pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	**NPDES PERMIT FACT SHEET**	Application No.	**PA0055328**
Facility Type	**Industrial**	**INDIVIDUAL INDUSTRIAL WASTE (IW)**	APS ID	**3989**
Major / Minor	**Minor**	**AND IW STORMWATER**	Authorization ID	**1304847**

Applicant and Facility Information

Applicant Name	**New Morgan Landfill Company Inc.**	Facility Name	**Conestoga Landfill**
Applicant Address	PO Box 128 420 Quarry Road	Facility Address	420 Quarry Road
	Morgantown, PA 19543-0128		Morgantown, PA 19543-0128
Applicant Contact	Randy Deardorff	Facility Contact	Randy Deardorff
Applicant Phone	(717) 246-4620	Facility Phone	(717) 246-4620
Client ID	55716	Site ID	505264
SIC Code	4953	Municipality	New Morgan Borough
SIC Description	Trans. & Utilities - Refuse Systems	County	Berks
Date Application Received	January 30, 2020	EPA Waived?	No
Date Application Accepted	February 12, 2020	If No, Reason	Significant CB Discharge
Purpose of Application	NPDES Renewal.		

Summary of Review

New Morgan Landfill Company Inc. (New Morgan) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on July 21, 2015 and became effective on August 1, 2015. The permit was amended on November 22, 2016 to include a TP Cap Load and February 23, 2018 to update permit requirements based on the new treatment plant discharge. The permit expired on July 31, 2020.

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	November 7, 2021
X		Daniel W. Martin Daniel W. Martin, P.E. / Environmental Engineer Manager	November 14, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.075
Latitude	40° 9' 34"	Longitude	75° 52' 41"
Quad Name	Morgantown	Quad Code	1738
Wastewater Description:	Treated IW & Sewage		
Receiving Waters	Conestoga River	Stream Code	07548
NHD Com ID	57461727	RMI	61.2
Drainage Area	6.65 sq.mi.	Yield (cfs/mi^2)	0.084
Q_{7-10} Flow (cfs)	0.561	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	520	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	WWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Organic Enrichment/Low D.O., Nutrients		
Source(s) of Impairment	Agriculture, Other		
TMDL Status	Final, 04/09/2005	Name	Conestoga Headwaters TMDL
Nearest Downstream Public Water Supply Intake	Lancaster Municipal Water Authority		
PWS Waters	Conestoga River	Flow at Intake (cfs)	
PWS RMI	Approx. 23.5	Distance from Outfall (mi)	Approx. 38

Drainage Area
The discharge is to Conestoga River at RM 61.2. A drainage area upstream of the discharge point is estimated to be 6.65 sq.mi. based on USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow
USGS StreamStats produced 0.561 cfs at the point of discharge, resulting a low flow yield of 0.561 cfs / 6.65 sq.mi = 0.084 cfs/sq.mi.

Conestoga River
Under 25 Pa Code §93.9o, Conestoga River has a designated water use of warm water fishes and migratory fishes. No special protection water is impacted by this discharge. According to DEP's latest integrated water quality report (finalized in 2020), Conestoga River near the point of discharge is impaired for nutrients as a result of agricultural activities and for organic enrichment/oxygen depletion as a result of unknow source(s). A Total Maximum Daily Load (TMDL) was developed in August 2004 and finalized on April 9, 2005 to address impairments identified within the watershed of Conestoga headwaters. More details on this TMDL will be discussed later in this fact sheet. Class A Wild Trout Fishery is not impacted by this discharge.

Public Water Supply Intake
The fact sheet developed for the last permit renewal indicates that the nearest downstream public water supply intake is Lancaster Municipal Water Authority, located on the Conestoga River approximately 38 miles from the discharge point. Given the distance, the discharge is not expected to impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Conestoga Landfill				

WQM Permit No.	Issuance Date
0612202	2/7/2013

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Tertiary	MBR	No Disinfection	0.05

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.075 *	___	Not Overloaded		

New Morgan is a municipal solid waste landfill specializing a refuse systems landfill (SIC Code 4953). New Morgan currently owns and operates an on-site wastewater treatment plant to treat leachate and sanitary wastewater generated from the site. The plant utilizes a membrane bioreactor (MBR) treatment system consisting of flow equalization/storage tanks (2), MBR with denitrification tank, aeration tank, and ultrafiltration units (2), permeate tank for chemical addition, Granular Activated Carbon filters (2), effluent storage tank, and outfall structure.

A centrifuge is available for solids processing prior to being disposed at the landfill.

Along with Outfall 001, New Morgan utilizes seven (7) outfalls receiving stormwater drained throughout the site. Most of these outfalls receive stormwater collected in sedimentation basins. These outfalls are located at:

Outfall No.	Area Drained (acres)	Latitude	Longitude	Description
002	57.42	40° 11’ 05”	75° 54’ 42”	Sedimentation Basin 1
003	51.57	40° 11’ 16”	75° 55’ 01”	Sedimentation Basin 2
004	85.50	40° 10’ 47”	75° 54’ 19”	Sedimentation Basin 3
005	53.9	40° 10’ 25”	75° 53’ 50”	Sedimentation Basin 7
006	30.6	40° 10’ 30”	75° 53’ 48”	Serving the North Borrow Area
007	63.5	40° 10’ 28”	75° 53’ 39”	Sedimentation Basin 8
008	26.4	40° 10’ 40”	75° 53’ 44”	Sedimentation Basin 9

Compliance History	
Summary of DMRs:	A summary of past 12-month DMR data is presented on the next page.
Summary of Inspections:	02/16/2021: Tracy Tomtishen, DEP Water Quality Specialist, conducted a Chesapeake Bay Cap Load Compliance Evaluation inspection. No issues were found at the time of inspection. 12/15/2020: Tracy Tomtishen conducted an administrative review in response to an error noted by PA DEP Central Office. An error was made on the monthly average flow reported on the May 2020 monthly submission (i.e., 0.5037 MGD v. 0.050370 MGD). 02/27/2020: Shawn Fassl, DEP Environmental Trainee, conducted a routine inspection. No violation was noted at the time of inspection.
Other Comments:	Since the last permit reissuance, there were two (2) effluent violations reported by New Morgan (Total Zinc 0.23 mg/L v. 0.20 mg/L in Oct. 2019 and 0.6 mg/L v. 0.2 mg/L in December 2019). DEP's database shows that there is no open violation associated with this permittee or facility.

Effluent Data

DMR Data for Outfall 001 (from September 1, 2020 to August 31, 2021)

Parameter	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20
Flow (MGD) Average Monthly	0.027347	0.027584	0.031795	0.044168	0.046519	0.0386540	0.047925	0.043818	0.52656	0.043626	0.027011	0.041422
Flow (MGD) Daily Maximum	0.085136	0.090731	0.091799	0.099418	0.102599	0.102599	0.089169	0.094938	0.097786	0.087160	0.069528	102461
pH (S.U.) Instantaneous Minimum	7.6	6.90	7.70	7.0	7.40	7.60	7.4	7.40	7.40	7.60	7.60	7.50
pH (S.U.) Instantaneous Maximum	6.3	7.90	7.00	8.0	8.20	8.30	8.0	7.60	7.90	8.20	8.30	8.40
DO (mg/L) Instantaneous Minimum	6.70	6.90	6.80	6.70	6.30	6.60	6.8	6.80	6.2	6.60	6.70	6.30
TRC (mg/L) Average Monthly	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
TRC (mg/L) Instantaneous Maximum	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.5	0.4
CBOD5 (lbs/day) Average Monthly	< 0.3	< 0.3	< 0.5	< 0.1	< 0.4	< 0.3	< 0.9	< 0.4	< 1.1	< 0.5	< 0.3	< 0.5
CBOD5 (lbs/day) Daily Maximum	0.5	0.9	1.1	< 0.2	< 0.9	0.5	1.9	0.5	1.5	< 0.7	0.4	0.9
CBOD5 (mg/L) Average Monthly	< 3	< 3	< 3	< 2	< 2	< 3	< 3	< 3	< 3	< 3	< 3	< 3
CBOD5 (mg/L) Daily Maximum	3	3	4	2	< 2	3	3	3	3	< 3	3	3
TSS (lbs/day) Average Monthly	0.6	0.9	1.5	0.1	0.7	0.5	0.7	0.5	1.6	1.2	0.4	0.9
TSS (lbs/day) Daily Maximum	1.5	1.7	2.6	0.5	1.5	1.0	1.3	0.8	3.0	2.4	0.6	1.7
TSS (mg/L) Average Monthly	7	9	9	4	4	4	3	4	4	8	5	6
TSS (mg/L) Daily Maximum	11	15	13	7	6	7	3	6	6	15	8	8
Total Dissolved Solids (lbs/day) Average Monthly	847	1163	724	241	1044	492	2114	717	1887	583	542	1537

Parameter	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20
Total Dissolved Solids (mg/L) Average Monthly	6767	6147	5875	5109	4685	5057	5284	4543	4818	5607	6124	5714
Oil and Grease (mg/L) Average Monthly	< 5	< 5	< 5	< 5	< 5	< 5	< 6	< 7	< 6	< 5	< 5	< 6
Oil and Grease (mg/L) Instantaneous Maximum	< 5	< 5	< 5	< 5	< 5	< 5	< 7	< 7	7	< 5	< 5	< 6
Fecal Coliform (No./100 ml) Geometric Mean	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Nitrate-Nitrite (mg/L) Average Monthly	< 42.62	< 63.40	49	39.30	34.83	37	59	36	31	33	30	43
Nitrate-Nitrite (lbs) Total Monthly	< 147	< 217	149	61	154	144	342	121	257	157	72	211
Total Nitrogen (mg/L) Average Monthly	< 75.96	< 98.62	77	68.25	63.39	62	91	63	60	65	67	78
Total Nitrogen (lbs) Effluent Net Total Monthly	< 249	< 335	244	112	278	235	545	214	666	309	153	384
Total Nitrogen (lbs) Total Monthly	< 249	< 335	244	112	278	235	545	214	525	309	153	384
Total Nitrogen (lbs) Effluent Net Total Annual												6339
Total Nitrogen (lbs) Total Annual												6339
Ammonia (lbs/day) Average Monthly	< 0.02	< 0.05	< 0.03	< 0.07	0.03	< 0.08	< 0.04	< 0.02	< 0.07	0.03	< 0.01	< 0.02
Ammonia (lbs/day) Daily Maximum	0.05	0.15	0.09	0.12	0.9	0.50	0.06	0.04	0.17	0.06	0.02	0.03
Ammonia (mg/L) Average Monthly	< 0.13	< 0.24	< 0.17	< 0.15	0.20	< 0.44	< 0.18	< 0.19	< 0.21	0.20	< 0.14	< 0.11
Ammonia (mg/L) Daily Maximum	0.23	0.48	0.31	0.26	0.51	2.30	0.25	0.37	0.47	0.33	0.20	0.14
Ammonia (lbs) Total Monthly	< 0.4	< 1.0	0.5	< 0.2	1	< 2.4	< 1.0	< 0.6	< 1.9	0.9	< 0.4	< 0.5
Ammonia (lbs) Total Annual												< 19

Parameter	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20
TKN (mg/L) Average Monthly	33	35	28	29	29	25	32	27	29	32	37	36
TKN (lbs) Total Monthly	102	118	95	51	124	91	203	92	268	151	82	173
Total Phosphorus (mg/L) Average Monthly	0.73	0.81	0.5	0.66	0.40	0.35	0.32	0.27	0.29	0.43	0.53	0.50
Total Phosphorus (lbs) Effluent Net Total Monthly	2	3	2	1	2	1	2	1	3	2	2	2
Total Phosphorus (lbs) Total Monthly	2	3	2	1	2	1	2	1	3	2	2	2
Total Phosphorus (lbs) Effluent Net Total Annual												27.0
Total Phosphorus (lbs) Total Annual												27.0
Total Antimony (lbs/day) Average Monthly	0.001	0.001	0.0015	0.0003	0.001	0.001	0.003	0.001	0.004	0.002	0.002	0.003
Total Antimony (lbs/day) Daily Maximum	0.002	0.003	0.003	0.001	0.003	0.002	0.006	0.001	0.006	0.003	0.002	0.006
Total Antimony (mg/L) Average Monthly	0.008	0.010	0.009	0.009	0.008	0.009	0.010	0.008	0.011	0.016	0.021	0.017
Total Antimony (mg/L) Daily Maximum	0.009	0.010	0.011	0.010	0.009	0.009	0.010	0.010	0.015	0.019	0.021	0.020
Total Arsenic (lbs/day) Average Monthly	0.002	0.001	0.0013	0.0002	0.001	0.001	0.002	0.001	0.004	0.002	0.002	0.003
Total Arsenic (lbs/day) Daily Maximum	0.004	0.003	0.002	0.001	0.003	0.001	0.004	0.001	0.008	0.004	0.003	0.006
Total Arsenic (mg/L) Average Monthly	0.016	0.013	0.008	0.007	0.007	0.007	0.008	0.007	0.011	0.015	0.021	0.017
Total Arsenic (mg/L) Daily Maximum	0.019	0.017	0.010	0.007	0.007	0.008	0.008	0.009	0.016	0.018	0.022	0.020
Total Cadmium (mg/L) Average Monthly	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.044
Hexavalent Chromium (mg/L) Average Monthly	< 0.0100	< 0.00671	0.00428	0.00387	0.00341	0.00644	0.00794	0.00429	0.0036	< 0.0032	< 0.0043	< 0.0043
Total Copper (mg/L) Average Monthly	0.205	0.069	0.063	0.079	0.055	0.060	0.068	0.047	0.026	0.033	0.031	0.068
Dissolved Iron (mg/L) Average Monthly	0.62	0.69	0.84	0.64	0.58	0.61	0.74	0.78	0.33	0.68	0.80	0.61

Parameter	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20
Total Iron (mg/L) Average Monthly	0.76	0.77	1.19	0.65	0.59	0.73	0.84	0.76	0.29	0.77	0.41	0.65
Total Manganese (mg/L) Average Monthly	0.124	0.137	0.310	0.295	0.350	0.303	0.335	0.480	0.057	0.163	0.026	0.126
Sulfate (lbs/day) Average Monthly	4	6	4	1	5	2	9	6	10	4	6	13
Sulfate (mg/L) Average Monthly	33	34	32	22	21	28	23	39	26	36.5	73.5	48
Total Zinc (lbs/day) Average Monthly	0.001	0.001	0.001	0.0003	0.001	0.001	0.004	0.002	0.003	0.002	< 0.003	< 0.001
Total Zinc (lbs/day) Daily Maximum	0.002	0.002	0.002	0.001	0.003	0.002	0.010	0.002	0.004	0.002	0.008	0.002
Total Zinc (mg/L) Average Monthly	0.008	0.007	0.007	0.007	0.007	0.007	0.011	0.012	0.007	0.010	< 0.035	< 0.006
Total Zinc (mg/L) Daily Maximum	0.008	0.008	0.009	0.008	0.008	0.009	0.015	0.015	0.009	0.010	0.110	0.010
Phenol (lbs/day) Average Monthly	< 0.001	< 0.001	< 0.002	< 0.0003	< 0.002	< 0.001	< 0.003	< 0.001	< 0.004	< 0.002	< 0.001	< 0.002
Phenol (lbs/day) Daily Maximum	< 0.002	< 0.003	< 0.003	< 0.001	< 0.004	< 0.002	< 0.007	< 0.002	0.005	< 0.002	< 0.001	< 0.003
Phenol (mg/L) Average Monthly	< 0.010	< 0.009	< 0.008	< 0.010	< 0.010	< 0.010	< 0.011	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenol (mg/L) Daily Maximum	< 0.010	< 0.013	< 0.010	0.010	< 0.010	< 0.012	< 0.012	< 0.010	< 0.010	< 0.012	< 0.010	< 0.010
a-Terpineol (lbs/day) Average Monthly	< 0.001	< 0.0004	< 0.002	< 0.0002	< 0.001	< 0.002	< 0.002	< 0.001	< 0.003	< 0.002	< 0.001	< 0.001
a-Terpineol (lbs/day) Daily Maximum	< 0.002	< 0.003	< 0.003	< 0.001	< 0.004	< 0.001	< 0.007	< 0.002	< 0.005	< 0.002	< 0.001	< 0.003
a-Terpineol (mg/L) Average Monthly	< 0.010	< 0.011	< 0.009	< 0.010	< 0.010	< 0.010	< 0.011	< 0.010	< 0.010	< 0.011	< 0.010	< 0.010
a-Terpineol (mg/L) Daily Maximum	< 0.010	< 0.013	< 0.010	< 0.010	< 0.010	< 0.012	< 0.012	< 0.010	< 0.010	< 0.015	< 0.010	< 0.010
1,4-Dioxane (mg/L) Average Quarterly			< 10			< 0.0056			< 0.0050			< 10
Benzoic Acid (lbs/day) Average Monthly	< 0.004	< 0.002	< 0.009	< 0.001	< 0.006	< 0.008	< 0.011	< 0.005	< 0.017	< 0.010	< 0.005	< 0.004
Benzoic Acid (lbs/day) Daily Maximum	< 0.011	< 0.014	< 0.013	< 0.005	< 0.019	< 0.010	< 0.036	< 0.009	< 0.025	< 0.012	< 0.006	< 0.015
Benzoic Acid (mg/L) Average Monthly	< 0.050	< 0.059	< 0.048	< 0.050	< 0.050	< 0.052	< 0.055	< 0.050	< 0.050	< 0.052	< 0.050	< 0.050
Benzoic Acid (mg/L) Daily Maximum	< 0.050	< 0.073	< 0.050	< 0.050	< 0.050	< 0.058	< 0.061	< 0.050	< 0.050	< 0.058	< 0.050	< 0.050

Parameter	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20
Chloride (lbs/day) Average Monthly	276	333	179	73	331	165	596	205	633	194	164	481
Chloride (mg/L) Average Monthly	2200	1700	1650	1500	1450	1650	1500	1300	1600	1850	1900	1800
Bromide (lbs/day) Average Monthly	2	3	2	1	3	1	5	2	4	1	1	3
Bromide (mg/L) Average Monthly	16	14	14	12	12	13	12	10	11	13.5	14.5	13.0
p-Cresol (lbs/day) Average Monthly	< 0.001	< 0.0004	< 0.002	< 0.0002	< 0.001	< 0.001	< 0.002	< 0.001	< 0.003	< 0.002	< 0.001	< 0.001
p-Cresol (lbs/day) Daily Maximum	< 0.002	< 0.003	< 0.003	< 0.001	< 0.004	< 0.002	< 0.007	< 0.001	< 0.005	< 0.002	< 0.001	< 0.003
p-Cresol (mg/L) Average Monthly	< 0.010	< 0.011	< 0.009	< 0.010	< 0.010	< 0.010	< 0.011	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
p-Cresol (mg/L) Daily Maximum	< 0.010	< 0.013	< 0.010	< 0.010	< 0.010	< 0.012	< 0.012	< 0.010	< 0.010	< 0.012	< 0.010	< 0.010

Stormwater DMR Data for 2020

	June		Dec		Parameter	June		Dec	
Parameter	002	005	002	005		002	005	002	005
pH (S.U.) Daily Maximum	7.2	7.5	7.1	7.7	Total Cyanide (mg/L) Daily Maximum	< 0.010	< 0.010	< 0.010	< 0.010
COD (mg/L) Daily Maximum	11.6	118	28.0	31.7	Total Iron (mg/L) Daily Maximum	0.83	1.6	2.7	4.8
Total Dissolved Solids (mg/L) Daily Maximum	85	387	61.0	298	Total Lead (mg/L) Daily Maximum	< 0.010	0.012	< 0.010	0.047
Oil and Grease (mg/L) Daily Maximum	< 5.1	< 5.2	13.8	< 5.3	Dissolved Magnesium (mg/L) Daily Maximum	4.2	9.9	1.8	6.7
Nitrate-Nitrite (mg/L) Daily Maximum	0.21	0.44	0.41	2.1	Total Magnesium (mg/L) Daily Maximum	2.9	10.2	2.2	7.6
Ammonia (mg/L) Daily Maximum	0.026	12.3	0.031	0.20	Total Mercury (mg/L) Daily Maximum	< 0.0002	< 0.0002	< 0.00020	< 0.00020
Total Arsenic (mg/L) Daily Maximum	< 0.015	< 0.015	< 0.015	< 0.015	Total Selenium (mg/L) Daily Maximum	< 0.025	< 0.025	< 0.025	< 0.025
Total Barium (mg/L) Daily Maximum	0.016	0.11	0.026	0.11	Total Silver (mg/L) Daily Maximum	< 0.0060	< 0.006	< 0.0060	< 0.0060
Total Cadmium (mg/L) Daily Maximum	< 0.002	< 0.002	< 0.0020	< 0.0020	TOC (mg/L) Daily Maximum	2.6	41.2	7.6	6.9
Total Chromium (mg/L) Daily Maximum	< 0.004	< 0.004	< 0.0040	0.0060					

Existing Effluent Limits and Monitoring Requirements

These tables below summarize effluent limits and monitoring requirements specified in the latest permit (i.e., 2018 amendment).

Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.6	1/week	Grab
CBOD5	13.1	26.3	XXX	21	42	53	1/week	24-Hr Composite
Total Suspended Solids	16.9	55.0	XXX	27	88	110	1/week	24-Hr Composite
Ammonia-Nitrogen	3.1	6.3	XXX	4.9	10	12.5	2/week	24-Hr Composite
α-Terpineol	0.010	0.021	XXX	0.016	0.033	0.041	1/week	24-Hr Composite
Benzoic Acid	0.044	0.075	XXX	0.071	0.12	0.18	1/week	24-Hr Composite
ρ-Cresol	0.009	0.016	XXX	0.014	0.025	0.035	1/week	24-Hr Composite
Total Zinc	0.069	0.125	XXX	0.11	0.20	0.28	1/week	24-Hr Composite
Phenol	0.009	0.016	XXX	0.015	0.026	0.038	1/week	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15	XXX	30	2/month	Grab
Fecal Coliform (#/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (#/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Total Dissolved Solids	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Chloride	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
Bromide	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
Sulfate	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
Total Antimony	0.029	0.044	XXX	0.046	0.071	0.12	1/week	24-Hr Composite
Total Arsenic	0.051	0.079	XXX	0.082	0.127	0.21	1/week	24-Hr Composite
Total Cadmium	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Hexavalent Chromium	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Total Copper	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Dissolved Iron	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Total Iron	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
Total Manganese	XXX	XXX	XXX	Report	XXX	XXX	2/month	Grab
1,4-Dioxane	XXX	XXX	XXX	Report Avg.Quarterly	XXX	XXX	1/quarter	Grab

Parameter [1]	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Instant. Minimum	Monthly Average	Instant. 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
Net Total Nitrogen	Report	12,500	XXX	XXX	XXX	1/month	Calculation

Parameter (1)	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Instant. Minimum	Monthly Average	Instant. Maximum		
Total Phosphorus	Report	64.0	XXX	Report	XXX	2/week	24-Hr Composite
Net Total Phosphorus	Report	64.0	XXX	XXX	XXX	1/month	Calculation

Stormwater Outfalls 002-008

Parameter (3)	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly		Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate + Nitrite – Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Arsenic	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Barium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Cadmium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Chromium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Cyanide	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Dissolved Magnesium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Magnesium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Parameter [3]	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly		Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Mercury	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Selenium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Silver	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Organic Carbon	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Development of Effluent Limitations and Monitoring Requirements

Outfall No. 001 **Design Flow (MGD)** 0.075
Latitude 40° 9' 34.27" **Longitude** 75° 52' 39.37"

Wastewater Description: Landfill Leachate and Sanitary Wastewater

Technology-Based Limitations

Given the type of industrial activities performed at the site, the facility is subject to federal effluent limitations and guidelines (ELGs) found in 40 CFR Part 445 Subpart B – ELGs for RCRA Subtitle D Non-Hazardous Waste Landfill. This ELG specifies that both BAT and BCT effluent limitations are the same as those limitations developed as BPT effluent limitations. These BPT effluent limitations listed under this ELG (40 CFR §445.21) are as follows:

Regulated parameter	Concentrations (mg/L)	
	Maximum Daily	Maximum Monthly Avg.
BOD	140	37
TSS	88	27
Ammonia (as N)	10	4.9
α-Terpineol	0.033	0.016
Benzoic acid	0.12	0.071
p-Cresol	0.025	0.014
Phenol	0.026	0.015
Zinc	0.20	0.11
pH (SU)	6.0 – 9.0	6.0-9.0

As the facility also treats sanitary wastewater, New Morgan is subject to secondary treatment standards found in 40 CFR §102 and 25 Pa Code §92a.47. The table below summarizes these standards:

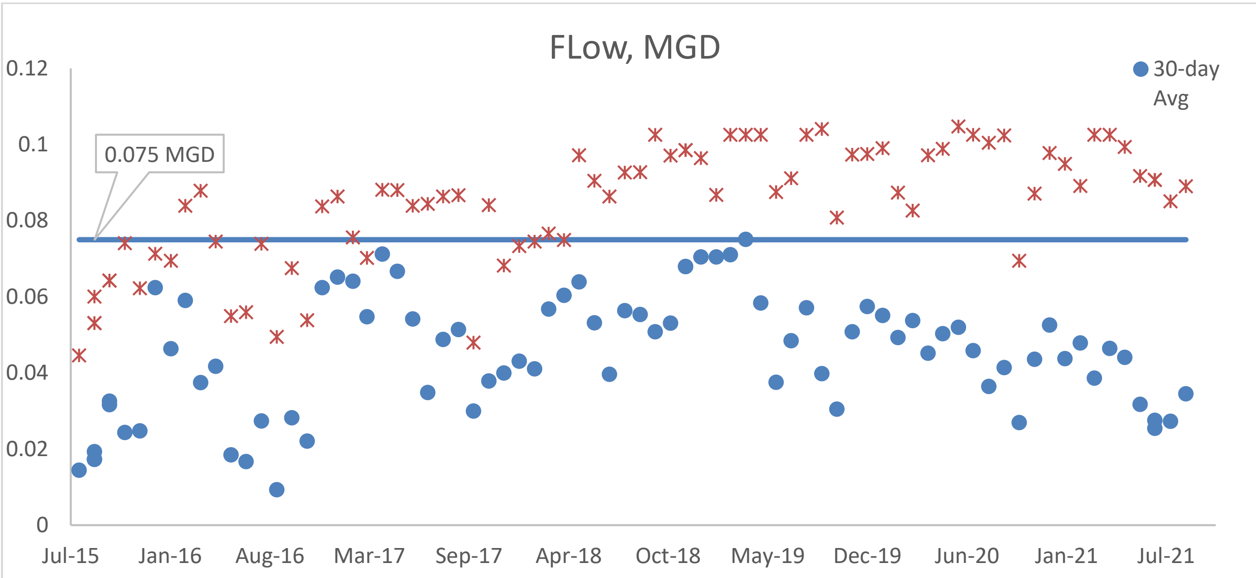
Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	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)

In addition to these standards, the facility is subject to requirements found in 25 Pa Code §§92.48 and 95.2. The permit contains effluent limits for Oil and Grease that were derived from 25 Pa Code §95.2(2) in which these limits apply to those facilities involved with oil-bearing wastewaters. Past DMR data shows oil/grease has not been detected most of the time but not consistently. The application also reported the maximum effluent sample result of 7.0 mg/L for oil and grease. These limits will remain unchanged in the permit.

The more stringent of these standards will be written in the permit unless more stringent requirements are needed based on the BPJ analysis and water quality analysis.

Water Quality-Based Limitations

Design Flow
Typically, landfill discharge rates vary significantly due to their direct relationship to rainfall precipitation rates as well as stormwater/groundwater runoff rates. New Morgan reported the following flow data as part of DMR submission.



Since the last permit reissuance, the average flow was 0.044712 MGD (30-day average) and 0.083898 MGD (daily max) with a minimum flow of 0.00937 MGD (30-day average)/0.04466 MGD (daily max) and a maximum flow of 0.075146 MGD (30-day average)/0.104823 MGD (daily max). The design flow of 0.075 MGD was used in the latest permit. Based on the review, this value seems to represent the volume of treated effluent discharged under normal operations potentially covering both average and maximum flow volumes; therefore, will be used in water quality analysis to develop WQBELs. In addition, this value is determined by New Morgan as the design flow for Outfall 001 according to the application and is considered a hydraulic design capacity of the on-site wastewater treatment plant according to the WQM permit no. 0612202 issued on February 7, 2013.

CBOD5, NH3-N and Dissolved Oxygen
WQM 7.0 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 describes the technical methods contained in the model for conducting wasteload allocation analyses and for determining recommended limits for point source discharges. DEP recently updated this model (ver. 1.1) to include new ammonia criteria that has been approved by US EPA as part of the 2017 Triennial Review. A number of point source discharges located within the close vicinity of this discharge. As WQM 7.0 model can be utilized for multiple discharge analysis, these dischargers will also be included as part of the modeling efforts. The model output shows that existing WQBELs for CBOD5 and NH3-N are still protective of water quality. No change is therefore recommended.

Total Residual Chlorine
Sodium Hypochlorite is used for membrane cleaning which will be discussed later under Chemical Additive Section of this fact sheet. Therefore, the permit includes effluent limitations for Total Residual Chlorine in accordance with 25 Pa Code §92a.48(b). DEP's TRC_CALC worksheet has been utilized to determine if existing limits are still appropriate. The worksheet indicates that existing BAT limits are still appropriate. No change is therefore recommended.

Toxics
DEP utilizes a Toxics Management Spreadsheet (TMS) to facilitate calculations necessary for completing a reasonable potential analysis and determining WQBELs for toxic pollutants. The worksheet combines the functionality of DEP's previous water quality models including Toxics Screening Analysis worksheet and PENTOXSD. For this renewal, each toxic pollutant will be evaluated based on the current requirements in the permit.

1) Existing Pollutants (Effluent Limits)
   The current permit includes effluent limits for the following toxic pollutants:

Pollutants	Avg. Monthly (mg/L)	Basis
Total Arsenic	0.082	WQBEL
Total Antimony	0.046	WQBEL
Total Zinc	0.11	ELG
Phenol	0.015	ELG
a-Terpineol	0.016	ELG
Benzoic Acid	0.071	ELG
p-Cresol	0.014	ELG

As no water quality criteria are available for a-Terpineol, Benzoic Acid, and p-Cresol, no water quality modeling has been utilized for these pollutants. The TMS was utilized for Total Arsenic, Total Antimony, and Total Zinc and showed that more stringent WQBELs are required for Total Arsenic and Total Antimony. A review of past DMR shows that New Morgan will be able to achieve compliance with these new WQBELs; therefore, these will be included in the permit without a compliance schedule in accordance with 40 CFR §122.44(d)(1)(i). The TMS showed that no WQBELs are needed for Total Zinc; therefore, no change is recommended for Total Zinc.

2) Existing Pollutants (Monitoring-Only Requirements)
The current permit includes monitoring-only requirements for Total Dissolved Solids, Chloride, Bromide, Sulfate, Total Cadmium, Hexavalent Chromium, Total Copper, Dissolved Iron, Total Iron, Total Manganese and 1,4-Dioxane. As enough data have been obtained since the last permit renewal, DEP's TOXCONC worksheet has been utilized to obtain the statistical average monthly value with the daily Coefficient of Variation. This approach is consistent with DEP's SOP no. BCW-PMT-037. Based on daily effluent supplement forms submitted as part of the monthly DMRs from January 2019 through September 2021 (66 datasets), the following results have been determined during this water quality analysis:

	TOXCONC Results		TMS Results
Pollutants	Avg. Monthly Effluent Concentration (mg/L)	Daily Coefficient of Variation	Permit Recommendation
Total Dissolved Solids	6777.9354371	0.2684927	N/A (PWS)
Chloride	1999.0397834	0.1782065	N/A (PWS)
Bromide	18.4478428	0.5154122	N/A (PWS)
Sulfate	60.3576372	0.4042145	N/A (PWS)
Hexavalent Chromium	0.0070476	0.8428991	Monitoring
Total Copper	0.1231964	1.4340492	Limits
Dissolved Iron	1.2229623	0.8529323	Limits
Total Iron	0.3935288	0.8224084	Monitoring
Total Manganese	0.9513094	0.6680808	None

It is noteworthy that Total Cadmium and 1,4-dioxane were not part of this analysis as there were too many non-detected results for these pollutants which would produce errors in calculating coefficient of variation values. A long-term data show that these pollutants have been consistently non-detected; therefore, the requirement to monitor for Total Cadmium and 1,4-dioxane will be removed from the permit. The monitoring requirements for Total Dissolved Solids and its constituents (Bromide, Chloride, and Sulfate) were developed based on the guidance established by DEP Bureau of Clean Water. More details will be discussed in the Additional Considerations Section of this fact sheet.

Based on the table below, the requirement to monitor for Total Manganese will be removed from the permit. Total Iron as well as Hexavalent Chromium will continue to be monitored.

For Total Copper and Dissolved Iron, effluent limits (WQBELs) are necessary for water quality protection according to TMS output as shown below.

	Mass Limits		Concentration Limits (mg/L)					
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.078	0.14	0.12	0.23	0.31	0.12	CFC	Discharge Conc> 50%WQBEL (RP)
Dissolved Iron	1.09	1.85	1.75	2.95	4.37	1.75	THH	Discharge Conc> 50%WQBEL (RP)

Based on the review of past DMR datasets, the facility should have no issue meeting these effluent limits; therefore, these effluent limits will be included in the permit in accordance with 40 CFR §122.44(d)(1)(i).

3) New Pollutants
The TMS was utilized for all other toxic pollutants that have been sampled as part of the application. TMS output shows that monitoring is needed for Total Cobalt and Total Nickel. The output also recommends effluent limits for the following pollutants:

	Mass Limits		Concentration Limits (mg/L)					
Pollutants	**AML (lbs/day)**	**MDL (lbs/day)**	**AML**	**MDL**	**IMAX**	**Governing WQBEL**	**WQBEL Basis**	**Comments**
Total Boron	5.83	9.1	9.322	14.545	23.306	9.322	CFC	Discharge Conc> 50%WQBEL (RP)
Total Selenium	0.018	0.028	0.0291	0.0454	0.0727	0.0291	CFC	Discharge Conc> 50%WQBEL (RP)

These effluent limits will be included in the permit in accordance with 40 CFR §122.44(d)(1)(i).

Any methodology used to conduct water quality analyses for this permit renewal is consistent with DEP's SOP nos. BCW-PMT-032 and BCW-PMT-037. All modeling efforts will be included in this fact sheet as attachments.

Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen
A minimum DO limit of 5.0 mg/L is a DO water quality criterion found in 25 Pa. Code § 93.7(a). This limit is included in the existing NPDES permit based BPJ. It is still recommended to include this limit in the draft permit to ensure that the facility continues to achieve compliance with DEP water quality standards. This approach is also consistent with DEP's SOP no. BCW-PMT-033 for sewage permits in which this SOP also applies to this discharge since the discharge also contains treated sewage.

Total Phosphorus
25 Pa Code §96.5(c) requires facilities to meet the average monthly Total Phosphorus concentration limit of 2.0 mg/L when the discharge lone or in combination with the discharge of other pollutants contributes or threatens to impair existing or designated uses of surface waters. As described earlier, Conestoga River is impaired for nutrient and theoretically, it would be reasonable to impose this 2.0 mg/L average monthly concentration limit in this permit. However, as mentioned in Other Considerations Section of this fact sheet, a more stringent limit is already included in the permit to implement the reduction goals for the Conestoga Headwaters TMDL. As a result, this 2.0 mg/L is not needed. This approach is consistent with 25 Pa Code §96.5(c) which specifies that *"More stringent controls on point source discharges may be imposed, or may be otherwise adjusted as a result of a TMDL which has been developed."*.

Other Considerations

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

Total Dissolved Solids
TDS and its associated solids including Bromide, Chloride, and Sulfate have become statewide pollutants of concern. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

For point source discharges <u>and upon issuance or reissuance of an individual NPDES permit</u>:

-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.*

Past DMR data shows that the average TDS concentration since August 2015 is 1,600 mg/L with a minimum value of 241 mg/L and a maximum value of 3,861 mg/L. It is apparent that the facility has been frequently discharging (or has potential to discharge) more than 1,000 mg/L of TDS. The requirement to monitor for TDS and its constituents are still recommended.

Chesapeake Bay TMDL
The discharge is located within the Chesapeake Bay watershed and is considered under the Supplement to Phase III Watershed Implementation Plan (WIP) a significant IW facility as a result of the treatment process modification (see below statement from Phase 3 WIP Wastewater Supplement).

New Morgan Landfill Co. Inc. ("Conestoga Landfill", PA0055328) is now a Significant IW facility because it has modified its treatment process which will result in additional TN load. DEP has issued a final NPDES permit to New Morgan Landfill with Cap Loads of 12,500 lbs/yr TN and 64 lbs/yr TP, with a compliance start date of October 1, 2016. These loads have been moved from the Non-Significant sector to the Significant IW sector.

The Phase 3 WIP Wastewater Supplement lists this facility as a significant IW facility with the following Cap Loads (i.e., annual nutrient mass effluent limits):

NPDES Permit No.	Facility	Last 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
PA0055328	New Morgan Landfill Co. Inc.	11/22/2016	7/31/2020	10/1/2015	12,500	64	0.891	0.436

These Cap Loads will continue to be specified in the permit. Past DMR data has been summarized as follows:

	Monthly TN (lbs)	Monthly TP (lbs)
Average	550	2.57
Maximum	1012	7
Minimum	90.7	1

Year	Annual TN (lbs)	Annual TP (lbs)
2015	4902	
2016	8332	<40
2017	7499	<30
2018	<8255	<31
2019	6339	27

Conestoga Headwaters TMDL
DEP developed a TMDL in August 2004 to address impairments identified for the stream segments of the Conestoga Headwaters area that are mostly located in Caernarvon Township and New Morgan Borough, Berks County. These impairments were determined to be caused by nutrients, organic enrichment and low dissolved oxygen as a result of agricultural activities and other non-point source pollution in the basin. As part of the TMDL development, a wasteload allocation (WLA) for point source discharges was also developed to ultimately ensure the water quality protection of receiving streams from point source dischargers located within this area. The current TMDL does not specify any WLA for this discharge. The fact sheet prepared for the last permit renewal as well as the one prepared for the 2010 renewal indicates that 64 lbs of available TP loading was subsequently transferred to them with EPA's permission without the TMDL revision as the transferred amount did not exceed the "1%" rule. The facility is already required to meet the Chesapeake Bay Cap Load of 64 lbs/yr. for TP; but this is a "net" load in which the permittee is able to meet by applying credits and offsets. As a result, the existing permit also specifies a "gross" mass loading limit of 64 lbs/yr. to implement reduction goals outlined in the Conestoga Headwaters TMDL. Based on the review, DEP has determined to continue to impose this gross mass loading limit in the permit along with the Chesapeake Bay TMDL Cap Loads. It is noteworthy that New Morgan would only be able to purchase credits to meet the Chesapeake Bay Cap Load in excess of this annual mass limit.

This 64 lbs/yr.TP mass load limit would require New Morgan to achieve a TP concentration of 64 lbs/yr. / 8.34 / 0.075 MGD / 365 = 0.28 mg/L. Past DMR data is summarized below.

	TP Effluent Concentrations in mg/L
Average	0.3246
Max	0.81
Min	0.1
90th Percentile	0.532
Median	0.27

New Morgan utilizes Polyaluminum Chloride (PAC) for phosphorous removal as needed. A further reduction is therefore achievable via chemical addition. DEP has however decided to continue to not include this calculated concentration value in the permit to be consistent with WLAs developed for other point source discharges in this TMDL and also to be consistent with previous permit renewals. In case the TMDL is revised to include a more stringent WLA for this discharge, DEP will reopen this permit to include that WLA.

Chemical Additives
The application lists a number of chemicals to be used throughout the plant. These chemicals are shown below:

Chemical Name	Purpose	Usage Rate / Frequency
25% Sodium Hydroxide	pH adjustment in denitrification tank	275 GPD/As needed
75% Phosphoric Acid	Nutrient adjustment in denitrification tank	113 GPD/As needed
93% Sulfuric Acid	pH adjustment in denitrification tank	100 GPD/As needed
18% Polyaluminum Chloride	Precipitate excess Phosphorous after biological treatment	52 GPD/As needed
10.3% Sodium Hypochlorite	Membrane Cleaning	50 GPD/1 every 14 days
MemCleen A	Acidic cleaner for membrane cleaning	75 GPD/1 every 14 days
100% Methanol	Carbon source in denitrification tank	1,300 GPD/daily
50% Citric Acid	pH adjustment in denitrification	220 GPD/As needed
Defoarmer	Minimized foam in aeration tank	210 GPD/As needed
Polymer	Dewatering sludge in centrifuge	280 GPD/daily

The term "chemical additive" means a chemical product (including products of disassociation and degradation, collectively "products") introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. The term generally excludes chemicals used for neutralization of waste streams, the production of goods, and treatment of wastewater. Based on this, only Sodium Hypochlorite and MemCleen A are determined to be chemical additives. The use of Sodium Hypochlorite is currently regulated by imposing TRC effluent limits. For MemCleen A, TMS was utilized and the model output shows the governing WQBEL of 2.91 mg/L which equates to 2.91 mg/L * 0.075 MGD * 8.34 = 1.82 lbs/day. The SDS for this chemical product indicates that it is biodegradable and would normally be used as 1% solution in water. Given this, the usage rate is acceptable. A standard Part C condition for chemical additives will be included in the permit.

