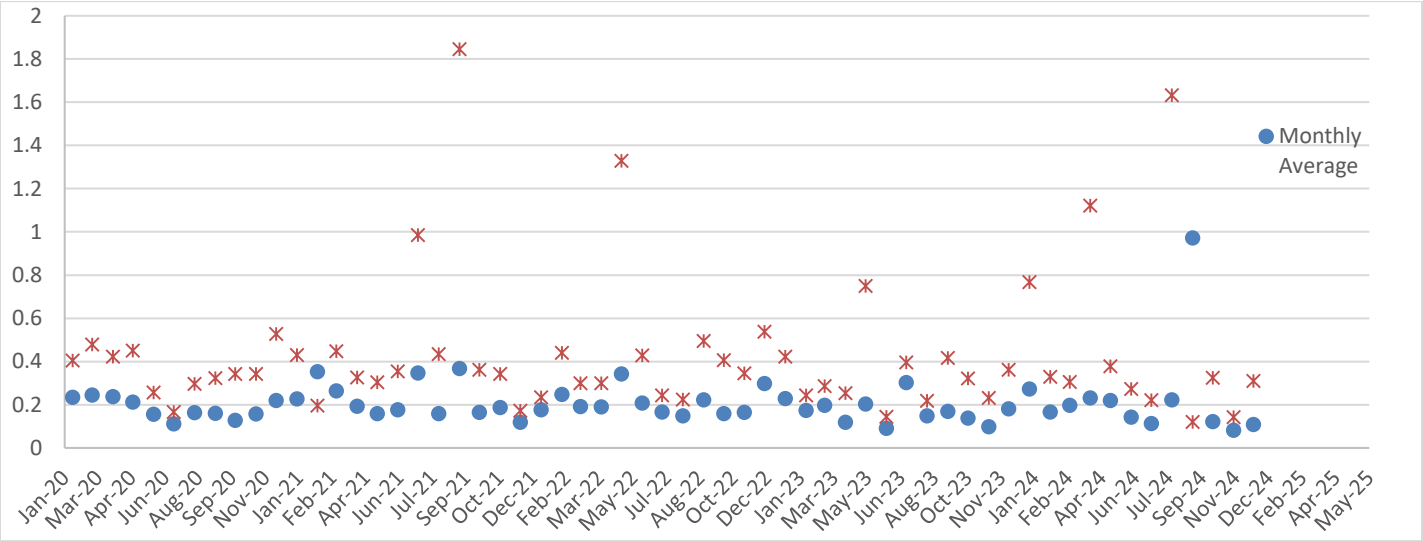
The facility is subject to standards found in 25 Pa Code §§§92a.47(a), 92a.48, and 95.2 and 40 CFR §133.102. These standards are as follows:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
Oil and Grease	15	Daily Average	-	95.2(2)
	30	IMAX	-	95.2(2)

Under facility's SIC codes (4011 and 4013), the facility would be subject to the federal effluent limitations and guidelines (ELGs) identified in 40 CFR§433 (i.e., metal finishing point source category). However, this facility is a maintenance/repair shop and is not a manufacturing facility. The facility does not perform electroplating, electroless plating, anodizing, coating, chemical etching/milling, and printed circuit board manufacturing. As a result, DEP determined that no ELG is applicable for the discharge from this facility.

Water Quality-Based Limitations

The last permit renewal was developed based on the flow of 0.5 MGD. The wastewater treatment plant also receives stormwater run-off from the entire site which is about 90 acres. Past DMR flow data has been summarized below:



There are some events, particularly during summer periods, when the measured discharge volume was exponentially higher than 0.5 MGD. However, the facility has been discharging less than 0.5 MGD in most cases. It is therefore reasonable to continue to use 0.5 MGD as the flow volume to conduct a water quality analysis.

CBOD5, NH3-N and Dissolved Oxygen (DO)
WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's technical guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. The model output indicates that all existing limits are still adequate. No change is therefore recommended for the upcoming permit renewal.

Total Residual Chlorine
Since chlorine is used, TRC effluent levels must be controlled and regulated in accordance with 25 Pa Code §92a.48(b). DEP's TRC_CALC worksheet indicates that the existing effluent limit which is a BAT TBEL derived from 25 Pa Code §92a.48(b)(2) is still adequate for protections of water quality. No change is therefore recommended for the upcoming permit renewal.

Toxics
DEP's Toxics Management Spreadsheet (TMS) was utilized using sample results provided in the application as well as additional submission submitted on January 22, 2025. TMS does not recommend any permit requirements for toxics; therefore, no toxic pollutants have therefore been taken into consideration at this time.

Best Professional Judgement Limitations

Dissolved Oxygen
The existing minimum DO effluent limit is the current warm water fishery water quality criterion for DO listed in 25 Pa Code §93.7(a). It is recommended that this limit be maintained in the permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) no. BPNPSM-PMT-033 and has been applied to other point source dischargers throughout the state.

Total Phosphorus
The existing permit contains Total Phosphorus effluent limits of 2.0 mg/L (average monthly), 4.0 mg/L (daily maximum) and 5.0 mg/L (instantaneous maximum). Historically a TP effluent limit of 2.0 mg/L was established in the permit when DEP generally determines that the facility is expected to contribute 0.25% or more of the total point source phosphorus loading at the point of impact (page 17 of DEP's technical guidance no. 391-2000-018). DEP previously documented that the discharge contributes more than 0.25% and phosphorus controls were therefore needed. There is no reason to relax or remove these effluent limits; therefore, continuation of existing effluent limits is still appropriate in accordance with 40 CFR §122.44(l)(1). Daily maximum and instantaneous maximum effluent limits were developed using standard multipliers of 2.0 for daily maximum and 2.5 for instantaneous maximum.

Additional Considerations

Flow Monitoring
The requirement to monitor the volume of effluent will remain in the permit per 40 CFR § 122.44(i)(1)(ii).

Stormwater Requirements
There is currently no stormwater outfall discharging only stormwater. However, since the facility treats and discharges stormwater via Outfall 001 and the facility is subject to 40 CFR §122.26(a)(1), standard stormwater conditions will be included in Part C of the permit. It is noteworthy, any conditions related to sampling stormwater only will be removed from this standard condition since the facility has been already treating and consistently monitoring for wastewaters commingled with stormwater at Outfall 001.

Chemical Additive
The facility reported sodium hypochlorite as the only chemical additive being utilized at the site. The requirement to monitor for TRC has already been written in the permit. No further requirement is needed at this time.

E. Coli Monitoring Requirement
DEP's SOP no. BCW-PMT-033 recommends a routine monitoring for E. Coli in all new and reissued sewage permits. As a result, an annual monitoring requirement for E. Coli will be included in the permit given that sewage generated from this facility is not expected to exceed 0.05 MGD.

Local Watershed TMDL
DEP's latest integrated water quality report developed in 2018 shows that Susquehanna River (within the lower Susquehanna River basin) is impaired for pH as a result of unknown source(s). The report classified this impairment as Category 5 which requires the development of a Total Maximum Daily Load to address such impairment. While this impairment was identified in 2020, no anticipated TMDL development date is shown on this report. At this time, this facility is required to meet the federal and state secondary treatment standards of pH (6-9 SU). DEP determines that this pH effluent limit ensures that the discharge will not contribute to impairment. Nevertheless, once the TMDL is developed, DEP may reopen this permit to incorporate any permit requirements included in the TMDL that are assigned to this facility.

Chesapeake Bay TMDL
On March 30, 2012, DEP finalized Pennsylvania's Chesapeake Watershed Implementation Plan Phase 2 (i.e., Phase 2 WIP) to address U.S EPA's expectations for the Chesapeake Bay TMDL. The Chesapeake Bay TMDL identifies the necessary pollution reductions from major sources of nitrogen, phosphorus and sediment across the Bay jurisdictions and sets pollution limits necessary to meet water quality standards. The Phase 2 WIP is an update to the Pennsylvania's Chesapeake Bay TMDL Strategy (2004) and the Chesapeake WIP Phase I (2011). DEP is currently working to develop Phase 3 WIP to further address nutrient and sediment pollutions in the Chesapeake Bay. More details on the TMDL are available at www.dep.pa.gov.

As part of the Phase 2 WIP process, a Supplement to the Phase 2 WIP was developed on April 2, 2012, providing an update on TMDL implementation for point sources and a discussion of adjustments to the permitting strategy as a result of implementation experience. In August 2019, DEP finalized Phase 3 Chesapeake Bay Watershed Implementation Plan to provide the plans in place by 2025 to further achieve the nutrient and sediment reduction targets that would ultimately meet U.S EPA's expectations for the Chesapeake Bay TMDL. The Chesapeake Bay TMDL identifies the necessary pollution reductions from major sources of nitrogen, phosphorus and sediment across the Bay jurisdictions and sets pollution limits necessary to meet water quality standards. The Phase 3 WIP is an update to the Pennsylvania's Chesapeake Bay TMDL Strategy (2004), the Chesapeake WIP Phase I (2011) and Phase 2 WIP (2012). The more details on the TMDL are available at www.dep.pa.gov.