Monitoring Frequency and Sample Type
All existing monitoring frequency and sample types will remain unchanged except for some of those toxics. Given the discharge volume and the fact that there is little to no non-compliance history, all monitoring frequency has changed to 2/month for Arsenic and Antimony. This approach is consistent with DEP's SOP no. BPNPSM-PMT-001 and EPA's Interim Guidance for Performance-Based Reductions of NPDES Permit Monitoring Frequencies. The ratio of long term effluent average to monthly average limit was 44% (concentration) and 21 (mass) for Antimony and 14% (concentration) and 6% (mass) for Arsenic. Therefore, the monitoring frequency reduction for these toxics are warranted. For all other toxics, 2/month monitoring frequency is recommended. The sample type for these toxics has been changed from grab to 24-hr composite as a composite sampling should be conducted for these toxics to provide a better accuracy.

Mass Loadings & Concentrations Limits
The current permit contains mass load effluent limits for toxics that are based on the ELG. DEP's technical guidance no. 362-0400-001 recommends only monitoring requirements for those that are technology-based concentration limits. As a result, the mass load limits for these toxics will be removed from the permit unless WQBELs or BPJ limits are required.

Anti-Backsliding Requirements
Unless stated otherwise in this fact sheet, all permit requirements proposed in this fact sheet are at least as stringent as permit requirements specified in the existing permit renewal in accordance with 40 CFR §122.44(l)(1).

Development of Effluent Limitations and Monitoring Requirements

PERMIT REQUIREMENTS FOR STORMWATER OUTFALLS

As mentioned earlier, New Morgan also utilizes seven (7) outfalls receiving stormwater drained throughout the site.

Outfall No.	Area Drained (acres)	Latitude	Longitude	Description
002	57.42	40° 11' 05"	75° 54' 42"	Sedimentation Basin 1
003	51.57	40° 11' 16"	75° 55' 01"	Sedimentation Basin 2
004	85.50	40° 10' 47"	75° 54' 19"	Sedimentation Basin 3
005	53.9	40° 10' 25"	75° 53' 50"	Sedimentation Basin 7
006	30.6	40° 10' 30"	75° 53' 48"	Serving the North Borrow Area
007	63.5	40° 10' 28"	75° 53' 39"	Sedimentation Basin 8
008	26.4	40° 10' 40"	75° 53' 44"	Sedimentation Basin 9

The permit currently requires semi-annual sampling of pH, Chemical Oxygen Demand, Total Dissolved Solids, Oil and Grease, Ammonia-Nitrogen, Nitrate and Nitrite as Nitrogen, Total Arsenic, Total Barium, Total Cadmium, Total Chromium, Total Cyanide, Total Iron, Total Lead, Dissolved Magnesium, Total Magnesium, Total Mercury, Total Selenium, Total Silver, and Total Organic Carbon. In general, DEP uses DEP's NPDES PAG-03 General Permit for Industrial Stormwater as guidance to develop stormwater monitoring requirements for the individual IW permit. The latest PAG-03 permit (Appendix C – Landfills and Land Application Sites) requires sampling of pH, TSS, COD, Ammonia-Nitrogen and Total Iron. The existing sampling requirement has been revisited.

New Morgan collects stormwater samples at Outfalls 002 and 005 only as they were determined to be representative outfalls for other stormwater outfalls. Based on the map provided in the application, it appears Outfall 002 would receive stormwater that would have similar characteristics as stormwater received by Outfalls 003 and 004. For Outfall 005, Outfalls 006, 007, and 008 would receive stormwater with similar water quality. Because no physical change has occurred since the last permit reissuance, Outfalls 002 and 005 will continue to be the representative outfalls.

Sample results since 2016 are included in this fact sheet as an attachment. Based on the review of those sample results, Total Arsenic, Total Cadmium, Total Chromium, Total Mercury, Total Selenium, and Total Silver have been consistently not detected in samples for Outfall 002 and Outfall 005 (except for Total Chromium for Outfall 005). Therefore, the existing monitoring requirement for these parameters will be removed from the permit. For Outfall 005, Oil and Grease has not been detected; therefore, the existing monitoring requirement for Oil/Grease for Outfall 005 will be removed from the permit. For both Outfalls 002 and 005, Total Suspended Solids will be included as part of the stormwater monitoring as recommended by NPDES PAG-03 General Permit. The existing semi-annual monitoring frequency will remain unchanged in the permit.

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" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.6	1/week	Grab
CBOD5	13.1	26.3	XXX	21	42	53	1/week	24-Hr Composite
Total Suspended Solids	16.9	55.0	XXX	27	88	110	1/week	24-Hr Composite
Ammonia-Nitrogen	3.1	6.3	XXX	4.9	10	12.5	2/week	24-Hr Composite
α-Terpineol	Report	Report	XXX	0.016	0.033	0.04	2/month	24-Hr Composite
Benzoic Acid	Report	Report	XXX	0.071	0.12	0.18	2/month	24-Hr Composite
ρ-Cresol	Report	Report	XXX	0.014	0.025	0.035	2/month	24-Hr Composite
Total Zinc	Report	Report	XXX	0.11	0.20	0.28	2/month	24-Hr Composite
Phenol	Report	Report	XXX	0.015	0.026	0.038	2/month	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15	XXX	30	2/month	Grab

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Fecal Coliform (No. /100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (No. /100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Total Dissolved Solids	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Chloride	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Bromide	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Sulfate	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Antimony	0.02	0.032	XXX	0.033	0.051	0.081	2/month	24-Hr Composite
Total Arsenic	0.036	0.057	XXX	0.058	0.091	0.146	2/month	24-Hr Composite
Hexavalent Chromium	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Total Copper	0.078	0.14	XXX	0.12	0.23	0.31	2/month	24-Hr Composite
Dissolved Iron	1.09	1.85	XXX	1.75	2.95	4.37	2/month	24-Hr Composite
Total Iron	Report	Report	XXX	Report	Report	XXX	2/month	24-Hr Composite
Total Boron	5.83	9.1	XXX	9.32	14.5	23.3	2/month	24-Hr Composite
Total Selenium	0.018	0.028	XXX	0.029	0.045	0.073	2/month	24-Hr Composite
Total Phosphorus	XXX	64 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

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" (362-0400-001), SOPs and/or BPJ.

Outfalls 002 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		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Barium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Cyanide	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Dissolved Magnesium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Magnesium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Organic Carbon	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate + Nitrite – Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

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" (362-0400-001), SOPs and/or BPJ.

Outfalls 005 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		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Barium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Chromium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Cyanide	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Dissolved Magnesium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Magnesium	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Organic Carbon	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate + Nitrite – Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Proposed Effluent Limitations and Monitoring Requirements

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

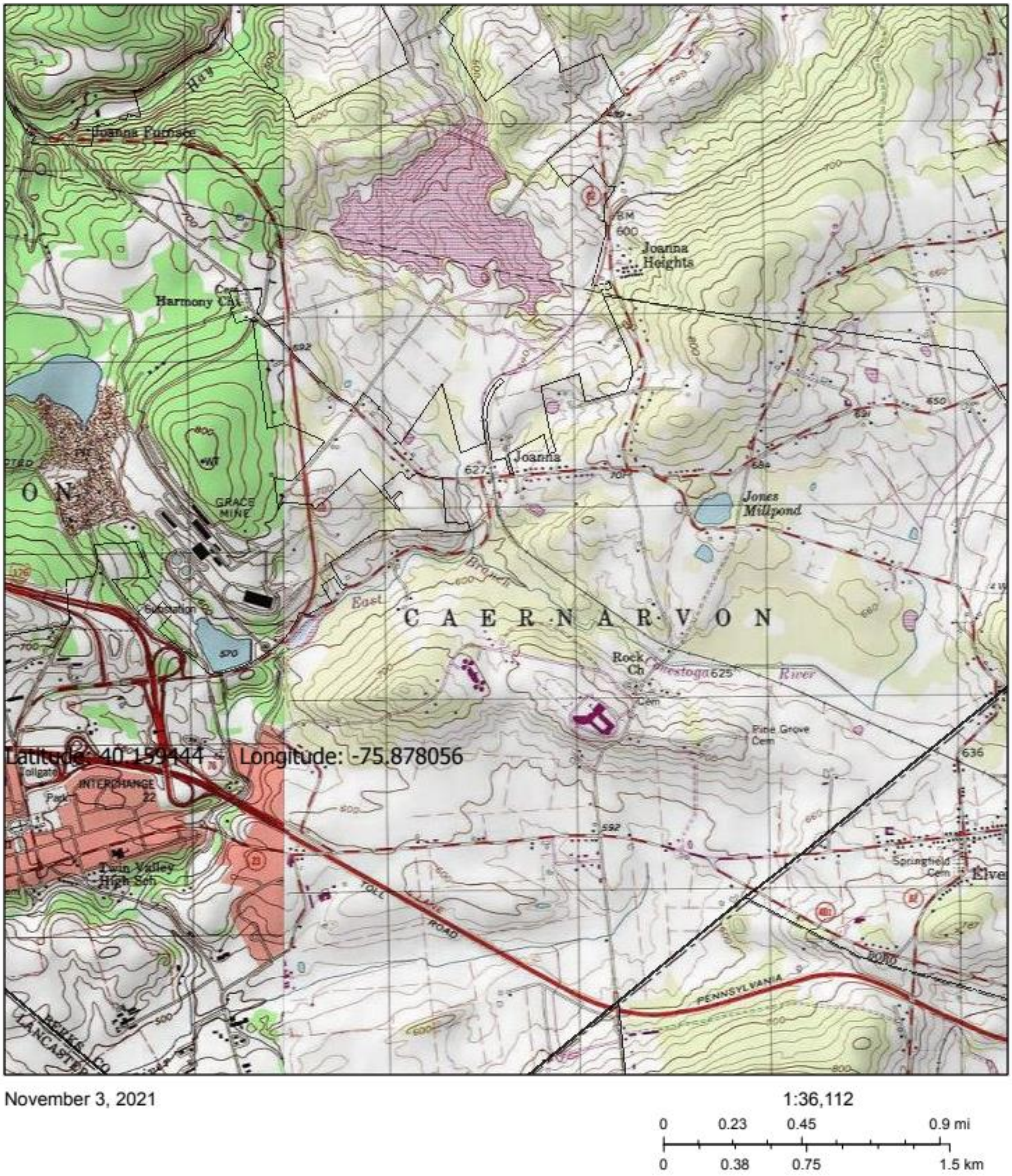
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter [(1)]	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)			Minimum [(2)] Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia---N	Report	Report	XXX	Report	XXX	2/week	8-Hr Composite
Kjeldahl---N	Report	XXX	XXX	Report	XXX	2/week	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	2/week	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	2/week	8-Hr Composite
Net Total Nitrogen	XXX	12,500	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	64	XXX	XXX	XXX	1/year	Calculation

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, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

Attachments

1. Maps/StreamStats



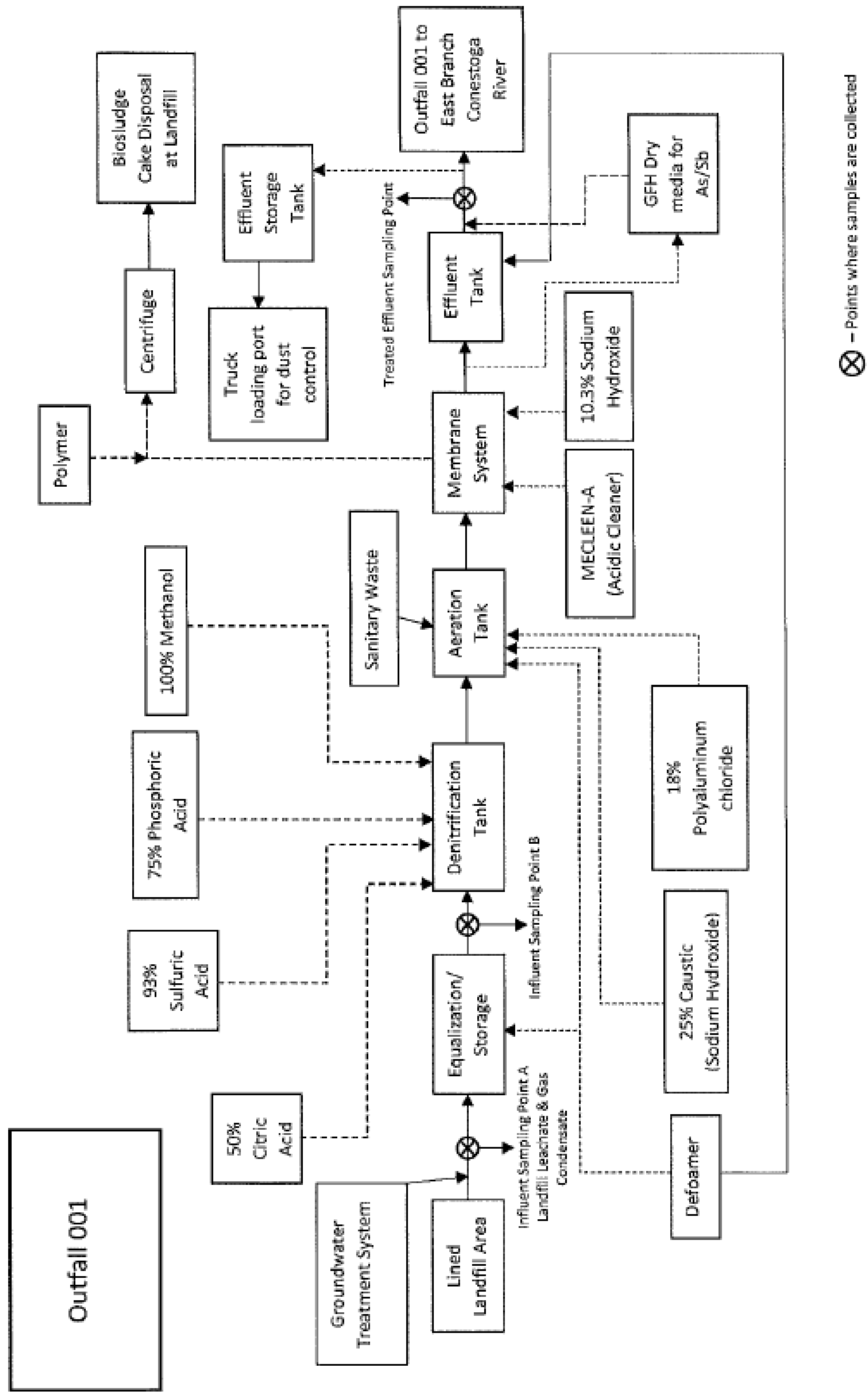


FIGURE 1. SCHEMATIC OF WATER FLOW, OUTFALL 001
CONESTOGA LANDFILL
NEW MORGATN BOROUGH
BERKS COUNTY, PENNSYLVANIA

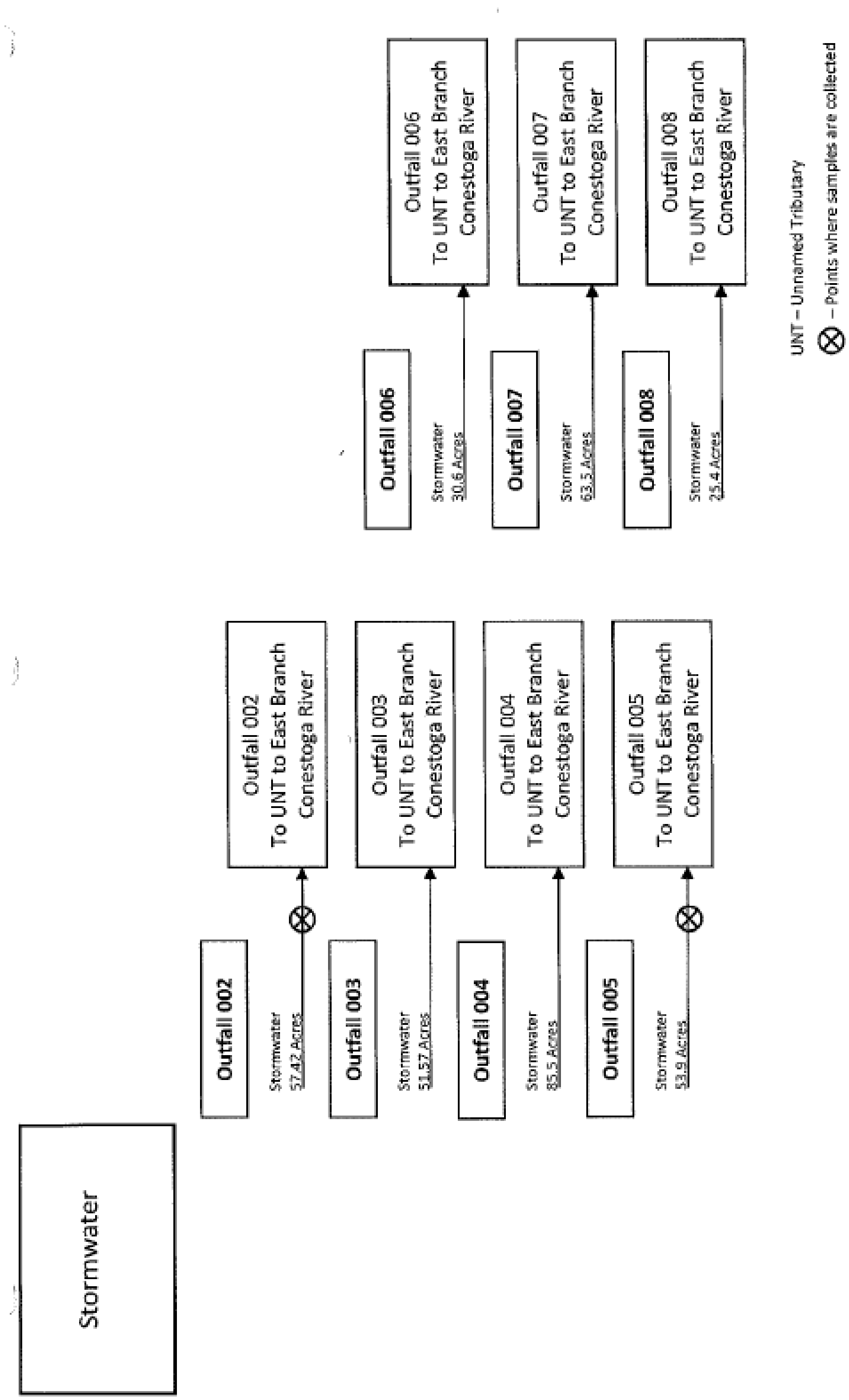
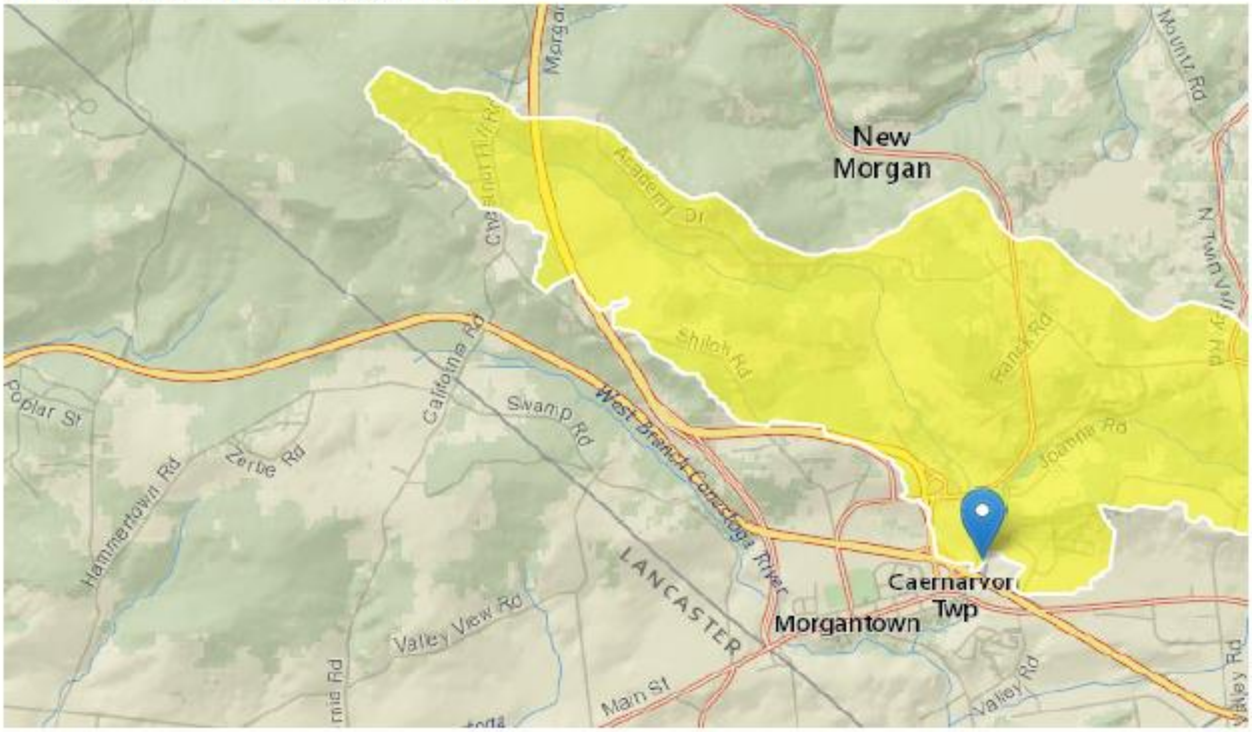


FIGURE 2. SCHEMATIC OF WATER FLOW, OUTFALLS 002 THROUGH 008
CONESTOGA LANDFILL
NEW MORGATN BOROUGH
BERKS COUNTY, PENNSYLVANIA

StreamStats Report

Region ID: PA
Workspace ID: PA20211029133317694000
Clicked Point (Latitude, Longitude): 40.15944, -75.87757
Time: 2021-10-29 09:33:38 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	6.65	square miles
BSLOPD	Mean basin slope measured in degrees	3.8144	degrees
ROCKDEP	Depth to rock	4.9	feet
URBAN	Percentage of basin with urban development	3.9283	percent

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	6.65	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	3.8144	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4.9	feet	4.13	5.21
URBAN	Percent Urban	3.9283	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

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

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	1.26	ft^3/s	46	46
30 Day 2 Year Low Flow	1.68	ft^3/s	38	38
7 Day 10 Year Low Flow	0.561	ft^3/s	51	51
30 Day 10 Year Low Flow	0.769	ft^3/s	46	46
90 Day 10 Year Low Flow	1.29	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

2. WQM 7.0 ver. 1.1

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
07J	7548	CONESTOGA RIVER (formerly CREE	64.700	630.00	0.20	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.070	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 (ºC)	Disc pH
Elverson STP	PA0052078	0.1250	0.1250	0.1250	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
07J	7548	CONESTOGA RIVER (formerly CREE	63.000	615.00	2.00	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.050	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 (ºC)	Disc pH
Twin Valley	PA0031631	0.0270	0.0270	0.0270	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
07J	7548	CONESTOGA RIVER (formerly CREE	61.200	520.00	6.65	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.100	0.00	0.56	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 (ºC)	Disc pH
Conestoga Land	PA0055328	0.0750	0.0750	0.0750	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
07J	7548	CONESTOGA RIVER (formerly CREE	60.250	519.00	6.93	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.100	0.00	0.60	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 (ºC)	Disc pH
New Morgan	PA0088048	0.2000	0.2000	0.2000	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
07J	7548	CONESTOGA RIVER (formerly CREE	59.000	494.00	14.60	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.120	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 (ºC)	Disc pH
Caernarvon	PA0070424	0.7000	0.7000	0.7000	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
07J	7548	CONESTOGA RIVER (formerly CREE	56.500	465.00	20.00	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.120	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 (ºC)	Disc pH
		0.0000	0.0000	0.0000	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	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07J	7548	CONESTOGA RIVER (formerly CREEK)

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (ºC)	Analysis pH
Q7-10 Flow												
64.700	0.01	0.00	0.01	.1934	0.00167	.444	4.13	9.3	0.11	0.917	25.00	7.00
63.000	0.10	0.00	0.10	.2351	0.01000	.423	7.69	18.17	0.10	1.055	25.00	7.00
61.200	0.56	0.00	0.56	.3512	0.00020	.56	16.19	28.93	0.10	0.577	25.00	7.00
60.250	0.60	0.00	0.60	.6606	0.00379	.528	15.63	29.61	0.15	0.501	25.00	7.00
59.000	1.52	0.00	1.52	1.7435	0.00220	.62	24.95	40.26	0.21	0.724	25.00	7.00
Q1-10 Flow												
64.700	0.01	0.00	0.01	.1934	0.00167	NA	NA	NA	0.11	0.930	25.00	7.00
63.000	0.07	0.00	0.07	.2351	0.01000	NA	NA	NA	0.10	1.126	25.00	7.00
61.200	0.36	0.00	0.36	.3512	0.00020	NA	NA	NA	0.09	0.663	25.00	7.00
60.250	0.38	0.00	0.38	.6606	0.00379	NA	NA	NA	0.14	0.556	25.00	7.00
59.000	0.97	0.00	0.97	1.7435	0.00220	NA	NA	NA	0.19	0.803	25.00	7.00
Q30-10 Flow												
64.700	0.02	0.00	0.02	.1934	0.00167	NA	NA	NA	0.11	0.905	25.00	7.00
63.000	0.14	0.00	0.14	.2351	0.01000	NA	NA	NA	0.11	0.995	25.00	7.00
61.200	0.76	0.00	0.76	.3512	0.00020	NA	NA	NA	0.11	0.516	25.00	7.00
60.250	0.81	0.00	0.81	.6606	0.00379	NA	NA	NA	0.17	0.459	25.00	7.00
59.000	2.06	0.00	2.06	1.7435	0.00220	NA	NA	NA	0.23	0.664	25.00	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07J	7548	CONESTOGA RIVER (formerly CREEK)

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
64.700	0.125	25.000	7.000
Reach Width (ft)	Reach Depth (ft)	Reach WDRatio	Reach Velocity (fps)
4.127	0.444	9.302	0.113
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
23.45	1.477	1.22	1.029
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
5.219	25.534	Owens	5
Reach Travel Time (days)			
0.917			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.092	19.77	1.11	5.82
0.183	16.67	1.01	6.22
0.275	14.06	0.92	6.54
0.367	11.86	0.83	6.82
0.459	10.00	0.76	7.05
0.550	8.43	0.69	7.25
0.642	7.11	0.63	7.42
0.734	6.00	0.57	7.54
0.826	5.06	0.52	7.54
0.917	4.26	0.47	7.54

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
63.000	0.152	25.000	7.000
Reach Width (ft)	Reach Depth (ft)	Reach WDRatio	Reach Velocity (fps)
7.688	0.423	18.173	0.104
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
6.22	0.792	0.93	1.029
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
7.413	26.382	Owens	5
Reach Travel Time (days)			
1.055			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.105	5.60	0.84	7.54
0.211	5.04	0.75	7.54
0.316	4.54	0.67	7.54
0.422	4.08	0.60	7.54
0.527	3.68	0.54	7.54
0.633	3.31	0.49	7.54
0.738	2.98	0.44	7.54
0.844	2.68	0.39	7.54
0.949	2.42	0.35	7.54
1.055	2.17	0.31	7.54

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07J	7548	CONESTOGA RIVER (formerly CREEK)

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
64.700	Elverson STP	11.07	11.59	11.07	11.59	0	0
63.000	Twin Valley	11.07	28.72	11.07	28.72	0	0
61.200	Conestoga Land	11.07	45.34	11.07	45.34	0	0
60.250	New Morgan	11.07	24.75	11.07	24.75	0	0
59.000	Caernarvon	11.07	21	11.07	21	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
64.700	Elverson STP	1.37	1.5	1.37	1.3	4	13
63.000	Twin Valley	1.37	6	1.37	5.21	4	13
61.200	Conestoga Land	1.37	10.36	1.37	9	4	13
60.250	New Morgan	1.37	4.95	1.37	4.3	4	13
59.000	Caernarvon	1.37	3.97	1.37	3.65	5	8

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
64.70	Elverson STP	25	25	1.3	1.3	5	5	0	0
63.00	Twin Valley	25	25	5.21	5.21	5	5	0	0
61.20	Conestoga Land	25	25	9	9	5	5	0	0
60.25	New Morgan	25	25	4.3	4.3	5	5	0	0
59.00	Caernarvon	16.83	16.83	3.65	3.65	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07J	7548	CONESTOGA RIVER (formerly CREEK)

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
64.700	Elverson STP	PA0052078	0.125	CBOD5	25		
				NH3-N	1.3	2.6	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
63.000	Twin Valley	PA0031631	0.027	CBOD5	25		
				NH3-N	5.21	10.42	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
61.200	Conestoga Land	PA0055328	0.075	CBOD5	25		
				NH3-N	9	18	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
60.250	New Morgan	PA0088048	0.200	CBOD5	25		
				NH3-N	4.3	8.6	
				Dissolved Oxygen			5

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07J	7548	CONESTOGA RIVER (formerly CREEK)

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
59.000	Caernarvon	PA0070424	0.700	CBOD5	16.83		
				NH3-N	3.65	7.3	
				Dissolved Oxygen			5

3. TRC_CALC Worksheet

TRC_CALC

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	6.65	= Q stream (cfs)		0.5	= CV Daily	
5	0.075	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)			=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 18.303		1.3.2.iii	WLA cfc = 17.836
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 6.820		5.1d	LTA_cfc = 10.369
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500		BAT/BPJ	
18			INST MAX LIMIT (mg/l) = 1.635			

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))... ...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))... ...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)

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4. TOXCONC Worksheet

Facility: Conestoga Landfill
NPDES #: PA0055328
Outfall No: 001
n (Samples/Month): 4
Reviewer/Permit Engineer: Jinsu Kim

Parameter Name	TDS	Chloride	Bromide	Sulfate	Hexavalent Chron	Total Copper		Total Iron	Total Manganese	Dissolved Iron
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg/L
Detection Limit										
Sample Date	When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)									
1/2/2019	4120	1400	9.2	34	<0.003	<0.005		0.3	0.12	0.3
1/8/2019	3890	1300	9	32	<0.0025	<0.005		0.63	0.28	0.6
2/5/2019	4618	2500	<0.5	25	<0.005	<0.005		0.4	0.23	0.4
2/12/2019	4734	1600	9.8	30	0.00337	<0.005		0.2	0.35	0.2
3/5/2019	4618	1600	1.6	29	0.007	<0.010		0.32	0.18	0.3
3/12/2019	3990	1700	9.3	27	0.00742	<0.005		0.3	0.21	0.3
4/2/2019	4379	1400	2	27	0.003	<0.005		0.3	0.21	0.3
4/9/2019	4500	1500	3.3	22	<0.00261	<0.01		0.32	0.22	0.3
5/7/2019	4592	1600	3.6	26	0.0031	<0.010		0.37	0.229	0.3
5/14/2019	4690	1500	4.1	27	0.003	<0.010		0.35	0.19	0.3
6/4/2019	5174	1800	4.6	36	<0.01	<0.01		0.42	0.26	0.4
6/11/2019	5790	1900	6.9	51	0.00378	<0.01		0.75	0.22	0.7
7/1/2019	5874	2200	6.7	63	<0.010	<0.01		0.25	0.15	0.2
7/9/2019	6190	2200	6.4	73	0.00377	<0.01		0.25	0.11	0.3
8/6/2019	4146	1300	8	58	0.00975	<0.01		0.11	0.12	<0.2
8/13/2019	4449	1500	8.8	59	0.00287	<0.01		0.11	0.18	<0.2
9/3/2019	3688	1200	5.7	46	<0.003	<0.01		0.07	0.044	<0.2
9/10/2019	3802	1100	5.5	45	<0.0025	<0.01		0.08	0.043	<0.2
10/1/2019	4848	1600	7.5	52	<0.003	<0.01		0.08	0.06	<0.2
10/8/2019	5612	1900	8.8	58	0.00337	<0.01		0.16	0.086	0.2
11/5/2019	4206	1200	18	100	<0.008	0.011		0.21	0.077	0.2
11/12/2019	3894	1100	9.4	110	<0.008	<0.01		0.62	0.289	0.5
12/3/2019	4688	1500	9.3	47	<0.01	<0.01		0.2	0.141	0.2
12/10/2019	4722	1600	8.8	39	0.00546	<0.01		0.44	0.111	0.5
1/7/2020	4316	1500	9.4	29	0.00367	<0.01		0.22	0.156	0.3
1/14/2020	4456	1400	9.8	28	0.00315	<0.005		0.37	0.095	0.43
2/4/2020	4116	1300	9.6	36	<0.0025	<0.005		0.45	0.106	0.45
2/11/2020	4230	1300	10	33	<0.0025	0.022		0.4	0.083	0.4
3/3/2020	4438	1400	9.1	34	0.0026	0.004		0.3	0.052	2
3/10/2020	4386	1500	11	32	0.0029	<0.037		0.2	0.032	<0.2
4/7/2020	4674	1600	6	33	0.00612	0.031			0.075	0.46
4/14/2020	4448	1500	11	32	0.00454	<0.01		0.43	0.057	0.4
5/5/2020	4840	1600	12	30	0.0084	0.044		0.46	0.032	0.45
5/12/2020	5160	1700	12	31	0.00715	0.058		0.62	0.055	0.31
6/2/2020	5923	1800	12	32	0.006	0.056		0.54	0.069	0.47
6/9/2020	5670	1800	13	13	0.00598	0.048		0.47	0.073	0.44
7/7/2020	5680	2000	14	36	<0.0025	0.092		0.36	0.15	0.35
7/14/2020	856	2000	15	40	<0.0025	0.077		0.63	0.073	0.57
8/4/2020	6628	2200	15	40	0.0073	0.067		0.43	0.088	0.5
8/11/2020	5096	1700	13	60	0.0048	0.066		0.54	0.072	0.44
9/1/2020	5725	1700	12	47	0.0061	0.048		0.81	0.175	0.71
9/8/2020	5702	1900	14	49	<0.0025	0.087		0.48	0.076	0.5
10/6/2020	5976	1900	15	83	0.0037	0.057		0.77	0.047	0.77
10/13/2020	6272	1900	14	64	0.0049	<0.005		0.05	<0.005	0.83
11/3/2020	5864	1900	14	40	0.0038	0.027		0.89	0.25	0.8
11/10/2020	5350	1800	13	33	<0.0025	0.039		0.64	0.075	0.56
12/1/2020	5004	1600	11	26	0.00318	0.027		0.53	0.058	0.59
12/8/2020	4632	1600	11	26	0.004	0.024		0.05	0.056	0.06
1/5/2021	4628	1300	10	41	0.00334	0.05		0.85	0.57	0.83

Parameter Name	TDS	Chloride	Bromide	Sulfate	Hexavalent Chron	Total Copper		Total Iron	Total Manganese	Dissolved Iron			
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg/L			
Detection Limit													
Sample Date	When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)												
1/12/2021	4458	1300	10	36	0.00523	0.044		0.66	0.39	0.72			
2/2/2021	4994	1400	12	23	0.00813	0.054		0.82	0.33	0.74			
2/9/2021	5574	1600	12	22	0.00774	0.082		0.85	0.34	0.73			
3/2/2021	5660	1900	13	28	0.0069	0.064		0.78	0.345	0.66			
3/9/2021	4454	1400	12	28	0.00597	0.056		0.67	0.26	0.56			
4/6/2021	4694	1500	12	22	<0.0025	0.057		0.59	0.35	0.57			
4/13/2021	4676	1400	11	20	0.00431	0.053		0.58	0.35	0.59			
5/4/2021	4934	1500	12	21	0.0032	0.068		0.62	0.26	0.72			
5/11/2021	5284	1500	12	23	0.0046	0.09		0.68	0.33	0.55			
6/1/2021	5890	1400	14	30	0.0059	0.073		0.87	0.3	0.7			
6/8/2021	5860	1900	14	33	0.0027	0.053		1.5	0.32	0.98			
7/6/2021	5988	1800	14	30	<0.01	0.076		0.9	0.19	0.79			
7/13/2021	6306	1600	14	37	0.00342	0.061		0.63	0.084	0.58			
8/3/2021	6738	2200	16	32	<0.01	0.2		0.83	0.15	0.69			
8/10/2021	6796	2200	16	34	<0.01	0.21		0.69	0.098	0.55			
9/7/2021	5342	1600	13	42	0.00382	0.19		0.53	0.097	0.44			
9/14/2021	4750	1400	11	40	0.00376	0.11		0.4	0.14	0.34			

		Reviewer/Permit Engineer:	Jinsu Kim
Facility:	Conestoga Landfill		
NPDES #:	PA0055328		
Outfall No:	001		
n (Samples/Month):	4		

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
TDS (mg/L)	Lognormal	0.2684927	6777.9354371
Chloride (mg/L)	Lognormal	0.1782065	1999.0397834
Bromide (mg/L)	Delta-Lognormal	0.5154122	18.4478428
Sulfate (mg/L)	Lognormal	0.4042145	60.3576372
exavalent Chromium (mg/	Delta-Lognormal	0.8428991	0.0070476
Total Copper (mg/L)	Delta-Lognormal	1.4340492	0.1231964
Total Iron (mg/L)	Lognormal	0.8529323	1.2229623
Total Manganese (mg/L)	Delta-Lognormal	0.8224084	0.3935288
Dissolved Iron (mg/L)	Delta-Lognormal	0.6680808	0.9513094

TOXCON Output 10/29/2021

Facility: Conestoga Landfill
NPDES #: PA0055328
Outfall No: 001
n (Samples/Month): 4

Parameter Name	TDS	Chloride	Bromide	Sulfate	exavalent Chromiu	Total Copper		Total Iron	Total Manganese	Dissolved Iron			
Number of Samples	66	66	66	66	66	66		65	66	66			
Samples Nondetected	0	0	1	0	22	29		0	1	6			
LOGNORMAL													
Log MEAN	8.4846906	7.3818999	NA	3.5792320	NA	NA		-0.9393307	NA	NA			
Log VAR.	0.0696085	0.0312637		0.1513376				0.5466715					
(LTA) [E(x)]	5011.5217156	1631.9513506		38.6636844				0.5137621					
Variance [V(x)]	#############	84578.7772179		244.2476108				0.1920230					
CV (raw)	0.2684927	0.1782065		0.4042145				0.8529323					
CV (n)	0.1342464	0.0891032		0.2021073				0.4264661					
Monthly Avg. (99%, n-day)	6777.9354371	1999.0397834		60.3576372				1.2229623					
DELTA-LOGNORMAL													
Delta-Log MEAN	NA	NA	2.2639127	NA	-5.3955736	-2.9232176		NA	-2.0068848	-0.7832493			
Delta-Log VAR.			0.2203181		0.1313083	0.5385327			0.5013546	0.2737205			
(LTA) [E(x)]			10.5782956		0.0032296	0.0394513			0.1700819	0.4763039			
Variance [V(x)]			29.7262902		0.0000074	0.0032007			0.0195655	0.1012573			
CV (raw)			0.5154122		0.8428991	1.4340492			0.8224084	0.6680808			
Delta-Log VAR. (n)			0.0643001		0.1510727	0.3768499			0.1562247	0.1057168			
A, Table E-2, TSD			0.0664124		0.1776197	0.5141242			0.1690889	0.1115830			
B, Table E-2, TSD			0.0000000		0.0000000	0.0000000			0.0000000	0.0000000			
C, Table E-2, TSD			0.0000000		0.0000000	0.0000000			0.0000000	0.0000000			
Delta-Log MEAN (n)			2.3266543		-5.7984984	-3.3831257			-1.8495872	-0.7944893			
phi (Φ)			0.9898462		0.9850000	0.9821622			0.9898462	0.9890000			
Z*			2.3200000		2.1700000	2.1000000			2.3200000	2.2900000			
Monthly Avg. (99%, n-day)			18.4478428		0.0070476	0.1231964			0.3935288	0.9513094			
NORMAL													
MEAN	NA	NA	NA	NA	NA	NA		NA	NA	NA			
VAR.													
(LTA) [E(x)]													
Variance [V(x)]													
CV (raw)													
CV (n)													
Monthly Avg. (99%, n-day)													

5. Toxics Management Spreadsheet

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Conestoga Landfill** NPDES Permit No.: **PA0055328** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **IW & 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
0.075	727	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		6777.93544			0.2685						
	Chloride (PWS)	mg/L		1999.03978			0.1782						
	Bromide	mg/L		18.4478428			0.5154						
	Sulfate (PWS)	mg/L		60.3576372			0.4042						
	Fluoride (PWS)	mg/L		0.56									
Group 2	Total Aluminum	µg/L		80									
	Total Antimony	µg/L		46									
	Total Arsenic	µg/L		82									
	Total Barium	µg/L		98									
	Total Beryllium	µg/L	<	20									
	Total Boron	µg/L		10100									
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L		104									
	Hexavalent Chromium	mg/L		0.0070476			0.8429						
	Total Cobalt	µg/L		25									
	Total Copper	mg/L		0.1231964			1.434						
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		9									
	Dissolved Iron	mg/L		0.9513094			0.6681						
	Total Iron	mg/L		1.2229623			0.8529						
	Total Lead	µg/L	<	3									
	Total Manganese	mg/L		0.3935288			0.8224						
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		176									
	Total Phenols (Phenolics) (PWS)	µg/L		16									
	Total Selenium	µg/L		22									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	0.5									
	Total Zinc	µg/L		110									
	Total Molybdenum	µg/L		8									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<	0.1									
	Acrylonitrile	µg/L	<	0.5									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	0.5
	Chlorobenzene	µg/L		0.5
	Chlorodibromomethane	µg/L	<	0.5
	Chloroethane	µg/L	<	0.5
	2-Chloroethyl Vinyl Ether	µg/L	<	5
	Chloroform	µg/L	<	0.5
	Dichlorobromomethane	µg/L	<	0.5
	1,1-Dichloroethane	µg/L	<	0.5
	1,2-Dichloroethane	µg/L	<	0.5
	1,1-Dichloroethylene	µg/L	<	0.5
	1,2-Dichloropropane	µg/L	<	0.5
	1,3-Dichloropropylene	µg/L	<	0.5
	1,4-Dioxane	µg/L	<	
	Ethylbenzene	µg/L	<	0.5
	Methyl Bromide	µg/L	<	0.5
	Methyl Chloride	µg/L	<	0.5
	Methylene Chloride	µg/L	<	0.5
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5
	Tetrachloroethylene	µg/L	<	0.5
	Toluene	µg/L	<	0.5
	1,2-trans-Dichloroethylene	µg/L	<	0.5
	1,1,1-Trichloroethane	µg/L	<	0.5
	1,1,2-Trichloroethane	µg/L	<	0.5
	Trichloroethylene	µg/L	<	0.5
	Vinyl Chloride	µg/L	<	0.5
Group 4	2-Chlorophenol	µg/L	<	10
	2,4-Dichlorophenol	µg/L	<	10
	2,4-Dimethylphenol	µg/L	<	10
	4,6-Dinitro-o-Cresol	µg/L	<	10
	2,4-Dinitrophenol	µg/L	<	10
	2-Nitrophenol	µg/L	<	10
	4-Nitrophenol	µg/L	<	10
	p-Chloro-m-Cresol	µg/L	<	2.4
	Pentachlorophenol	µg/L	<	10
	Phenol	µg/L	<	1.4
	2,4,6-Trichlorophenol	µg/L	<	10
Group 5	Acenaphthene	µg/L	<	2.5
	Acenaphthylene	µg/L	<	2.5
	Anthracene	µg/L	<	2.5
	Benzidine	µg/L	<	50
	Benzo(a)Anthracene	µg/L	<	2.5
	Benzo(a)Pyrene	µg/L	<	2.5
	3,4-Benzofluoranthene	µg/L	<	2.5
	Benzo(ghi)Perylene	µg/L	<	2.5
	Benzo(k)Fluoranthene	µg/L	<	2.5
	Bis(2-Chloroethoxy)Methane	µg/L	<	5
	Bis(2-Chloroethyl)Ether	µg/L	<	5
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5
	4-Bromophenyl Phenyl Ether	µg/L	<	5
	Butyl Benzyl Phthalate	µg/L	<	5
	2-Chloronaphthalene	µg/L	<	5
	4-Chlorophenyl Phenyl Ether	µg/L	<	5
	Chrysene	µg/L	<	2.5
	Dibenzo(a,h)Anthrancene	µg/L	<	2.5
	1,2-Dichlorobenzene	µg/L	<	0.5
	1,3-Dichlorobenzene	µg/L	<	0.5
	1,4-Dichlorobenzene	µg/L	<	0.5
	3,3-Dichlorobenzidine	µg/L	<	5
	Diethyl Phthalate	µg/L	<	5
	Dimethyl Phthalate	µg/L	<	5
	Di-n-Butyl Phthalate	µg/L	<	5
	2,4-Dinitrotoluene	µg/L	<	5

	2,6-Dinitrotoluene	µg/L	<	5									
	Di-n-Octyl Phthalate	µg/L	<	5									
	1,2-Diphenylhydrazine	µg/L	<	5									
	Fluoranthene	µg/L	<	2.5									
	Fluorene	µg/L	<	2.5									
	Hexachlorobenzene	µg/L	<	5									
	Hexachlorobutadiene	µg/L	<	0.5									
	Hexachlorocyclopentadiene	µg/L	<	5									
	Hexachloroethane	µg/L	<	5									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	2.5									
	Isophorone	µg/L	<	5									
	Naphthalene	µg/L	<	0.5									
	Nitrobenzene	µg/L	<	5									
	n-Nitrosodimethylamine	µg/L	<	5									
	n-Nitrosodi-n-Propylamine	µg/L	<	5									
	n-Nitrosodiphenylamine	µg/L	<	5									
	Phenanthrene	µg/L	<	2.5									
	Pyrene	µg/L	<	2.5									
	1,2,4-Trichlorobenzene	µg/L	<	0.5									
Group 6	Aldrin	µg/L	<	0.05									
	alpha-BHC	µg/L	<	0.05									
	beta-BHC	µg/L	<	0.05									
	gamma-BHC	µg/L	<	0.05									
	delta BHC	µg/L	<	0.05									
	Chlordane	µg/L	<	0.05									
	4,4-DDT	µg/L	<	0.05									
	4,4-DDE	µg/L	<	0.05									
	4,4-DDD	µg/L	<	0.05									
	Dieldrin	µg/L	<	0.05									
	alpha-Endosulfan	µg/L	<	0.05									
	beta-Endosulfan	µg/L	<	0.05									
	Endosulfan Sulfate	µg/L	<	0.05									
	Endrin	µg/L	<	0.05									
	Endrin Aldehyde	µg/L	<	0.05									
	Heptachlor	µg/L	<	0.05									
	Heptachlor Epoxide	µg/L	<	0.05									
	PCB-1016	µg/L	<	0.2									
	PCB-1221	µg/L	<	0.2									
	PCB-1232	µg/L	<	0.2									
	PCB-1242	µg/L	<	0.2									
	PCB-1248	µg/L	<	0.2									
	PCB-1254	µg/L	<	0.2									
	PCB-1260	µg/L	<	0.2									
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<	0.05									
	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 1.3, March 2021

Stream / Surface Water Information

Conestoga Landfill, NPDES Permit No. PA0055328, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: Conestoga River

No. Reaches to Model: 1

- (selected) 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	007548	61.2	520	6.65			Yes
End of Reach 1	007548	60.25	519	6.93			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	61.2	0.1	0.56									168	7		
End of Reach 1	60.25	0.1	0.6												

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	61.2														
End of Reach 1	60.25														

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Toxics Management Spreadsheet
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Model Results

Conestoga Landfill, NPDES Permit No. PA0055328, Outfall 001

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 15 PMF: 0.636 Analysis Hardness (mg/l): 305.28 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	3,054	
Total Antimony	0	0		0	1,100	1,100	4,479	
Total Arsenic	0	0		0	340	340	1,384	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	85,511	
Total Boron	0	0		0	8,100	8,100	32,983	
Total Chromium (III)	0	0		0	1421.227	4,498	18,314	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	66.3	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	387	
Total Copper	0	0		0	38.464	40.1	163	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	212.409	338	1,376	Chem Translator of 0.628 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	6.71	Chem Translator of 0.85 applied
Total Nickel	0	0		0	1203.705	1,206	4,911	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	21.933	25.8	105	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	265	
Total Zinc	0	0		0	301.676	308	1,256	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	12.2	
Acrylamide	0	0		0	N/A	N/A	N/A	

Acrylonitrile	0	0		0	650	650	2,647	
Benzene	0	0		0	640	640	2,606	
Bromoform	0	0		0	1,800	1,800	7,330	
Carbon Tetrachloride	0	0		0	2,800	2,800	11,401	
Chlorobenzene	0	0		0	1,200	1,200	4,886	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	73,295	
Chloroform	0	0		0	1,900	1,900	7,737	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	61,079	
1,1-Dichloroethylene	0	0		0	7,500	7,500	30,540	
1,2-Dichloropropane	0	0		0	11,000	11,000	44,791	
1,3-Dichloropropylene	0	0		0	310	310	1,262	
Ethylbenzene	0	0		0	2,900	2,900	11,809	
Methyl Bromide	0	0		0	550	550	2,240	
Methyl Chloride	0	0		0	28,000	28,000	114,015	
Methylene Chloride	0	0		0	12,000	12,000	48,863	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	4,072	
Tetrachloroethylene	0	0		0	700	700	2,850	
Toluene	0	0		0	1,700	1,700	6,922	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	27,689	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	12,216	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	13,845	
Trichloroethylene	0	0		0	2,300	2,300	9,365	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	2,280	
2,4-Dichlorophenol	0	0		0	1,700	1,700	6,922	
2,4-Dimethylphenol	0	0		0	660	660	2,687	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	326	
2,4-Dinitrophenol	0	0		0	660	660	2,687	
2-Nitrophenol	0	0		0	8,000	8,000	32,576	
4-Nitrophenol	0	0		0	2,300	2,300	9,365	
p-Chloro-m-Cresol	0	0		0	160	160	652	
Pentachlorophenol	0	0		0	8.723	8.72	35.5	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,873	
Acenaphthene	0	0		0	83	83.0	338	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	1,222	
Benzo(a)Anthracene	0	0		0	0.5	0.5	2.04	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	122,158	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	18,324	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	1,099	
Butyl Benzyl Phthalate	0	0		0	140	140	570	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	3,339	
1,3-Dichlorobenzene	0	0		0	350	350	1,425	
1,4-Dichlorobenzene	0	0		0	730	730	2,973	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	16,288	
Dimethyl Phthalate	0	0		0	2,500	2,500	10,180	
Di-n-Butyl Phthalate	0	0		0	110	110	448	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	6,515	
2,6-Dinitrotoluene	0	0		0	990	990	4,031	
1,2-Diphenylhydrazine	0	0		0	15	15.0	61.1	
Fluoranthene	0	0		0	200	200	814	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	40.7	
Hexachlorocyclopentadiene	0	0		0	5	5.0	20.4	
Hexachloroethane	0	0		0	60	60.0	244	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	40,719	
Naphthalene	0	0		0	140	140	570	
Nitrobenzene	0	0		0	4,000	4,000	16,288	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	69,223	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	1,222	
Phenanthrene	0	0		0	5	5.0	20.4	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	529	
Aldrin	0	0		0	3	3.0	12.2	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.95	0.95	3.87	
Chlordane	0	0		0	2.4	2.4	9.77	
4,4-DDT	0	0		0	1.1	1.1	4.48	
4,4-DDE	0	0		0	1.1	1.1	4.48	
4,4-DDD	0	0		0	1.1	1.1	4.48	
Dieldrin	0	0		0	0.24	0.24	0.98	
alpha-Endosulfan	0	0		0	0.22	0.22	0.9	
beta-Endosulfan	0	0		0	0.22	0.22	0.9	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.086	0.086	0.35	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.52	0.52	2.12	
Heptachlor Epoxide	0	0		0	0.5	0.5	2.04	
Toxaphene	0	0		0	0.73	0.73	2.97	

☑ *CFC* CCT (min): 37.028 PMF: 1 Analysis Hardness (mg/l): 263.94 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	1,282	
Total Arsenic	0	0		0	150	150	874	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	23,889	
Total Boron	0	0		0	1,600	1,600	9,322	
Total Chromium (III)	0	0		0	164.103	191	1,112	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	60.6	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	111	
Total Copper	0	0		0	20.525	21.4	125	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	8,740	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	7.110	10.9	63.8	Chem Translator of 0.65 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	5.28	Chem Translator of 0.85 applied
Total Nickel	0	0		0	118.209	119	691	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	29.1	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	75.7	
Total Zinc	0	0		0	268.865	273	1,589	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	17.5	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	757	
Benzene	0	0		0	130	130	757	
Bromoform	0	0		0	370	370	2,156	
Carbon Tetrachloride	0	0		0	560	560	3,263	
Chlorobenzene	0	0		0	240	240	1,398	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	20,393	
Chloroform	0	0		0	390	390	2,272	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	18,062	
1,1-Dichloroethylene	0	0		0	1,500	1,500	8,740	
1,2-Dichloropropane	0	0		0	2,200	2,200	12,818	
1,3-Dichloropropylene	0	0		0	61	61.0	355	
Ethylbenzene	0	0		0	580	580	3,379	
Methyl Bromide	0	0		0	110	110	641	
Methyl Chloride	0	0		0	5,500	5,500	32,046	

Methylene Chloride	0	0		0	2,400	2,400	13,984	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	1,224	
Tetrachloroethylene	0	0		0	140	140	816	
Toluene	0	0		0	330	330	1,923	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	8,157	
1,1,1-Trichloroethane	0	0		0	610	610	3,554	
1,1,2-Trichloroethane	0	0		0	680	680	3,962	
Trichloroethylene	0	0		0	450	450	2,622	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	641	
2,4-Dichlorophenol	0	0		0	340	340	1,981	
2,4-Dimethylphenol	0	0		0	130	130	757	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	93.2	
2,4-Dinitrophenol	0	0		0	130	130	757	
2-Nitrophenol	0	0		0	1,600	1,600	9,322	
4-Nitrophenol	0	0		0	470	470	2,738	
p-Chloro-m-Cresol	0	0		0	500	500	2,913	
Pentachlorophenol	0	0		0	6.693	6.69	39.0	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	530	
Acenaphthene	0	0		0	17	17.0	99.1	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	344	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.58	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	34,959	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	5,302	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	315	
Butyl Benzyl Phthalate	0	0		0	35	35.0	204	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	932	
1,3-Dichlorobenzene	0	0		0	69	69.0	402	
1,4-Dichlorobenzene	0	0		0	150	150	874	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	4,661	
Dimethyl Phthalate	0	0		0	500	500	2,913	
Di-n-Butyl Phthalate	0	0		0	21	21.0	122	
2,4-Dinitrotoluene	0	0		0	320	320	1,864	
2,6-Dinitrotoluene	0	0		0	200	200	1,165	
1,2-Diphenylhydrazine	0	0		0	3	3.0	17.5	

Fluoranthene	0	0		0	40	40.0	233	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	11.7	
Hexachlorocyclopentadiene	0	0		0	1	1.0	5.83	
Hexachloroethane	0	0		0	12	12.0	69.9	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	12,236	
Naphthalene	0	0		0	43	43.0	251	
Nitrobenzene	0	0		0	810	810	4,720	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	19,810	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	344	
Phenanthrene	0	0		0	1	1.0	5.83	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	151	
Aldrin	0	0		0	0.1	0.1	0.58	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	0.025	
4,4-DDT	0	0		0	0.001	0.001	0.006	
4,4-DDE	0	0		0	0.001	0.001	0.006	
4,4-DDD	0	0		0	0.001	0.001	0.006	
Dieldrin	0	0		0	0.056	0.056	0.33	
alpha-Endosulfan	0	0		0	0.056	0.056	0.33	
beta-Endosulfan	0	0		0	0.056	0.056	0.33	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	0.21	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	0.022	
Heptachlor Epoxide	0	0		0	0.0038	0.004	0.022	
Toxaphene	0	0		0	0.0002	0.0002	0.001	

☑ *THH* CCT (min): 37.028 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	32.6	
Total Arsenic	0	0		0	10	10.0	58.3	

Total Barium	0	0		0	2,400	2,400	13,984	
Total Boron	0	0		0	3,100	3,100	18,062	
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	1,748	
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	5,827	
Total Mercury	0	0		0	0.050	0.05	0.29	
Total Nickel	0	0		0	610	610	3,554	
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	1.4	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	17.5	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	583	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	192	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	396	
Methyl Bromide	0	0		0	100	100.0	583	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	332	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	583	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	58,265	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	175	

2,4-Dichlorophenol	0	0		0	10	10.0	58.3	
2,4-Dimethylphenol	0	0		0	100	100.0	583	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	11.7	
2,4-Dinitrophenol	0	0		0	10	10.0	58.3	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	23,306	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	408	
Anthracene	0	0		0	300	300	1,748	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	1,165	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.58	
2-Chloronaphthalene	0	0		0	800	800	4,661	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	5,827	
1,3-Dichlorobenzene	0	0		0	7	7.0	40.8	
1,4-Dichlorobenzene	0	0		0	300	300	1,748	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	3,496	
Dimethyl Phthalate	0	0		0	2,000	2,000	11,653	
Di-n-Butyl Phthalate	0	0		0	20	20.0	117	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	117	
Fluorene	0	0		0	50	50.0	291	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	23.3	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	198	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	58.3	

n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	117	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.41	
Aldrin	0	0		0	N/A	N/A	N/A	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	4.2	4.2	24.5	
Chlordane	0	0		0	N/A	N/A	N/A	
4,4-DDT	0	0		0	N/A	N/A	N/A	
4,4-DDE	0	0		0	N/A	N/A	N/A	
4,4-DDD	0	0		0	N/A	N/A	N/A	
Dieldrin	0	0		0	N/A	N/A	N/A	
alpha-Endosulfan	0	0		0	20	20.0	117	
beta-Endosulfan	0	0		0	20	20.0	117	
Endosulfan Sulfate	0	0		0	20	20.0	117	
Endrin	0	0		0	0.03	0.03	0.17	
Endrin Aldehyde	0	0		0	1	1.0	5.83	
Heptachlor	0	0		0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): 14.478 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 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	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylamide	0	0		0	0.07	0.07	2.77	
Acrylonitrile	0	0		0	0.06	0.06	2.37	
Benzene	0	0		0	0.58	0.58	23.0	
Bromoform	0	0		0	7	7.0	277	
Carbon Tetrachloride	0	0		0	0.4	0.4	15.8	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	31.7	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	226	
Dichlorobromomethane	0	0		0	0.95	0.95	37.6	
1,2-Dichloroethane	0	0		0	9.9	9.9	392	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	35.6	
1,3-Dichloropropylene	0	0		0	0.27	0.27	10.7	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	792	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	7.92	
Tetrachloroethylene	0	0		0	10	10.0	396	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	21.8	
Trichloroethylene	0	0		0	0.6	0.6	23.7	
Vinyl Chloride	0	0		0	0.02	0.02	0.79	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	1.19	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	59.4	

Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.004	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.04	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.004	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.04	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.4	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	1.19	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	12.7	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	4.75	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.004	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	1.98	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	1.98	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	1.98	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	1.19	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.003	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.4	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	3.96	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.04	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.028	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.2	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	131	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	
Aldrin	0	0		0	0.0000008	8.00E-07	0.00003	
alpha-BHC	0	0		0	0.0004	0.0004	0.016	
beta-BHC	0	0		0	0.008	0.008	0.32	
gamma-BHC	0	0		0	N/A	N/A	N/A	

Chlordane	0	0		0	0.0003	0.0003	0.012	
4,4-DDT	0	0		0	0.00003	0.00003	0.001	
4,4-DDE	0	0		0	0.00002	0.00002	0.0008	
4,4-DDD	0	0		0	0.0001	0.0001	0.004	
Dieldrin	0	0		0	0.000001	0.000001	0.00004	
alpha-Endosulfan	0	0		0	N/A	N/A	N/A	
beta-Endosulfan	0	0		0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	N/A	N/A	N/A	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.000006	0.000006	0.0002	
Heptachlor Epoxide	0	0		0	0.00003	0.00003	0.001	
Toxaphene	0	0		0	0.0007	0.0007	0.028	

☑ ***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 Antimony	0.02	0.032	32.6	50.9	81.6	µg/L	32.6	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Arsenic	0.036	0.057	58.3	90.9	146	µg/L	58.3	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Boron	5.83	9.1	9,322	14,545	23,306	µg/L	9,322	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Hexavalent Chromium	Report	Report	Report	Report	Report	mg/L	0.058	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Cobalt	Report	Report	Report	Report	Report	µg/L	111	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	0.078	0.14	0.12	0.23	0.31	mg/L	0.12	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	1.09	1.85	1.75	2.95	4.37	mg/L	1.75	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	Report	Report	Report	Report	Report	mg/L	8.74	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Nickel	Report	Report	Report	Report	Report	µg/L	691	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	0.018	0.028	29.1	45.4	72.7	µg/L	29.1	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	805	AFC	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	1,957	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	13,984	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Chromium (III)	1,112	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Total Lead	63.8	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	5.83	mg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.29	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Silver	67.3	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	1.4	µg/L	Discharge Conc < TQL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	7.83	µg/L	Discharge Conc < TQL
Acrylamide	2.77	µg/L	Discharge Conc < TQL
Acrylonitrile	2.37	µg/L	Discharge Conc < TQL
Benzene	23.0	µg/L	Discharge Conc < TQL
Bromoform	277	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	15.8	µg/L	Discharge Conc < TQL
Chlorobenzene	583	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	31.7	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	20,393	µg/L	Discharge Conc < TQL
Chloroform	226	µg/L	Discharge Conc < TQL
Dichlorobromomethane	37.6	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	392	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	192	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	35.6	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	10.7	µg/L	Discharge Conc < TQL
Ethylbenzene	396	µg/L	Discharge Conc < TQL
Methyl Bromide	583	µg/L	Discharge Conc < TQL
Methyl Chloride	32,046	µg/L	Discharge Conc < TQL
Methylene Chloride	792	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	7.92	µg/L	Discharge Conc < TQL
Tetrachloroethylene	396	µg/L	Discharge Conc < TQL
Toluene	332	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	583	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	3,554	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	21.8	µg/L	Discharge Conc < TQL
Trichloroethylene	23.7	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.79	µg/L	Discharge Conc < TQL
2-Chlorophenol	175	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	58.3	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	583	µg/L	Discharge Conc < TQL

4,6-Dinitro-o-Cresol	11.7	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	58.3	µg/L	Discharge Conc < TQL
2-Nitrophenol	9,322	µg/L	Discharge Conc < TQL
4-Nitrophenol	2,738	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	418	µg/L	Discharge Conc < TQL
Pentachlorophenol	1.19	µg/L	Discharge Conc < TQL
Phenol	23,306	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	59.4	µg/L	Discharge Conc < TQL
Acenaphthene	99.1	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	1,748	µg/L	Discharge Conc < TQL
Benzidine	0.004	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.04	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.004	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.04	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.4	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	1.19	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	1,165	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	12.7	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	315	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.58	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	4,661	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	4.75	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.004	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	932	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	40.8	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	874	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	1.98	µg/L	Discharge Conc < TQL
Diethyl Phthalate	3,496	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	2,913	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	117	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	1.98	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	1.98	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	1.19	µg/L	Discharge Conc < TQL
Fluoranthene	117	µg/L	Discharge Conc < TQL
Fluorene	291	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.003	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.4	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	5.83	µg/L	Discharge Conc < TQL
Hexachloroethane	3.96	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.04	µg/L	Discharge Conc < TQL

Isophorone	198	µg/L	Discharge Conc < TQL
Naphthalene	251	µg/L	Discharge Conc < TQL
Nitrobenzene	58.3	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.028	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.2	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	131	µg/L	Discharge Conc < TQL
Phenanthrene	5.83	µg/L	Discharge Conc < TQL
Pyrene	117	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.41	µg/L	Discharge Conc < TQL
Aldrin	0.00003	µg/L	Discharge Conc < TQL
alpha-BHC	0.016	µg/L	Discharge Conc < TQL
beta-BHC	0.32	µg/L	Discharge Conc < TQL
gamma-BHC	2.48	µg/L	Discharge Conc < TQL
delta BHC	N/A	N/A	No WQS
Chlordane	0.012	µg/L	Discharge Conc < TQL
4,4-DDT	0.001	µg/L	Discharge Conc < TQL
4,4-DDE	0.0008	µg/L	Discharge Conc < TQL
4,4-DDD	0.004	µg/L	Discharge Conc < TQL
Dieldrin	0.00004	µg/L	Discharge Conc < TQL
alpha-Endosulfan	0.33	µg/L	Discharge Conc < TQL
beta-Endosulfan	0.33	µg/L	Discharge Conc < TQL
Endosulfan Sulfate	117	µg/L	Discharge Conc < TQL
Endrin	0.17	µg/L	Discharge Conc < TQL
Endrin Aldehyde	5.83	µg/L	Discharge Conc < TQL
Heptachlor	0.0002	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.001	µg/L	Discharge Conc < TQL
PCB-1016	N/A	N/A	No WQS
PCB-1221	N/A	N/A	No WQS
PCB-1232	N/A	N/A	No WQS
PCB-1242	N/A	N/A	No WQS
PCB-1248	N/A	N/A	No WQS
PCB-1254	N/A	N/A	No WQS
PCB-1260	N/A	N/A	No WQS
Toxaphene	0.001	µg/L	Discharge Conc < TQL

6. Chesapeake Bay TMDL – Phase 3 WIP Wastewater Supplement

Significant IW Sector

Final NPDES permits with Cap Loads have been issued to all significant IW dischargers as presented in **Table 7**.

Table 7: Significant IW Facilities That Have Received Final Cap Loads.

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
PA0007498	Wise Foods Inc.	4/12/18	4/30/23	10/1/13	19,957	898	0.836	0.436
PA0007552	Empire Kosher Poultry	1/23/17	1/31/22	10/1/15	21,928	740	0.88	0.436
PA0007919	Cascades Tissue Group	12/24/13	10/31/18	11/1/13	40,569	1,941	0.733	0.436
PA0008231	Guilford Mills Inc.	8/3/11	8/31/16	10/1/11	7,065	271	0.961	0.436
PA0008265	Appvion Inc.	2/23/17	2/28/22	10/1/17	61,666	7,367	0.88	0.436
PA0008419	Cherokee Pharmaceutical	9/8/16	9/30/21	10/1/16	64,884	11,748	0.876	0.436
PA0008591	NGC Industries LLC	10/11/17	10/31/22	10/1/12	2,758	132	0.941	0.436
PA0008885	Proctor & Gamble Paper Products	8/25/17	8/31/22	10/1/11	100,360	5,441	0.733	0.436
PA0009024	Global Tungsten (Osram)	9/18/17	9/30/22	10/1/12	600,515	1,577	0.7	0.436
PA0009229	Norfolk Southern Railway Co,	9/26/19	9/30/24	10/1/13	2,539	93	0.951	0.436
PA0009270	Del Monte Corp.	4/24/14	9/30/17	10/1/14	33,196	1,492	0.836	0.436
PA0009326	Motts Inc.	12/1/2020	12/31/2025	10/1/15	18,645	729	.961	.436
PA0009911	Papetti's Acquisition Inc.	12/29/16	12/31/21	10/1/13	8,104	532	0.961	0.436
PA0055328	New Morgan Landfill Co. Inc.	11/22/16	7/31/20	10/1/15	12,500	64	0.891	0.436
PA0080829*	Keystone Protein	9/22/14	3/31/17	10/1/16	19,786	381	0.961	0.436
PA0024228	Hain Pure Protein	7/19/18	7/31/23	10/1/14	18,982	766	0.961	0.436
PA0035092	Tyson Foods	8/15/11	8/31/16	10/1/14	54,794	559	0.891	0.436
PA0035157	Farmer's Pride Inc.	7/8/2021	7/31/2026	10/1/15	16,438	1,370	0.961	0.436
PA0044741	Hanover Foods Corp.	9/22/15	9/30/20	10/1/17	26,385	979	0.961	0.436
PA0046680	Republic Services of PA LLC	4/21/17	1/31/22	10/1/17	50,803	300	0.961	0.436
PA0110540	Furman Foods	3/19/18	3/31/23	10/1/12	45,450	1,624	0.876	0.436
PA0111759	Cargill Meat Solutions	12/3/18	12/31/23	10/1/13	19,483	1,218	0.733	0.436
PA0008443	PPL Montour LLC	6/11/2021	8/31/23	10/1/18	72,749	1,200	0.941	0.436
				TOTALS:	**1,319,556**	**41,422**		

ATTACHMENT B

CHANGES BETWEEN SIGNIFIGANT AND NON-SIGNIFIGANT SEWAGE

Numerous changes have occurred since 2010. The following is a summary of changes that have occurred.

- New Morgan Landfill Co. Inc. ("Conestoga Landfill", PA0055328) is now a Significant IW facility because it has modified its treatment process which will result in additional TN load. DEP has issued a final NPDES permit to New Morgan Landfill with Cap Loads of 12,500 lbs/yr TN and 64 lbs/yr TP, with a compliance start date of October 1, 2016. These loads have been moved from the Non-Significant sector to the Significant IW sector.

7. Conestoga Headwaters TMDL

Total Maximum Daily Load (TMDL)
Conestoga Headwaters
Lancaster/ Berks County

Pennsylvania Department of Environmental Protection
Central Office
Office of Water Management

August 2004

Summary of Conestoga Headwaters TMDL

1. The impaired stream segments addressed by this Total Maximum Daily Load (TMDL) are predominantly located in Caernarvon Township and New Morgan Borough, Berks County (Figure 1). The watershed area also extends into a very small portion of Lancaster and Chester Counties. The stream segments drain approximately 14 square miles of the Conestoga Headwaters area, part of State Water Plan subbasin 07J. The aquatic life existing use for the Conestoga Headwaters is warm water fishes (25 Pa. Code Chapter 93).

2. The Conestoga Headwaters TMDL was developed to address use impairments caused by nutrients. Pennsylvania's 1996 303(d) list identified 1.2 miles of the Conestoga Headwaters as impaired by nutrients, organic enrichment, and low dissolved oxygen, caused by agricultural activities and other nonpoint source pollution in the basin. The miles impaired were then increased on Pennsylvania's 1998 303(d). The 1996 and 1998 listings were based on data collected prior to 1996 through the Pennsylvania Department of Environmental Protection's (PADEP's) Surface Water Monitoring Program. In order to ensure attainment and maintenance of water quality standards in the Conestoga Headwaters, mean annual loadings of total phosphorus will need to be limited to 8,877.82 pounds per year (lbs/yr).

   The major components of the Conestoga Headwaters TMDL are summarized below:

Components	Total Phosphorus (lbs/yr)
TMDL (Total Maximum Daily Load)	8,877.82
WLA (Wasteload Allocation)	1,650.89
MOS (Margin of Safety)	887.78
LA (Load Allocation)	6,339.15

3. Mean annual total phosphorus loading is estimated to be 10,949.55 lbs/yr, respectively. To meet the TMDL, the phosphorus loading will require a 19 percent reduction.

4. The waste load allocation (WLA) portion of the TMDL equation is the total loading of a pollutant that is assigned to point sources. There are four phosphorus point source discharges in the watershed with a combined potential for phosphorus loading of 1,650.89 lbs/yr, based on the design capacities and phosphorus limits of the four facilities. This loading rate, as opposed to the average annual discharged load, is used in the final TMDL allocations (WLA). Load Allocations (LA) for phosphorus were made to the following nonpoint sources: hay and pasture lands; croplands; coniferous forest; mixed forest; deciduous forest; developed areas; streambanks; groundwater; and septic systems.

5. The adjusted load allocation (ALA) is the actual portion of the LA distributed among nonpoint sources receiving reductions, or sources that are considered controllable. Controllable sources receiving allocations are hay/pasture, cropland, developed lands (includes septic systems), and streambanks. The phosphorus TMDL includes a nonpoint

source ALA of 5,384.65 lbs/yr. Phosphorus loadings from all other sources, such as forested areas, were maintained at their existing levels. Allocations of phosphorus to controllable nonpoint sources, or the ALA, for the Conestoga Headwaters TMDL are summarized below:

Adjusted Load Allocations for Sources of Phosphorus			
Pollutant	**Current Loading (lbs/yr)**	**Adjusted Load Allocation (lbs/yr)**	**% Reduction**
Phosphorus	10,949.55	5,384.65	51

6. Ten percent of the Conestoga Headwaters phosphorus TMDL was set-aside as a margin of safety (MOS). The MOS is that portion of the pollutant loading that is reserved to account for any uncertainty in the data and computational methodology used for the analysis. The MOS for the TMDL was set at 887.78 lbs/yr.

7. The continuous simulation model used for developing the Conestoga Headwaters TMDL considers seasonal variation through a number of mechanisms. Daily time steps are used for weather data and water balance calculations. The model requires specification of the growing season and hours of daylight for each month. The model also considers the months of the year when manure is applied to the land. The combination of these actions accounts for seasonal variability.

C. Waste Load Allocation

The WLA portion of the TMDL equation is the total loading of a pollutant that is assigned to point sources. Reviewing the PADEP's permitting files identified four point source discharges for phosphorus in the watershed. However, only two facilities are actively discharging, the Zerbe Sisters Nursing Facility and the Twin Valley School District.

The Zerbe Sisters Nursing Facility and the Twin Valley School District discharge treated sewage effluent into the streams covered by this TMDL, permit numbers PA0031861 and PA0031631, respectively. The combined average phosphorus loading for the two facilities during 2002-2003 was 87.30 lbs/yr of phosphorus, which was included in the AVGWLF modeling runs for determining existing conditions. The design flows for the Zerbe and Twin Valley facilities are 0.036 mgd (million gallons per day) and 0.027 mgd respectively. Based on the 2.0 mg/l phosphorus limit for each facility, the potential for phosphorus loads if the Zerbe and Twin Valley capacities were fully utilized is 219.31 lbs/yr and 164.48 lbs/yr. This loading rate based on the design capacities of the two plants is used in the final TMDL allocations (WLA).

The other two facilities that do not discharge regularly are New Morgan Borough and Timet Inc., permit numbers PA0088048 and PA0051683 respectively. The New Morgan wastewater treatment plant is currently not operating, while the Timet discharge only occurs occasionally. However, the discharge design capacities were used to determine the waste load allocations for

each facility. Both facilities have permit limits on phosphorus of 2.0 mg/l. Design flows for the New Morgan and Timet discharges are 0.2 mgd and 0.008 mgd respectively. For the WLA, the New Morgan and Timet loadings were set at 1,218.37 lbs/yr and 48.73 lbs/yr respectively.

8. DMR Data with Data Analysis for Outfall 001

FLOW MGD

	30-day Avg	Daily Max
Aug-15	0.014508	0.044666
Sep-15	0.017311	0.053113
Sep-15	0.017311	0.053113
Sep-15	0.019315	0.060131
Oct-15	0.03168	0.064267
Oct-15	0.032591	0.064267
Nov-15	0.024378	0.074163
Dec-15	0.024777	0.062311
Jan-16	0.062432	0.071351
Feb-16	0.046414	0.069522
Mar-16	0.059129	0.083994
Apr-16	0.03753	0.087865
May-16	0.041774	0.074506
Jun-16	0.018504	0.054967
Jul-16	0.016772	0.056018
Aug-16	0.027398	0.07398
Sep-16	0.00937	0.049503
Oct-16	0.028264	0.067587
Nov-16	0.022168	0.053839
Dec-16	0.06241	0.083786
Jan-17	0.065194	0.086382
Feb-17	0.064154	0.0756
Mar-17	0.054798	0.070261
Apr-17	0.071235	0.088144
May-17	0.06673	0.088076
Jun-17	0.054197	0.083985
Jul-17	0.034929	0.084437
Aug-17	0.048828	0.086399
Sep-17	0.051449	0.086684
Oct-17	0.030049	0.047959
Nov-17	0.037952	0.084124
Dec-17	0.040002	0.068236
Jan-18	0.043102	0.073402
Feb-18	0.041107	0.074541
Mar-18	0.056828	0.076644
Apr-18	0.060432	0.074959
May-18	0.064002	0.097199
Jun-18	0.05323	0.090482
Jul-18	0.039719	0.0864
Aug-18	0.056431	0.092675
Sep-18	0.055408	0.092732
Oct-18	0.050827	0.1026
Nov-18	0.053155	0.09712
Dec-18	0.067951	0.098548
Dec-18	0.067951	0.098548
Jan-19	0.070471	0.096506
Feb-19	0.070552	0.086846
Mar-19	0.071133	0.102577
Apr-19	0.075146	0.1026
May-19	0.058435	0.1026
Jun-19	0.037559	0.087602
Jul-19	0.048516	0.091207
Aug-19	0.057154	0.102599
Sep-19	0.039873	0.104122
Oct-19	0.030541	0.080829
Nov-19	0.050881	0.097373
Dec-19	0.057461	0.097568
Jan-20	0.055158	0.099088
Feb-20	0.04932	0.087409
Mar-20	0.053757	0.082727
Apr-20	0.045254	0.097199
May-20	0.05037	0.098892
Jun-20	0.051994	0.104823
Jul-20	0.045917	0.102599
Aug-20	0.036512	0.100542
Sep-20	0.041422	0.102461
Oct-20	0.027011	0.069528
Nov-20	0.043626	0.08716
Dec-20	0.052656	0.097786
Jan-21	0.043818	0.094938
Feb-21	0.047925	0.089169
Mar-21	0.038654	0.102599
Apr-21	0.046519	0.102599
May-21	0.044168	0.099418
Jun-21	0.031795	0.091799
Jul-21	0.025497	0.090731
Jul-21	0.027584	0.090731
Aug-21	0.027347	0.085136
Sep-21	0.034534	0.089102
average	0.044712	0.083898
min	0.00937	0.044666
max	0.075146	0.104823

TN

	Monthly
08/01/2015	218.9
09/01/2015	215
10/01/2015	480.1
11/01/2015	304.7
12/01/2015	305.2
01/01/2016	833.9
02/01/2016	546.6
03/01/2016	886
04/01/2016	563.1
05/01/2016	555.8
06/01/2016	204.4
07/01/2016	157
08/01/2016	319.7
09/01/2016	90.7
10/01/2016	271.1
11/01/2016	220.5
12/01/2016	940.2
01/01/2017	851.7
02/01/2017	824.4
03/01/2017	907.6
04/01/2017	844.2
05/01/2017	989.9
06/01/2017	875.9
07/01/2017	406.5
08/01/2017	680.7
09/01/2017	689.3
10/01/2017	392.7
11/01/2017	501.7
12/01/2017	472.4
01/01/2018	562
02/01/2018	414
03/01/2018	803.6
04/01/2018	889
05/01/2018	868.7
06/01/2018	518.5
07/01/2018	633.4
08/01/2018	712
09/01/2018	493.9
10/01/2018	485.3
11/01/2018	538.5
12/01/2018	797.6
01/01/2019	1012.9
02/01/2019	994.6
03/01/2019	928.4
04/01/2019	980.3
05/01/2019	632.7
06/01/2019	306.9
07/01/2019	523
08/01/2019	549.7
09/01/2019	363.4
10/01/2019	250
11/01/2019	429
12/01/2019	723
01/01/2020	550
02/01/2020	527
03/01/2020	648
04/01/2020	329
05/01/2020	976
05/01/2020	449
06/01/2020	764
07/01/2020	859
08/01/2020	471
08/01/2020	488
09/01/2020	384
10/01/2020	153
11/01/2020	309
12/01/2020	666
01/01/2021	214
02/01/2021	545
03/01/2021	235
04/01/2021	278
05/01/2021	112
06/01/2021	244
07/01/2021	< 335
08/01/2021	< 249
09/01/2021	< 232
AVG	550.1548
MAX	1012.9
MIN	90.7

	Annual
2015	4902
2016	8332
2017	7499
2018	< 8255
2019	6339

TP

	Monthly
12/01/2016	3.59
01/01/2017	3.61
02/01/2017	3.1
03/01/2017	3.25
04/01/2017	3.81
05/01/2017	< 3.89
06/01/2017	6.65
07/01/2017	3.16
08/01/2017	3.1
09/01/2017	4.54
10/01/2017	1.76
11/01/2017	2.27
12/01/2017	2.34
01/01/2018	3.6
02/01/2018	1.8
03/01/2018	2.7
04/01/2018	3.9
05/01/2018	3.1
06/01/2018	1.8
07/01/2018	1.9
08/01/2018	2.2
09/01/2018	1.3
10/01/2018	1.7
11/01/2018	1.6
12/01/2018	1.8
12/01/2018	1.8
01/01/2019	2.9
02/01/2019	2.9
03/01/2019	3
04/01/2019	3.5
05/01/2019	2.8
06/01/2019	1.7
07/01/2019	3.5
08/01/2019	2.2
09/01/2019	1.6
10/01/2019	1.2
11/01/2019	1.5
12/01/2019	2
01/01/2020	2
02/01/2020	2
03/01/2020	3
04/01/2020	1
05/01/2020	7
05/01/2020	4
06/01/2020	5
07/01/2020	2
08/01/2020	2
09/01/2020	2
10/01/2020	2
11/01/2020	2
12/01/2020	3
01/01/2021	1
02/01/2021	2
03/01/2021	1
04/01/2021	2
05/01/2021	1
06/01/2021	2
07/01/2021	3
08/01/2021	2
09/01/2021	2
AVG	2.579322
MAX	7
MIN	1

	Annual
2016	< 40.0
2017	< 30.0
2018	< 31.0
2019	27

TDS

08/01/2015	1471
09/01/2015	1253
10/01/2015	2305
10/01/2015	2305
11/01/2015	2694
12/01/2015	2303
01/01/2016	2770
02/01/2016	2580
03/01/2016	2641
04/01/2016	1117
05/01/2016	1821
06/01/2016	709
07/01/2016	435
08/01/2016	2139
09/01/2016	676
10/01/2016	1424
11/01/2016	1602
12/01/2016	2670
01/01/2017	1884
02/01/2017	2667
03/01/2017	2390
04/01/2017	2036
05/01/2017	2478
06/01/2017	3467
07/01/2017	1659
08/01/2017	2633
09/01/2017	1302
10/01/2017	1441
11/01/2017	1909
12/01/2017	1390
01/01/2018	1202
02/01/2018	2975
03/01/2018	2280
04/01/2018	2086
05/01/2018	2274.7
06/01/2018	1219
07/01/2018	976.19
08/01/2018	2353
09/01/2018	1093
10/01/2018	1080
11/01/2018	1779
12/01/2018	2057.7
01/01/2019	1047.7
02/01/2019	3029
03/01/2019	1564.5
04/01/2019	3011
05/01/2019	< 2220
06/01/2019	1197.3
07/01/2019	2174
08/01/2019	2169
09/01/2019	1656
10/01/2019	1061.7
11/01/2019	847
12/01/2019	1966
01/01/2020	1530
02/01/2020	1362
03/01/2020	944
04/01/2020	961
05/01/2020	3861
06/01/2020	1379
07/01/2020	1779
08/01/2020	1304
09/01/2020	1537
10/01/2020	542
11/01/2020	583
12/01/2020	1887
01/01/2021	717
02/01/2021	2114
03/01/2021	492
04/01/2021	1044
05/01/2021	241
06/01/2021	724
07/01/2021	1163
08/01/2021	847
09/01/2021	482
AVG	1684.903
MAX	3861
MIN	241

Total Antimony

DATE	30-day Avg Results (mg/L)	30-day Avg Limit (mg/L)	Daily Max Results (mg/L)	Daily Max Limit (mg/L)	30-day Avg Results (lbs/day)	30-day Avg Limit (lbs/day)	Daily Max Results (lbs/day)	Daily Max Limit (lbs/day)
Jun-18	0.025	0.046	0.03	0.071	0.0077	0.029	0.0105	0.044
Jul-18	0.023	0.046	0.04	0.071	0.0084	0.029	0.0173	0.044
Aug-18	0.029	0.046	0.03	0.071	0.013	0.029	0.017	0.044
Sep-18	0.025	0.046	0.03	0.071	0.0071	0.029	0.0096	0.044
Oct-18	0.022	0.046	0.03	0.071	0.0069	0.029	0.0131	0.044
Nov-18	0.028	0.046	0.03	0.071	0.0099	0.029	0.0233	0.044
Dec-18	0.026	0.046	0.03	0.071	0.0122	0.029	0.0199	0.044
Jan-19	0.021	0.046	0.03	0.071	0.0104	0.029	0.0144	0.044
Feb-19	0.025	0.046	0.03	0.071	0.0142	0.029	0.0217	0.044
Mar-19	0.026	0.046	0.03	0.071	0.0135	0.029	0.0201	0.044
Apr-19	0.018	0.046	0.03	0.071	0.0098	0.029	0.0149	0.044
May-19	0.022	0.046	0.03	0.071	0.0081	0.029	0.0151	0.044
Jun-19	0.029	0.046	0.04	0.071	0.0066	0.029	0.0134	0.044
Jul-19	0.038	0.046	0.05	0.071	0.0157	0.029	0.027	0.044
Aug-19	0.031	0.046	0.04	0.071	0.0106	0.029	0.0215	0.044
Sep-19	0.026	0.046	0.03	0.071	0.0075	0.029	0.0134	0.044
Oct-19	0.039	0.046	0.06	0.071	0.0061	0.029	0.0134	0.044
Nov-19	0.039	0.046	0.06	0.071	0.0063	0.029	0.0134	0.044
Dec-19	0.043	0.046	0.05	0.071	0.011	0.029	0.013	0.044
Jan-20	0.023	0.046	0.03	0.071	0.005	0.029	0.007	0.044
Feb-20	0.016	0.046	0.02	0.071	0.005	0.029	0.012	0.044
Mar-20	0.015	0.046	0.02	0.071	0.004	0.029	0.006	0.044
Apr-20	0.018	0.046	0.03	0.071	0.008	0.029	0.015	0.044
May-20	0.013	0.046	0.02	0.071	0.005	0.029	0.015	0.044
Jun-20	0.013	0.046	0.02	0.071	0.002	0.029	0.003	0.044
Jul-20	0.011	0.046	0.013	0.071	0.003	0.029	0.003	0.044
Aug-20	0.012	0.046	0.014	0.071	0.003	0.029	0.004	0.044
Sep-20	0.018	0.046	0.021	0.071	0.004	0.029	0.007	0.044
Oct-20	0.017	0.046	0.02	0.071	0.003	0.029	0.006	0.044
Nov-20	0.021	0.046	0.021	0.071	0.002	0.029	0.002	0.044
Dec-20	0.016	0.046	0.019	0.071	0.002	0.029	0.003	0.044
Jan-21	0.011	0.046	0.015	0.071	0.004	0.029	0.006	0.044
Feb-21	0.008	0.046	0.01	0.071	0.001	0.029	0.001	0.044
Mar-21	0.01	0.046	0.01	0.071	0.003	0.029	0.006	0.044
Apr-21	0.009	0.046	0.009	0.071	0.001	0.029	0.002	0.044
May-21	0.008	0.046	0.009	0.071	0.001	0.029	0.003	0.044
Jun-21	0.009	0.046	0.01	0.071	0.0003	0.029	0.001	0.044
Jul-21	0.01	0.046	0.01	0.071	0.001	0.029	0.003	0.044
Aug-21	0.008	0.046	0.009	0.071	0.001	0.029	0.002	0.044
Sep-21	0.009	0.046	0.011	0.071	0.001	0.029	0.001	0.044
Avg	0.02025			Avg	0.006108			
% Ratio	44.02%			% Ratio	21.06%			

Total Arsenic

DATE	30-day Avg Results (mg/L)	30-day Avg Limit (mg/L)	Daily Max Results (mg/L)	Daily Max Limit (mg/L)	30-day Avg Results (lbs/day)	30-day Avg Limit (lbs/day)	Daily Max Results (lbs/day)	Daily Max Limit (lbs/day)
06/01/2018	0.025	0.082	0.04	0.127	0.0047	0.051	0.0104	0.079
07/01/2018	0.011	0.082	0.02	0.127	0.0036	0.051	0.0075	0.079
08/01/2018	0.013	0.082	0.02	0.127	0.0056	0.051	0.0114	0.079
09/01/2018	0.009	0.082	0.02	0.127	0.0025	0.051	0.0057	0.079
10/01/2018	0.008	0.082	0.01	0.127	0.0025	0.051	0.01	0.079
11/01/2018	0.024	0.082	0.06	0.127	0.0124	0.051	0.0466	0.079
12/01/2018	0.008	0.082	0.02	0.127	0.0035	0.051	0.0092	0.079
01/01/2019	0.009	0.082	0.01	0.127	0.0045	0.051	0.0072	0.079
02/01/2019	0.01	0.082	0.03	0.127	0.0061	0.051	0.0212	0.079
03/01/2019	0.009	0.082	0.01	0.127	0.0046	0.051	0.0064	0.079
04/01/2019	0.009	0.082	0.01	0.127	0.0052	0.051	0.0075	0.079
05/01/2019	0.013	0.082	0.04	0.127	0.0041	0.051	0.0096	0.079
06/01/2019	0.016	0.082	0.06	0.127	0.0052	0.051	0.0268	0.079
07/01/2019	0.008	0.082	0.01	0.127	0.0033	0.051	0.0068	0.079
08/01/2019	0.009	0.082	0.02	0.127	0.0034	0.051	0.0057	0.079
09/01/2019	0.018	0.082	0.09	0.127	0.0037	0.051	0.0113	0.079
10/01/2019	0.008	0.082	0.009	0.127	0.0013	0.051	0.0021	0.079
11/01/2019	0.008	0.082	0.008	0.127	0.002	0.051	0.003	0.079
12/01/2019	0.008	0.082	0.008	0.127	0.002	0.051	0.002	0.079
01/01/2020	0.007	0.082	0.007	0.127	0.002	0.051	0.004	0.079
02/01/2020	0.009	0.082	0.01	0.127	0.002	0.051	0.003	0.079
03/01/2020	0.007	0.082	0.007	0.127	0.003	0.051	0.004	0.079
04/01/2020	0.013	0.082	0.02	0.127	0.002	0.051	0.003	0.079
05/01/2020	0.012	0.082	0.015	0.127	0.003	0.051	0.005	0.079
06/01/2020	0.017	0.082	0.02	0.127	0.004	0.051	0.006	0.079
07/01/2020	0.018	0.082	0.019	0.127	0.004	0.051	0.005	0.079
08/01/2020	0.019	0.082	0.02	0.127	0.005	0.051	0.007	0.079
09/01/2020	0.017	0.082	0.02	0.127	0.003	0.051	0.006	0.079
10/01/2020	0.021	0.082	0.022	0.127	0.002	0.051	0.003	0.079
11/01/2020	0.015	0.082	0.018	0.127	0.002	0.051	0.004	0.079
12/01/2020	0.011	0.082	0.016	0.127	0.004	0.051	0.008	0.079
01/01/2021	0.007	0.082	0.009	0.127	0.001	0.051	0.001	0.079
02/01/2021	0.008	0.082	0.008	0.127	0.002	0.051	0.004	0.079
03/01/2021	0.007	0.082	0.008	0.127	0.001	0.051	0.001	0.079
04/01/2021	0.007	0.082	0.007	0.127	0.001	0.051	0.003	0.079
05/01/2021	0.007	0.082	0.007	0.127	0.0002	0.051	0.001	0.079
06/01/2021	0.008	0.082	0.01	0.127	0.0013	0.051	0.002	0.079
07/01/2021	0.013	0.082	0.017	0.127	0.001	0.051	0.003	0.079
08/01/2021	0.016	0.082	0.019	0.127	0.002	0.051	0.004	0.079
09/01/2021	0.012	0.082	0.013	0.127	0.001	0.051	0.001	0.079
Avg	0.01185			Avg	0.003168			
% Ratio	14.45%			% Ratio	6.21%			

New Limits for Antimony		No. of Exceedance If placed in the current permit
30-day Average (mg/L) =	0.0326	0
30-day Average (lbs/day) =	0.02	0
Daily Max (mg/L) =	0.0509	0
Daily Max (lbs/day) =	0.032	0

New Limits for Arsenic		No. of Exceedance If placed in the current permit
30-day Average (mg/L) =	0.0583	0
30-day Average (lbs/day) =	0.036	0
Daily Max (mg/L) =	0.0909	0
Daily Max (lbs/day) =	0.057	0

	TDS	Chloride	Bromide	Sulfate	Total Cadmium	Hexavalent Chromium	Total Copper	Dissolved Iron	Total Iron	Total Manganese	1,4-Dioxane
1/2/2019	4120	1400	9.2	34	<0.001	<0.003	<0.005	0.3	0.3	0.12	<0.005
1/8/2019	3890	1300	9	32	<0.001	<0.0025	<0.005	0.6	0.63	0.28	
2/5/2019	4618	2500	<0.5	25	<0.001	<0.005	<0.005	0.4	0.4	0.23	
2/12/2019	4734	1600	9.8	30	<0.001	0.00337	<0.005	0.2	0.2	0.35	
3/5/2019	4618	1600	1.6	29	<0.0021	0.007	<0.010	0.3	0.32	0.18	
3/12/2019	3990	1700	9.3	27	<0.001	0.00742	<0.005	0.3	0.3	0.21	
4/2/2019	4379	1400	2	27	<0.005	0.003	<0.005	0.3	0.3	0.21	<0.0052
4/9/2019	4500	1500	3.3	22	<0.0021	<0.00261	<0.01	0.3	0.32	0.22	
5/7/2019	4592	1600	3.6	26	<0.0021	0.0031	<0.010	0.3	0.37	0.229	
5/14/2019	4690	1500	4.1	27	<0.0021	0.003	<0.010	0.3	0.35	0.19	
6/4/2019	5174	1800	4.6	36	<0.0021	<0.01	<0.01	0.4	0.42	0.26	
6/11/2019	5790	1900	6.9	51	<0.0021	0.00378	<0.01	0.7	0.75	0.22	
7/1/2019	5874	2200	6.7	63	<0.0021	<0.010	<0.01	0.2	0.25	0.15	<0.0052
7/9/2019	6190	2200	6.4	73	<0.0021	0.00377	<0.01	0.3	0.25	0.11	
8/6/2019	4146	1300	8	58	<0.0021	0.00975	<0.01	<0.2	0.11	0.12	
8/13/2019	4449	1500	8.8	59	<0.0021	0.00287	<0.01	<0.2	0.11	0.18	
9/3/2019	3688	1200	5.7	46	<0.0021	<0.003	<0.01	<0.2	0.07	0.044	
9/10/2019	3802	1100	5.5	45	<0.0021	<0.0025	<0.01	<0.2	0.08	0.043	
10/1/2019	4848	1600	7.5	52	<0.0021	<0.003	<0.01	<0.2	0.08	0.06	<0.005
10/8/2019	5612	1900	8.8	58	<0.0021	0.00337	<0.01	0.2	0.16	0.086	
11/5/2019	4206	1200	18	100	0.05	<0.008	0.011	0.2	0.21	0.077	
.1/12/2019	3894	1100	9.4	110	0.04	<0.008	<0.01	0.5	0.62	0.289	
12/3/2019	4688	1500	9.3	47	<0.0021	<0.01	<0.01	0.2	0.2	0.141	
.2/10/2019	4722	1600	8.8	39	<0.0021	0.00546	<0.01	0.5	0.44	0.111	
1/7/2020	4316	1500	9.4	29	<0.0022	0.00367	<0.01	0.3	0.22	0.156	<5.0
1/14/2020	4456	1400	9.8	28	<0.0010	0.00315	<0.005	0.43	0.37	0.095	
2/4/2020	4116	1300	9.6	36	<0.001	<0.0025	<0.005	0.45	0.45	0.106	
2/11/2020	4230	1300	10	33	<0.001	<0.0025	0.022	0.4	0.4	0.083	
3/3/2020	4438	1400	9.1	34	<0.001	0.0026	0.004	2	0.3	0.052	
3/10/2020	4386	1500	11	32	<0.001	0.0029	<0.037	<0.2	0.2	0.032	
4/7/2020	4674	1600	6	33	<0.001	0.00612	0.031	0.46		0.075	<5.0
4/14/2020	4448	1500	11	32	<0.001	0.00454	<0.01	0.4	0.43	0.057	
5/5/2020	4840	1600	12	30	<0.001	0.0084	0.044	0.45	0.46	0.032	
5/12/2020	5160	1700	12	31	<0.001	0.00715	0.058	0.31	0.62	0.055	
6/2/2020	5923	1800	12	32	<0.005	0.006	0.056	0.47	0.54	0.069	
6/9/2020	5670	1800	13	13	<0.001	0.00598	0.048	0.44	0.47	0.073	
7/7/2020	5680	2000	14	36	<0.001	<0.0025	0.092	0.35	0.36	0.15	<10
7/14/2020	856	2000	15	40	<0.005	<0.0025	0.077	0.57	0.63	0.073	
8/4/2020	6628	2200	15	40	<0.001	0.0073	0.067	0.5	0.43	0.088	
8/11/2020	5096	1700	13	60	<0.001	0.0048	0.066	0.44	0.54	0.072	
9/1/2020	5725	1700	12	47	<0.001	0.0061	0.048	0.71	0.81	0.175	
9/8/2020	5702	1900	14	49	0.087	<0.0025	0.087	0.5	0.48	0.076	
10/6/2020	5976	1900	15	83	<0.001	0.0037	0.057	0.77	0.77	0.047	<0.005
.0/13/2020	6272	1900	14	64	<0.001	0.0049	<0.005	0.83	0.05	<0.005	
11/3/2020	5864	1900	14	40	<0.001	0.0038	0.027	0.8	0.89	0.25	
.1/10/2020	5350	1800	13	33	<0.001	<0.0025	0.039	0.56	0.64	0.075	
12/1/2020	5004	1600	11	26	<0.001	0.00318	0.027	0.59	0.53	0.058	
12/8/2020	4632	1600	11	26	<0.001	0.004	0.024	0.06	0.05	0.056	
1/5/2021	4628	1300	10	41	<0.001	0.00334	0.05	0.83	0.85	0.57	<0.0056
1/12/2021	4458	1300	10	36	<0.001	0.00523	0.044	0.72	0.66	0.39	
2/2/2021	4994	1400	12	23	<0.001	0.00813	0.054	0.74	0.82	0.33	
2/9/2021	5574	1600	12	22	<0.001	0.00774	0.082	0.73	0.85	0.34	
3/2/2021	5660	1900	13	28	<0.001	0.0069	0.064	0.66	0.78	0.345	
3/9/2021	4454	1400	12	28	<0.001	0.00597	0.056	0.56	0.67	0.26	
4/6/2021	4694	1500	12	22	<0.001	<0.0025	0.057	0.57	0.59	0.35	<10
4/13/2021	4676	1400	11	20	<0.001	0.00431	0.053	0.59	0.58	0.35	
5/4/2021	4934	1500	12	21	<0.001	0.0032	0.068	0.72	0.62	0.26	
5/11/2021	5284	1500	12	23	<0.001	0.0046	0.09	0.55	0.68	0.33	
6/1/2021	5890	1400	14	30	<0.001	0.0059	0.073	0.7	0.87	0.3	
6/8/2021	5860	1900	14	33	<0.001	0.0027	0.053	0.98	1.5	0.32	
7/6/2021	5988	1800	14	30	<0.001	<0.01	0.076	0.79	0.9	0.19	<0.01
7/13/2021	6306	1600	14	37	<0.001	0.00342	0.061	0.58	0.63	0.084	
8/3/2021	6738	2200	16	32	<0.001	<0.01	0.2	0.69	0.83	0.15	
8/10/2021	6796	2200	16	34	<0.001	<0.01	0.21	0.55	0.69	0.098	
9/7/2021	5342	1600	13	42	<0.001	0.00382	0.19	0.44	0.53	0.097	
9/14/2021	4750	1400	11	40	<0.001	0.00376	0.11	0.34	0.4	0.14	

9. DMR Data for Outfall 002

01/01/2016	Ammonia-Nitrogen	< 0.100
07/01/2016	Ammonia-Nitrogen	< 0.100
01/01/2017	Ammonia-Nitrogen	< 0.100
07/01/2017	Ammonia-Nitrogen	0.119
01/01/2018	Ammonia-Nitrogen	< 0.10
07/01/2018	Ammonia-Nitrogen	E
07/01/2018	Ammonia-Nitrogen	0.14
01/01/2019	Ammonia-Nitrogen	0.033
07/01/2019	Ammonia-Nitrogen	0.04
01/01/2020	Ammonia-Nitrogen	0.047
07/01/2020	Ammonia-Nitrogen	0.031
01/01/2021	Ammonia-Nitrogen	0.026
01/01/2016	Arsenic, Total	< 0.0050
07/01/2016	Arsenic, Total	< 0.0050
01/01/2017	Arsenic, Total	< 0.0050
07/01/2017	Arsenic, Total	< 0.0050
01/01/2018	Arsenic, Total	< 0.015
07/01/2018	Arsenic, Total	< 0.015
07/01/2018	Arsenic, Total	< 0.015
01/01/2019	Arsenic, Total	< 0.015
07/01/2019	Arsenic, Total	< 0.015
01/01/2020	Arsenic, Total	< 0.015
07/01/2020	Arsenic, Total	< 0.015
01/01/2021	Arsenic, Total	< 0.015
01/01/2016	Barium, Total	0.013
07/01/2016	Barium, Total	0.021
01/01/2017	Barium, Total	0.041
07/01/2017	Barium, Total	0.016
01/01/2018	Barium, Total	0.018
07/01/2018	Barium, Total	0.018
07/01/2018	Barium, Total	0.018
01/01/2019	Barium, Total	0.029
07/01/2019	Barium, Total	0.022
01/01/2020	Barium, Total	0.027
07/01/2020	Barium, Total	0.026
01/01/2021	Barium, Total	0.016
01/01/2016	Cadmium, Total	< 0.0010
07/01/2016	Cadmium, Total	< 0.0010
01/01/2017	Cadmium, Total	< 0.0010
07/01/2017	Cadmium, Total	< 0.0010
01/01/2018	Cadmium, Total	< 0.0020
07/01/2018	Cadmium, Total	< 0.0020
07/01/2018	Cadmium, Total	< 0.0020
01/01/2019	Cadmium, Total	< 0.0020
07/01/2019	Cadmium, Total	< 0.002
01/01/2020	Cadmium, Total	0.002
07/01/2020	Cadmium, Total	< 0.0020
01/01/2021	Cadmium, Total	< 0.002
01/01/2016	Chemical Oxygen Demand (COD)	10
07/01/2016	Chemical Oxygen Demand (COD)	31
01/01/2017	Chemical Oxygen Demand (COD)	10
07/01/2017	Chemical Oxygen Demand (COD)	23
01/01/2018	Chemical Oxygen Demand (COD)	14.5
07/01/2018	Chemical Oxygen Demand (COD)	17.4
07/01/2018	Chemical Oxygen Demand (COD)	17.4
01/01/2019	Chemical Oxygen Demand (COD)	< 10
07/01/2019	Chemical Oxygen Demand (COD)	15.4
01/01/2020	Chemical Oxygen Demand (COD)	24.7
07/01/2020	Chemical Oxygen Demand (COD)	28
01/01/2021	Chemical Oxygen Demand (COD)	11.6
01/01/2016	Chromium, Total	< 0.0025
07/01/2016	Chromium, Total	< 0.0025
01/01/2017	Chromium, Total	< 0.0025
07/01/2017	Chromium, Total	< 0.0025
01/01/2018	Chromium, Total	< 0.0040
07/01/2018	Chromium, Total	< 0.0040
07/01/2018	Chromium, Total	< 0.0040
01/01/2019	Chromium, Total	< 0.004
07/01/2019	Chromium, Total	< 0.0040
01/01/2020	Chromium, Total	< 0.004
07/01/2020	Chromium, Total	< 0.0040
01/01/2021	Chromium, Total	< 0.004

01/01/2016	Cyanide, Total	< 0.0050
07/01/2016	Cyanide, Total	< 0.0050
01/01/2017	Cyanide, Total	< 0.0050
07/01/2017	Cyanide, Total	0.013
01/01/2018	Cyanide, Total	< 0.010
07/01/2018	Cyanide, Total	< 0.010
07/01/2018	Cyanide, Total	< 0.010
01/01/2019	Cyanide, Total	< 0.010
07/01/2019	Cyanide, Total	< 0.010
01/01/2020	Cyanide, Total	< 0.010
07/01/2020	Cyanide, Total	< 0.010
01/01/2021	Cyanide, Total	< 0.010
01/01/2016	Iron, Total	0.54
07/01/2016	Iron, Total	0.16
01/01/2017	Iron, Total	0.15
07/01/2017	Iron, Total	0.13
01/01/2018	Iron, Total	0.91
07/01/2018	Iron, Total	1.1
07/01/2018	Iron, Total	1.1
01/01/2019	Iron, Total	1.8
07/01/2019	Iron, Total	1.1
01/01/2020	Iron, Total	2.6
07/01/2020	Iron, Total	2.7
01/01/2021	Iron, Total	0.83
01/01/2016	Lead, Total	< 0.0030
07/01/2016	Lead, Total	< 0.0030
01/01/2017	Lead, Total	< 0.0030
07/01/2017	Lead, Total	< 0.0030
01/01/2018	Lead, Total	< 0.010
07/01/2018	Lead, Total	< 0.010
07/01/2018	Lead, Total	< 0.010
01/01/2019	Lead, Total	0.014
07/01/2019	Lead, Total	< 0.010
01/01/2020	Lead, Total	< 0.01
07/01/2020	Lead, Total	< 0.010
01/01/2021	Lead, Total	< 0.010
01/01/2016	Magnesium, Dissolved	2.4
07/01/2016	Magnesium, Dissolved	4.6
01/01/2017	Magnesium, Dissolved	4.8
07/01/2017	Magnesium, Dissolved	4.7
01/01/2018	Magnesium, Dissolved	3.4
07/01/2018	Magnesium, Dissolved	3.9
07/01/2018	Magnesium, Dissolved	3.9
01/01/2019	Magnesium, Dissolved	3.4
07/01/2019	Magnesium, Dissolved	3.2
01/01/2020	Magnesium, Dissolved	2.7
07/01/2020	Magnesium, Dissolved	1.8
01/01/2021	Magnesium, Dissolved	4.2
01/01/2016	Magnesium, Total	2.6
07/01/2016	Magnesium, Total	4.8
01/01/2017	Magnesium, Total	5.8
07/01/2017	Magnesium, Total	5.2
01/01/2018	Magnesium, Total	3.7
07/01/2018	Magnesium, Total	3.9
07/01/2018	Magnesium, Total	3.9
01/01/2019	Magnesium, Total	3.8
07/01/2019	Magnesium, Total	3.2
01/01/2020	Magnesium, Total	2.9
07/01/2020	Magnesium, Total	2.2
01/01/2021	Magnesium, Total	2.9

01/01/2016	Mercury, Total	< 0.00020
07/01/2016	Mercury, Total	< 0.0002
01/01/2017	Mercury, Total	< 0.00020
07/01/2017	Mercury, Total	< 0.00020
01/01/2018	Mercury, Total	< 0.00020
07/01/2018	Mercury, Total	< 0.0002
07/01/2018	Mercury, Total	< 0.0002
01/01/2019	Mercury, Total	< 0.00020
07/01/2019	Mercury, Total	< 0.00020
01/01/2020	Mercury, Total	< 0.0002
07/01/2020	Mercury, Total	< 0.00020
01/01/2021	Mercury, Total	< 0.0002
01/01/2016	Nitrate-Nitrite as N	0.22
07/01/2016	Nitrate-Nitrite as N	1
01/01/2017	Nitrate-Nitrite as N	0.44
07/01/2017	Nitrate-Nitrite as N	< 0.2
01/01/2018	Nitrate-Nitrite as N	0.77
07/01/2018	Nitrate-Nitrite as N	< 0.050
07/01/2018	Nitrate-Nitrite as N	< 0.050
01/01/2019	Nitrate-Nitrite as N	0.37
07/01/2019	Nitrate-Nitrite as N	< 0.050
01/01/2020	Nitrate-Nitrite as N	0.12
07/01/2020	Nitrate-Nitrite as N	0.41
01/01/2021	Nitrate-Nitrite as N	0.21
01/01/2016	Oil and Grease	< 2.1
07/01/2016	Oil and Grease	< 2.0
01/01/2017	Oil and Grease	< 2.2
07/01/2017	Oil and Grease	< 2.1
01/01/2018	Oil and Grease	< 4.7
07/01/2018	Oil and Grease	< 5.1
07/01/2018	Oil and Grease	< 5.1
01/01/2019	Oil and Grease	< 5.1
07/01/2019	Oil and Grease	< 5.1
01/01/2020	Oil and Grease	< 5.1
07/01/2020	Oil and Grease	13.8
01/01/2021	Oil and Grease	< 5.1
01/01/2016	pH	7.35
07/01/2016	pH	7.38
01/01/2017	pH	7.78
07/01/2017	pH	7.78
01/01/2018	pH	7.2
07/01/2018	pH	6.9
07/01/2018	pH	6.9
01/01/2019	pH	7.2
07/01/2019	pH	7
01/01/2020	pH	7.5
07/01/2020	pH	7.1
01/01/2021	pH	7.2
01/01/2016	Selenium, Total	< 0.010
07/01/2016	Selenium, Total	< 0.010
01/01/2017	Selenium, Total	< 0.010
07/01/2017	Selenium, Total	< 0.010
01/01/2018	Selenium, Total	< 0.025
07/01/2018	Selenium, Total	< 0.025
07/01/2018	Selenium, Total	< 0.025
01/01/2019	Selenium, Total	< 0.025
07/01/2019	Selenium, Total	< 0.025
01/01/2020	Selenium, Total	< 0.025
07/01/2020	Selenium, Total	< 0.025
01/01/2021	Selenium, Total	< 0.025
01/01/2016	Silver, Total	< 0.0020
07/01/2016	Silver, Total	< 0.0020
01/01/2017	Silver, Total	< 0.0020
07/01/2017	Silver, Total	< 0.0020
01/01/2018	Silver, Total	< 0.0060
07/01/2018	Silver, Total	< 0.0060
07/01/2018	Silver, Total	< 0.0060
01/01/2019	Silver, Total	< 0.0060
07/01/2019	Silver, Total	< 0.0060
01/01/2020	Silver, Total	< 0.006
07/01/2020	Silver, Total	< 0.0060
01/01/2021	Silver, Total	< 0.0060
01/01/2016	Total Dissolved Solids	55
07/01/2016	Total Dissolved Solids	101
01/01/2017	Total Dissolved Solids	127
07/01/2017	Total Dissolved Solids	39
01/01/2018	Total Dissolved Solids	42
07/01/2018	Total Dissolved Solids	79
07/01/2018	Total Dissolved Solids	79
01/01/2019	Total Dissolved Solids	52
07/01/2019	Total Dissolved Solids	93
01/01/2020	Total Dissolved Solids	110
07/01/2020	Total Dissolved Solids	61
01/01/2021	Total Dissolved Solids	65
01/01/2016	Total Organic Carbon	1.5
07/01/2016	Total Organic Carbon	9.8
01/01/2017	Total Organic Carbon	4.5
07/01/2017	Total Organic Carbon	7.6
01/01/2018	Total Organic Carbon	3.3
07/01/2018	Total Organic Carbon	5.7
07/01/2018	Total Organic Carbon	5.7
01/01/2019	Total Organic Carbon	3.2
07/01/2019	Total Organic Carbon	6.1
01/01/2020	Total Organic Carbon	7.8
07/01/2020	Total Organic Carbon	7.6
01/01/2021	Total Organic Carbon	2.6

10. DMR Data for Outfall 005

01/01/2016	Cyanide, Total	< 0.0050
07/01/2016	Cyanide, Total	< 0.0050
01/01/2017	Cyanide, Total	< 0.0050
07/01/2017	Cyanide, Total	< 0.0050
01/01/2018	Cyanide, Total	< 0.010
07/01/2018	Cyanide, Total	< 0.010
07/01/2018	Cyanide, Total	< 0.010
01/01/2019	Cyanide, Total	< 0.010
07/01/2019	Cyanide, Total	< 0.010
01/01/2020	Cyanide, Total	< 0.010
07/01/2020	Cyanide, Total	< 0.010
01/01/2021	Cyanide, Total	< 0.010
01/01/2016	Iron, Total	0.56
07/01/2016	Iron, Total	< 0.030
01/01/2017	Iron, Total	< 0.060
07/01/2017	Iron, Total	0.3
01/01/2018	Iron, Total	1.3
07/01/2018	Iron, Total	1.7
07/01/2018	Iron, Total	1.7
01/01/2019	Iron, Total	1.5
07/01/2019	Iron, Total	12.1
01/01/2020	Iron, Total	6.7
07/01/2020	Iron, Total	4.8
01/01/2021	Iron, Total	1.6
01/01/2016	Lead, Total	< 0.0030
07/01/2016	Lead, Total	< 0.0030
01/01/2017	Lead, Total	0.0053
07/01/2017	Lead, Total	0.0032
01/01/2018	Lead, Total	0.011
07/01/2018	Lead, Total	0.021
07/01/2018	Lead, Total	0.021
01/01/2019	Lead, Total	0.013
07/01/2019	Lead, Total	0.037
01/01/2020	Lead, Total	0.021
07/01/2020	Lead, Total	0.047
01/01/2021	Lead, Total	0.012
01/01/2016	Magnesium, Dissolved	6.9
07/01/2016	Magnesium, Dissolved	11.5
01/01/2017	Magnesium, Dissolved	10.6
07/01/2017	Magnesium, Dissolved	6.6
01/01/2018	Magnesium, Dissolved	10.4
07/01/2018	Magnesium, Dissolved	8.4
07/01/2018	Magnesium, Dissolved	8.4
01/01/2019	Magnesium, Dissolved	9.4
07/01/2019	Magnesium, Dissolved	3.4
01/01/2020	Magnesium, Dissolved	6.2
07/01/2020	Magnesium, Dissolved	6.7
01/01/2021	Magnesium, Dissolved	9.9
01/01/2016	Magnesium, Total	2.5
07/01/2016	Magnesium, Total	11.2
01/01/2017	Magnesium, Total	10.3
07/01/2017	Magnesium, Total	7.1
01/01/2018	Magnesium, Total	11.5
07/01/2018	Magnesium, Total	8.3
07/01/2018	Magnesium, Total	8.3
01/01/2019	Magnesium, Total	10
07/01/2019	Magnesium, Total	4.4
01/01/2020	Magnesium, Total	6.7
07/01/2020	Magnesium, Total	7.6
01/01/2021	Magnesium, Total	10.2
01/01/2016	Mercury, Total	< 0.00020
07/01/2016	Mercury, Total	< 0.0002
01/01/2017	Mercury, Total	< 0.00020
07/01/2017	Mercury, Total	< 0.00020
01/01/2018	Mercury, Total	< 0.00020
07/01/2018	Mercury, Total	< 0.00020
07/01/2018	Mercury, Total	< 0.00020
01/01/2019	Mercury, Total	< 0.00020
07/01/2019	Mercury, Total	< 0.00020
01/01/2020	Mercury, Total	< 0.0002
07/01/2020	Mercury, Total	< 0.00020
01/01/2021	Mercury, Total	< 0.0002

01/01/2016	Ammonia-Nitrogen	19.4
07/01/2016	Ammonia-Nitrogen	0.382
01/01/2017	Ammonia-Nitrogen	0.262
07/01/2017	Ammonia-Nitrogen	0.123
01/01/2018	Ammonia-Nitrogen	3.9
07/01/2018	Ammonia-Nitrogen	E
07/01/2018	Ammonia-Nitrogen	0.36
01/01/2019	Ammonia-Nitrogen	0.98
07/01/2019	Ammonia-Nitrogen	0.13
01/01/2020	Ammonia-Nitrogen	2.7
07/01/2020	Ammonia-Nitrogen	0.2
01/01/2021	Ammonia-Nitrogen	12.3
01/01/2016	Arsenic, Total	< 0.0050
07/01/2016	Arsenic, Total	< 0.0050
01/01/2017	Arsenic, Total	< 0.0050
07/01/2017	Arsenic, Total	< 0.005
01/01/2018	Arsenic, Total	< 0.015
07/01/2018	Arsenic, Total	< 0.015
07/01/2018	Arsenic, Total	< 0.015
01/01/2019	Arsenic, Total	< 0.015
07/01/2019	Arsenic, Total	< 0.015
01/01/2020	Arsenic, Total	< 0.015
07/01/2020	Arsenic, Total	< 0.015
01/01/2021	Arsenic, Total	< 0.015
01/01/2016	Barium, Total	0.014
07/01/2016	Barium, Total	0.046
01/01/2017	Barium, Total	0.054
07/01/2017	Barium, Total	0.051
01/01/2018	Barium, Total	0.074
07/01/2018	Barium, Total	0.11
07/01/2018	Barium, Total	0.11
01/01/2019	Barium, Total	0.06
07/01/2019	Barium, Total	0.1
01/01/2020	Barium, Total	0.1
07/01/2020	Barium, Total	0.11
01/01/2021	Barium, Total	0.11
01/01/2016	Cadmium, Total	< 0.0010
07/01/2016	Cadmium, Total	< 0.0010
01/01/2017	Cadmium, Total	< 0.0010
07/01/2017	Cadmium, Total	< 0.001
01/01/2018	Cadmium, Total	< 0.0020
07/01/2018	Cadmium, Total	< 0.0020
07/01/2018	Cadmium, Total	< 0.0020
01/01/2019	Cadmium, Total	< 0.0020
07/01/2019	Cadmium, Total	< 0.0020
01/01/2020	Cadmium, Total	< 0.002
07/01/2020	Cadmium, Total	< 0.0020
01/01/2021	Cadmium, Total	< 0.002
01/01/2016	Chemical Oxygen Demand (COD)	47
07/01/2016	Chemical Oxygen Demand (COD)	31
01/01/2017	Chemical Oxygen Demand (COD)	35
07/01/2017	Chemical Oxygen Demand (COD)	26
01/01/2018	Chemical Oxygen Demand (COD)	54
07/01/2018	Chemical Oxygen Demand (COD)	43.7
07/01/2018	Chemical Oxygen Demand (COD)	43.7
01/01/2019	Chemical Oxygen Demand (COD)	64.2
07/01/2019	Chemical Oxygen Demand (COD)	46.9
01/01/2020	Chemical Oxygen Demand (COD)	28.3
07/01/2020	Chemical Oxygen Demand (COD)	31.7
01/01/2021	Chemical Oxygen Demand (COD)	118
01/01/2016	Chromium, Total	< 0.0025
07/01/2016	Chromium, Total	< 0.0025
01/01/2017	Chromium, Total	< 0.0025
07/01/2017	Chromium, Total	< 0.0025
01/01/2018	Chromium, Total	< 0.0040
07/01/2018	Chromium, Total	< 0.0040
07/01/2018	Chromium, Total	< 0.0040
01/01/2019	Chromium, Total	< 0.0040
07/01/2019	Chromium, Total	0.012
01/01/2020	Chromium, Total	0.0083
07/01/2020	Chromium, Total	0.006
01/01/2021	Chromium, Total	< 0.004

01/01/2016	Nitrate-Nitrite as N	0.28
07/01/2016	Nitrate-Nitrite as N	4.4
01/01/2017	Nitrate-Nitrite as N	1.4
07/01/2017	Nitrate-Nitrite as N	0.26
01/01/2018	Nitrate-Nitrite as N	0.36
07/01/2018	Nitrate-Nitrite as N	0.38
07/01/2018	Nitrate-Nitrite as N	0.38
01/01/2019	Nitrate-Nitrite as N	0.71
07/01/2019	Nitrate-Nitrite as N	0.21
01/01/2020	Nitrate-Nitrite as N	2.6
07/01/2020	Nitrate-Nitrite as N	2.1
01/01/2021	Nitrate-Nitrite as N	0.44
01/01/2016	Oil and Grease	< 2.2
07/01/2016	Oil and Grease	< 2.1
01/01/2017	Oil and Grease	< 2.2
07/01/2017	Oil and Grease	< 2.1
01/01/2018	Oil and Grease	< 4.6
07/01/2018	Oil and Grease	< 5.0
07/01/2018	Oil and Grease	< 5.0
01/01/2019	Oil and Grease	< 4.8
07/01/2019	Oil and Grease	< 5.2
01/01/2020	Oil and Grease	< 5.2
07/01/2020	Oil and Grease	< 5.3
01/01/2021	Oil and Grease	< 5.2
01/01/2016	pH	7.54
07/01/2016	pH	6.95
01/01/2017	pH	7.42
07/01/2017	pH	7.76
01/01/2018	pH	7.3
07/01/2018	pH	7.3
07/01/2018	pH	7.3
01/01/2019	pH	7.3
07/01/2019	pH	7
01/01/2020	pH	7.5
07/01/2020	pH	7.7
01/01/2021	pH	7.5
01/01/2016	Selenium, Total	< 0.010
07/01/2016	Selenium, Total	< 0.01
01/01/2017	Selenium, Total	< 0.010
07/01/2017	Selenium, Total	0.01
01/01/2018	Selenium, Total	< 0.025
07/01/2018	Selenium, Total	< 0.025
07/01/2018	Selenium, Total	< 0.025
01/01/2019	Selenium, Total	< 0.025
07/01/2019	Selenium, Total	< 0.025
01/01/2020	Selenium, Total	< 0.025
07/01/2020	Selenium, Total	< 0.025
01/01/2021	Selenium, Total	< 0.025
01/01/2016	Silver, Total	< 0.0020
07/01/2016	Silver, Total	< 0.0020
01/01/2017	Silver, Total	< 0.0020
07/01/2017	Silver, Total	< 0.0020
01/01/2018	Silver, Total	< 0.0060
07/01/2018	Silver, Total	< 0.0060
07/01/2018	Silver, Total	< 0.0060
01/01/2019	Silver, Total	< 0.0060
07/01/2019	Silver, Total	< 0.0060
01/01/2020	Silver, Total	< 0.0060
07/01/2020	Silver, Total	< 0.0060
01/01/2021	Silver, Total	< 0.006
01/01/2016	Total Dissolved Solids	228
07/01/2016	Total Dissolved Solids	427
01/01/2017	Total Dissolved Solids	401
07/01/2017	Total Dissolved Solids	240
01/01/2018	Total Dissolved Solids	435
07/01/2018	Total Dissolved Solids	269
07/01/2018	Total Dissolved Solids	269
01/01/2019	Total Dissolved Solids	378
07/01/2019	Total Dissolved Solids	333
01/01/2020	Total Dissolved Solids	219
07/01/2020	Total Dissolved Solids	298
01/01/2021	Total Dissolved Solids	387
01/01/2016	Total Organic Carbon	8.9
07/01/2016	Total Organic Carbon	10.7
01/01/2017	Total Organic Carbon	6
07/01/2017	Total Organic Carbon	7.2
01/01/2018	Total Organic Carbon	13.9
07/01/2018	Total Organic Carbon	9.6
07/01/2018	Total Organic Carbon	9.6
01/01/2019	Total Organic Carbon	10.9
07/01/2019	Total Organic Carbon	3.3
01/01/2020	Total Organic Carbon	8
07/01/2020	Total Organic Carbon	6.9
01/01/2021	Total Organic Carbon	41.2