A Supplement to the Phase 3 WIP which was last updated on December 17, 2019 provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater. According to this document, this facility is a significant IW facility located within the Chesapeake Bay watershed. The following Cap Loads (annual net nutrient mass effluent limitations) specified in the current Supplement to the Phase 3 WIP will be included in the draft permit:

NPDES Permit No.	Facility	Latest Permit Issuance Date	Permit Expiration Date	Cap Load Compliance Start Date	TN Cap Load (lbs/yr)	TP Cap Load (lbs/yr)	TN Delivery Ratio	TP Delivery Ratio
PA0009229	Norfolk Southern Railway Co,	09/26/19	09/3024	10/1/13	2,539	93	0.788	0.365

It is recommended to continue to assign these Cap Loads in the upcoming permit renewal with the existing monitoring frequency and type.

Total Dissolved Solids
The following guidelines were given by Bureau of Clean Water via email dated January 23, 2014:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.

- Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 MGD or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/L.

The facility reported 2820 mg/L of Total Dissolved Solids as a maximum value. As a result, the requirement to monitor Total Dissolved Solids as well as its constituents, Sulfate, Chloride and Bromide, will continue to be included in the upcoming permit renewal.

Filter Bypass Condition
The last permit renewal contained the following Part C condition regarding filter bypass:

Wastewater may bypass the carbon filters directly to chlorine contact tanks during high flow procedures implemented by SCADA system triggered by the water level in the rear settling tank exceeding the set point. During a bypass, a 24-hour composite sample of the effluent shall be collected and analyzed for the parameters listed in the effluent pages requiring a 24-hour composite sample. Bypass effluent analyses results, start/stop, volume and precipitation shall be reported on a daily DMR supplement form. This reporting does not supersede the reporting requirements of Part A III.C.4. For each bypass event, the qualifying requirements of Part B I.F.1, 2 or 3 must be documented.

This condition was developed when bypass occurred frequently when high flow is experienced because of stormwater and suspended solids are higher than desirable to carbon filter. According to the fact sheet prepared for the last permit renewal, high flow procedures are implemented by SCADA system with the set point of 8.1' in rear settling tank to begin bypassing by opening a blending valve in DAF building basement. Flows greater than DAF capacity bypasses DAF and are combined with DAF effluent and metered ahead of the carbon filter pump station. During bypass, the carbon filter pumps are shut off. Levels in carbon filter pump station rise to overflow pipe to CCTs. SCADA system calculates the bypass flow based on total effluent flow and bypass valve position. The permittee installed a composite sampler initiated by a bypass event which samples from the chlorine contact tank at same location as the effluent sampler. DEP determined that this condition still applies to the facility and therefore will include this condition in Part C of the upcoming permit renewal.

Antidegradation Requirements
All effluent limitations and monitoring requirements have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected.

Antibacksliding Requirements
Unless specified otherwise throughout this fact sheet, effluent limits for all pollutants of concern have been developed at least as stringent as effluent limits written in the existing permit renewal. This approach is consistent with 40 CFR §122.44(l)(1).

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	1.0	1.6	1/day	Grab
CBOD5	Report	Report	XXX	25.0	50.0	62	1/week	24-Hr Composite
TSS	Report	Report	XXX	30.0	60.0	75	1/week	24-Hr Composite
Total Dissolved Solids	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Oil and Grease	Report	Report	XXX	15 Daily Max	XXX	30	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200	XXX	1000	1/week	Grab
Total Phosphorus	Report	Report	XXX	2.0	4.0	5	2/week	24-Hr Composite
Sulfate	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/week	Grab

Proposed Effluent Limitations and Monitoring Requirements For Chesapeake Bay TMDL

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

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
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia---N	Report	Report	XXX	Report	XXX	2/week	24-Hr Composite
Kjeldahl---N	Report	XXX	XXX	Report	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	2,539	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	93	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: Outfall 001

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07K	6685	SUSQUEHANNA RIVER	73.700	295.00	23600.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.033	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Norfok Southern	PA0009229	0.5000	0.5000	0.5000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07K	6685	SUSQUEHANNA RIVER	**70.220**	293.00	24084.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.033	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Lemoyne Borough	PA0026441	0.9000	0.9000	0.9000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Norfolk Southern Enola Train Yard** NPDES Permit No.: **PA0009229** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Industrials Waste & Sewage**

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
0.5	261	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		2820									
	Chloride (PWS)	mg/L		181									
	Bromide	mg/L		2.5									
	Sulfate (PWS)	mg/L		111									
	Fluoride (PWS)	mg/L		0.29									
Group 2	Total Aluminum	µg/L		200									
	Total Antimony	µg/L		0.79									
	Total Arsenic	µg/L		0.89									
	Total Barium	µg/L		180									
	Total Beryllium	µg/L	<	0.1									
	Total Boron	µg/L		1300									
	Total Cadmium	µg/L	<	0.16									
	Total Chromium (III)	µg/L		0.43									
	Hexavalent Chromium	µg/L		0.23									
	Total Cobalt	µg/L	<	0.83									
	Total Copper	µg/L		3.7									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		2									
	Dissolved Iron	µg/L		60									
	Total Iron	µg/L		440									
	Total Lead	µg/L		1.6									
	Total Manganese	µg/L		540									
	Total Mercury	µg/L	<	0.16									
	Total Nickel	µg/L		4.7									
	Total Phenols (Phenolics) (PWS)	µg/L		5									
	Total Selenium	µg/L		0.95									
	Total Silver	µg/L	<	0.33									
	Total Thallium	µg/L	<	0.16									
	Total Zinc	µg/L		15									
	Total Molybdenum	µg/L		3.2									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										
	Carbon Tetrachloride	µg/L	<										

Group 3	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												

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Norfolk Southern Enola Train Yard, NPDES Permit No. PA0009229, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Susquehanna River**

No. Reaches to Model: 1

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	006685	73.7	296	23600			Yes
End of Reach 1	006685	70.22	293	24084			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	73.7	0.116										100	7		
End of Reach 1	70.22	0.116													

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	73.7														
End of Reach 1	70.22														

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Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Norfolk Southern Enola Train Yard, NPDES Permit No. PA0009229, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.005 Analysis Hardness (mg/l): 108.01 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	15,079	
Total Antimony	0	0		0	1,100	1,100	22,116	
Total Arsenic	0	0		0	340	340	6,836	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	422,209	
Total Boron	0	0		0	8,100	8,100	162,852	
Total Cadmium	0	0		0	2.170	2.31	46.4	Chem Translator of 0.941 applied
Total Chromium (III)	0	0		0	606.869	1,920	38,611	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	328	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	1,910	
Total Copper	0	0		0	14.451	15.1	303	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	70.225	90.1	1,811	Chem Translator of 0.78 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	33.1	Chem Translator of 0.85 applied
Total Nickel	0	0		0	499.767	501	10,068	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.672	4.32	86.9	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	1,307	
Total Zinc	0	0		0	125.084	128	2,571	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 720 PMF: 0.037 Analysis Hardness (mg/l): 101.21 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	29,340	
Total Arsenic	0	0		0	150	150	20,005	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	546,796	
Total Boron	0	0		0	1,600	1,600	213,384	
Total Cadmium	0	0		0	0.248	0.27	36.4	Chem Translator of 0.908 applied
Total Chromium (III)	0	0		0	74.847	87.0	11,607	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	1,386	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	2,534	
Total Copper	0	0		0	9.048	9.43	1,257	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	5,310,356	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.550	3.23	431	Chem Translator of 0.789 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	121	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.537	52.7	7,028	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	665	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	1,734	
Total Zinc	0	0		0	119.346	121	16,143	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 720 PMF: 0.037 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	747	
Total Arsenic	0	0		0	10	10.0	1,334	
Total Barium	0	0		0	2,400	2,400	320,075	
Total Boron	0	0		0	3,100	3,100	413,431	
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	40,009	

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	133,365	
Total Mercury	0	0		0	0.050	0.05	6.67	
Total Nickel	0	0		0	610	610	81,353	
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	32.0	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 720 PMF: 0.052 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*						
Model Results	Pollutants	AML	MDL	AML	MDL	Units	Governing	WQBEL	Comments	

Pollutants	(lbs/day)	(lbs/day)	AML	MDL	MAX	Units	WQBEL	Basis	Comments

☑ ***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	9,665	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	747	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	1,334	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	270,619	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	104,382	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	29.7	µg/L	Discharge Conc < TQL
Total Chromium (III)	11,607	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	210	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	1,224	µg/L	Discharge Conc < TQL
Total Copper	194	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	40,009	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	5,310,356	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	431	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	133,365	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	6.67	µg/L	Discharge Conc < TQL
Total Nickel	6,453	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	665	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	55.7	µg/L	Discharge Conc < TQL
Total Thallium	32.0	µg/L	Discharge Conc < TQL
Total Zinc	1,648	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS