pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

1Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type **Renewal**
Facility Type **Municipal**
Major / Minor **Major**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application No. **PA0028631**
APS ID **942709**
Authorization ID **1185108**

Applicant and Facility Information

Applicant Name	**Mid Cameron Municipal Authority**	Facility Name	**Mid Cameron WWTP**
Applicant Address	421 NBroad Street Emporium, PA 15834-1401	Facility Address	718 S Mountain Road Emporium, PA 15834-3716
Applicant Contact	Ryan Neyman	Facility Contact	Ryan Neyman
Applicant Phone	(814) 486-6581	Facility Phone	(814) 486-6581
Client ID	62620	Site ID	246162
Ch 94 Load Status	Not overloaded	Municipality	Emporium Borough
Connection Status	There is no connection ban on the system	County	Cameron
Date Application Received	May18, 2017	EPA Waived?	No
Date Application Accepted	June6, 2017	If No, Reason	Major Facility, Pretreatment, Significant CB Discharge

Purpose of Application: Renewal of existing NPDES permit

Summary of Review

The above permittee has submitted an NPDES renewal application to continue to discharge from their existing Wastewater Treatment Plant (WWTP). The WWTP serves Emporium Borough and Shippen Township in Cameron County. The facility has two outfalls (001 and 002). Outfall 001 is the main discharge, while Outfall 002 is a Combined Sewer Overflow (CSO). The discharges are to Driftwood Branch of the Sinnemahoning Creek, classified as a Trout Stocked Fishes-Migratory Fishes (TSF-MF) by the Department's Chapter 93 Regulations.

The treatment plant, which treats wastewater discharged from Outfall 001, consists of the following: wet well with CSO overflow weir, mechanical bar screen, grit separator, sequencing batch reactors (2), Ultraviolet (UV) disinfection, aerobic sludge digesters (2), and a belt filter press. The combined sewage overflow water discharging from Outfall 002 receives primary treatment of screening and settling. The construction and operation of the treatment facilities was approved under Water Quality Management Permit No. 1204401.

All applicable Department Standard Operating Procedures (SOPs) were followed during the review of the application, unless otherwise noted. The chairman of Mid-Cameron Authority, Donald G. Reed, signed the application. Ryan Neyman is the WWTP operator (814.486.2296). The consultant engineer is Dennis Ligenfelter, P.E. of Uni-Tec Consulting Engineers, Inc (814.238.8223).

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		Chad A. Fabian / Project Manager *Chad A. Fabian*	January 8, 2021
X		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager *Nicholas W. Hartranft, P.E.*	January 11, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001 & 002	Design Flow (MGD)	1.0 (annual average flow) 3.7 MGD (wet weather design flow)
Latitude	001 & 002: 41º 30' 24.76"	Longitude	001 & 002: -78º 13' 39.33"
Quad Name	Emporium		
Wastewater Description:	Sewage Effluent		
Receiving Waters	Driftwood Branch of Sinnemahoning Creek (TSF)	Stream Code	24963
NHD Com ID	61428212	RMI	21
Drainage Area	149 mi^2	Yield (cfs/mi^2)	0.015
Q_{7-10} Flow (cfs)	2.3	Q_{7-10} Basis	Stream delineation using USGS gage data
Elevation (ft)	1000	Slope (ft/ft)	n/a
Watershed No.	8-A	Chapter 93 Class.	TSF
Existing Use	TSF	Existing Use Qualifier	n/a
Exceptions to Use	None	Exceptions to Criteria	none
Assessment Status	Attaining Use(s)		
Nearest Downstream Public Water Supply Intake	Approximately 140 miles downstream near Milton, PA		

Changes Since Last Permit Issuance: None

$Q_{7,10}$ Determination

The $Q_{7,10}$ is the lowest seven consecutive days of flow in a 10-year period and is used for modeling wastewater treatment plant discharges. 25 PA §96.1 defines $Q_{7,10}$ as “the actual or estimated lowest 7 consecutive day average flow that occurs once in 10 years for a stream with unregulated flow, or the estimated minimum flow for a stream with regulated flow”. The above $Q_{7,10}$ was delineated by using USGS gage (01543000) data and the drainage area at the point of discharge (149 mi^2) and at the gage (272 mi^2).

Industrial Users-EPA Pretreatment Program Update

In the past the facility served multiple industrial users that were classified as significant industrial users (SIUs). Therefore, in accordance with Section 307(b) of the Clean Water Act, the permittee was required to have an EPA approved pretreatment program. However, EPA terminated the facility’s pretreatment program on 7/8/2019 (see attached letter) after determining that their industrial users are not SIUs.

Combined Sewer Overflow

Combined Sewer Systems (CSSs) are wastewater collection systems designed to convey sanitary sewage and stormwater in a single pipe to a WWTP. During dry weather, the CSSs convey domestic, commercial and industrial wastewaters. In periods of rainfall or snowmelt, the total wastewater flow can exceed the design capacity of the CSS and/or treatment systems. When this occurs, the Combined Sewer Overflows (CSOs) are used to reduce the hydraulic impact to the CSS and WWTP. Because of varied contaminants and the volume of flows, CSOs can cause a variety of adverse impacts on the physical characteristics of surface water, impair the viability of aquatic habitats and pose a potential threat to drinking water supplies.

Since Mid-Cameron Authority operates a combined sewer system, additional requirements must be met through NPDES Permitting. Mid-Cameron is subject to both state and federal Combined Sewer Overflow (CSO) strategies. Dischargers with combined sewer systems must characterize those systems, demonstrate implementation of the Nine Minimum Controls (NMCs) and develop a Long-Term Control Plan (LTCP).

A goal of the EPA CSO Control Policy are to ensure that if CSOs occur, they are only as a result of wet weather. Another goal of EPA is to bring all wet weather CSO discharge points into compliance with the technology-based and water quality-based requirements of the Clean Water Act (CWA) to minimize their impacts on water quality, aquatic biota and human health.

Since the Department is responsible for administering the federal NPDES permit program, the Department developed the PA CSO Policy to define how it will meet the requirements of the federal CSO policy. The goals of the state policy are to control and eliminate CSO discharges, as practicable, and to ultimately bring all remaining CSO discharges into compliance with state water quality standards through the NPDES permitting program.

Long Term Control Plan

The Long Term Control Plan (LTCP) is a document by which the permittee evaluates the existing CSS infrastructure and the hydraulic relationship between the CSS, wet weather, overflows and treatment capacity. Cost effective alternatives for reducing or eliminating overflows are evaluated and a plan forward to eventually meet water quality standards is selected. An implementation schedule is then developed to achieve that goal. The three LTCP options are demonstrative, presumptive and total separation. The demonstrative approach shows that the current plan is adequate to meet the water quality-based requirements of the CWA based on data, while the presumptive approach will implement a minimum level of treatment that is presumed to meet the water quality-based requirements of the CWA.

Mid-Cameron Authority's LTCP (attached) was last updated in December of 2015. The LTCP includes the required Nine Minimum Controls (NMCs). Currently, the LTCP does not include any milestones or compliance dates since the treatment plant received significant upgrades in 2008 to allow for wet weather flows up to 3.7 MGD peak flow. The LTCP appears to propose the presumptive approach utilizing the NMCs to eliminate or capture for treatment no less than 85% of the total volume of the combined sewage collected within the CSS during precipitation events (on an annual average basis). However, the LTCP will need to be revised to provide further detail in regard to defining a precipitation event in order to calculate CSO capture rates. The LTCP also will need to include a Post Construction Compliance Monitoring (PCCM) plan in accordance with EPA's PCCM Guidance.

Annual CSO Status Report (Chapter 94 Report)

The Annual CSO Status Report is part of the permittee's annual Chapter 94 Municipal Wasteload Management Report.

A summary of the most recent CSO events are as follows:

Year	Number of Events
2016	2
2017	0
2018	5
2019	4
2020	0

CSO events occur at the facility when peak flows reach 3.7 MGD per day. Any flow over 3.6 MGD, which is the maximum capacity of the influent facilities, is diverted to the old primary clarifiers and chlorine contact tank for primary treatment/storage before being discharged. The storage capacity of the primary clarifiers and chlorine contact tank is 138,000 gallons. Prior to the treatment plant upgrades in 2008, the CSO was activated when flows reached 1.05 MGD.

The Chapter 94 Reports have not provided the CSS capture rates. This will need to be included in future Chapter 94 Reports as documented in the an updated LTCP, noted above.

Compliance History	
Summary of DMRs:	The facility utilizes the Department's eDMR system. No effluent violations were reported in the previous 12 months. A summary of the effluent sampling results can be found in the table below. There are not any pending compliance actions at the facility.
Summary of Inspections:	The Department performed a Chesapeake Bay inspection on 12/19/2019 to determine if the facility met its annual cap load limitations for Total Nitrogen (TN, 17,100 lbs/year) and Total Phosphorus (TP, 2,140 lbs/year). The facility was under the cap loads for both parameters. The Department also performed a compliance evaluation inspection on 6/26/2019. No violations were found during the inspection. No impact from the discharge was observed at the outfall. Pressed sludge is currently being processed at the Greentree Landfill in Kersey, PA. A CSO inspection was performed on 4/25/2019. No violations were found during the inspection. The inspection confirmed that the NMCs are being followed. A copy of the inspection is attached.

Compliance History

DMR Data for Outfall 001 (from November 1, 2019 to October 31, 2020)

Parameter	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19
Flow (MGD) Average Monthly	0.363	0.278	0.337	0.391	0.423	0.715	0.898	1.04	1.028	0.702	0.803	0.670
Flow (MGD) Daily Maximum	1.257	0.562	0.706	0.430	0.926	1.965	2.616	2.35	2.006	1.009	1.585	2.641
pH (S.U.) Minimum	6.87	6.91	6.88	6.84	6.78	6.6	6.64	6.43	6.59	6.55	6.67	6.63
pH (S.U.) Maximum	7.31	7.25	7.26	7.28	7.25	7.07	7.18	7.1	7.16	7.07	7.15	7.14
CBOD5 (lbs/day) Average Monthly	< 7	< 5.0	< 5.0	< 7.0	< 7.0	< 10.0	< 17.0	< 16.0	< 20.0	< 13.0	< 15.0	< 10
CBOD5 (lbs/day) Weekly Average	14	< 6.0	< 5.0	< 9.0	< 10.0	< 14.0	< 30.0	< 22.0	< 36.0	< 14.0	< 22.0	< 15.0
CBOD5 (mg/L) Average Monthly	< 2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
CBOD5 (mg/L) Weekly Average	3	3.0	2.0	< 3.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 3.0	< 2.0	< 3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	679	844.0	440.0	396.0	403.0	222.0	580.0	432.0	371.0	275.0	338.0	242.0
BOD5 (mg/L) Raw Sewage Influent Average Monthly	216	254.0	126.0	80.0	98.0	35.0	44.0	47.0	34.0	40.0	45.0	47.0
TSS (lbs/day) Average Monthly	< 14	< 13.0	11.0	< 14.0	< 14.0	< 18.0	< 27.0	< 26.0	< 33.0	< 20.0	28.0	< 22.0
TSS (lbs/day) Raw Sewage Influent Average Monthly	757	1057	482.0	425.0	529.0	339.0	315.0	470.0	422.0	389.0	332.0	249.0
TSS (lbs/day) Weekly Average	36	16.0	16.0	23.0	29.0	< 28.0	< 40.0	< 20.0	< 38.0	29.0	41.0	26.0
TSS (mg/L) Average Monthly	< 4	< 5.0	4.0	< 4.0	< 4.0	< 3.0	< 3.0	< 3.0	< 4.0	< 4.0	4.0	< 5.0

TSS (mg/L) Raw Sewage Influent Average Monthly	244	312.0	139.0	82.0	124.0	54.0	37.0	48.0	40.0	57.0	43.0	46.0
TSS (mg/L) Weekly Average	5	8.0	6.0	7.0	6.0	< 5.0	6.0	< 4.0	5.0	5.0	5.0	7.0
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	8.4	15.6	16.9	< 1.0	2.0	1.0	2.0	< 1.0	1.0	1.0	< 1.0	4.1
Nitrate-Nitrite (mg/L) Average Monthly	5.24	4.18	3.87	3.17	3.61	4.56	3.27	3.18	< 2.53	4.13	3.25	4.68
Nitrate-Nitrite (lbs) Total Monthly	396	341.0	315.0	322.0	417.0	726.0	680.0	704.0	< 520.0	686.0	712.0	603.0
Total Nitrogen (mg/L) Average Monthly	6.78	5.52	5.2	< 4.6	4.94	< 7.05	4.79	< 4.83	< 4.01	5.67	< 4.59	< 6.12
Total Nitrogen (lbs) Effluent Net Total Monthly	514	450.0	426.0	< 466.0	577.0	< 1116.0	995.0	< 1051.0	< 949.0	947.0	< 1029	< 776.0
Total Nitrogen (lbs) Total Monthly	514	450	426.0	< 466.0	577.0	< 1116.0	995.0	< 1051	< 949.0	947.0	< 1029	< 776.0
Total Nitrogen (lbs) Effluent Net Total Annual		< 9364.0										
Total Nitrogen (lbs) Total Annual		< 9364.0										
Ammonia (lbs/day) Average Monthly	0.5	< 0.4	< 0.2	< 0.2	< 0.30	< 0.5	< 0.60	< 0.8	< 0.9	< 0.5	1.0	0.7
Ammonia (lbs/day) Weekly Average	0.9	0.8	0.3	< 0.2	< 0.40	0.9	0.90	1.0	< 1.0	1.0	2.0	1.0
Ammonia (mg/L) Average Monthly	0.152	< 0.137	< 0.083	< 0.060	< 0.069	< 0.095	< 0.084	< 0.114	< 0.108	< 0.082	0.185	0.161
Ammonia (mg/L) Weekly Average	0.001	0.0001	0.001	< 0.001	< 0.0001	0.0001	0.0001	0.0001	< 0.0001	0.0001	0.0001	0.00001
Ammonia (lbs) Total Monthly	16	< 11.0	< 7.0	< 6.0	< 8.0	< 15.0	< 19.0	< 26.0	< 26.0	< 15.0	39.0	21.0
Ammonia (lbs) Total Annual		< 213.0										
TKN (mg/L) Average Monthly	1.54	1.34	1.33	< 1.43	1.33	< 2.49	1.51	3.18	< 1.48	1.54	< 1.34	< 1.44
TKN (lbs) Total Monthly	118	109.0	111.0	< 466.0	160.0	< 389.0	315.0	< 347.0	< 428.0	261.0	< 317.0	< 173

Total Phosphorus (mg/L) Average Monthly	1.26	1.14	1.12	1.38	1.43	0.99	0.74	0.73	0.71	0.92	0.67	0.95
Total Phosphorus (lbs) Effluent Net Total Monthly	95	88.0	92.0	137.0	155.0	154.0	149.0	142.0	151.0	154.0	143.0	115.0
Total Phosphorus (lbs) Total Monthly	95	88	92.0	137.0	155.0	154.0	149.0	142.0	151.0	154.0	143.0	115.0
Total Phosphorus (lbs) Effluent Net Total Annual		1671.0										
Total Phosphorus (lbs) Total Annual		1671.0										
Total Copper (lbs/day) Average Monthly	0.020	0.020	0.020	0.020	0.040	0.030	< 0.040	< 0.040	< 0.050	0.040	< 0.040	0.030
Total Copper (lbs/day) Weekly Average	0.020	0.030	0.030	0.020	0.060	0.040	0.060	< 0.050	< 0.070	0.040	< 0.050	0.050
Total Copper (mg/L) Average Monthly	0.008	0.009	0.009	0.007	0.009	0.006	< 0.006	< 0.006	< 0.006	0.007	< 0.006	0.008
Total Copper (mg/L) Weekly Average	0.009	0.010	0.010	0.010	0.001	0.008	0.008	0.007	0.007	0.008	0.007	0.008
UV Dosage (mjoules/cm²) Minimum	23.94	23.94	23.94	23.94	23.94	23.94	23.94	23.94	23.94	23.94	23.94	23.94

Existing Effluent Limitations

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
CBOD5 May 1 - Sep 30	125	190	XXX	15	23	30	2/week	24-Hr Composite
CBOD5 Oct 1 - Apr 30	150	230	XXX	18	27	36	2/week	24-Hr Composite
Total Suspended Solids	250	380	XXX	30	45	60	2/week	24-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/week	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/week	Grab
Ammonia-Nitrogen Oct 1 - Apr 30	50	75	XXX	6	9	12	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Sep 30	42	63	XXX	5	8	10	2/week	24-Hr Composite
Total Copper	0.117	0.234	XXX	0.021	0.031	0.042	1/week	24-Hr Composite
UV Dosage (mjoules/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite

Existing Effluent Limitations and Monitoring to Comply with PA Chesapeake Bay Tributary Strategy

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		Report		2/week	24-Hr Composite
Kjeldahl---N	Report			Report		1/week	24-Hr Composite
Nitrate-Nitrite as N	Report			Report		1/week	24-Hr Composite
Total Nitrogen	Report	Report		Report		1/month	Calculation
Total Phosphorus	Report	Report		Report		1/week	24-Hr Composite
Net Total Nitrogen	Report	17,100				1/month	Calculation
Net Total Phosphorus	Report	2,140				1/month	Calculation

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1
Latitude 41º 30' 21.00" **Longitude** -78º 13' 41.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	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)

Comments: The above CBOD5 technology based effluent limitation does not apply due to a Water Quality Based Effluent Limitation (WQBEL) as described below.

Water Quality-Based Limitations

To establish whether water-quality based effluent limitations (WQBELs) are required, the Department models in-stream conditions. The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia-nitrogen (NH_3-N) into free-flowing streams and rivers. To accomplish this, the model simulates two basic processes: the mixing and degradation of NH_3-N in the stream and the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and NH_3-N.

WQM7.0 modeling (see attached) was performed during last permit issuance. The modeling showed that the existing limitations for $CBOD_5$, NH_3-N and DO are protective of water quality standards. In accordance with the Department SOPs, new modeling is not required since there has been no change to the receiving stream, the $Q_{7,10}$, or the nature of the discharge.

To evaluate the toxic parameters (Pollutant Groups 1-5 in the renewal application) the Department's Toxic Management Spreadsheet (TMS, version 1.1) was used. The TMS evaluates each parameter by performing a "Reasonable Potential Analysis" (RPA) and PENTOXSD modeling on the maximum value reported within the application.

The PENTOXSD model is a single discharge mass-balance water quality analysis model that includes consideration for mixing and other factors to determine recommended water quality-based effluent limits. The model incorporates the water quality criteria in 25 PA Code §93. The RPA and PENTOXSD modeling results are provided in the TMS (see attached).

The results on pages 9 and 10 of the respective TMS show that monitoring will be required for the following parameters: total selenium, total silver, total zinc, 2,4 Dinitrophenol, and Bis(2-Ethylhexyyl)Phthalate. The results also show new effluent limitations will be established for the following parameters: Hexachlorobutadiene, total thallium, and 3,3 Dichlorobenzidine. The newly proposed effluent limitations and monitoring frequencies can be seen in the proposed effluent limits table (see footnotes) below and on pages 10-11 of the TMS model results.

PENTOXSD modeling for TDS and sulfate modeling is not applicable since neither have water quality criteria. They each have a Potable Water Supply (PWS) standard of 250 mg/l, which is not to be impacted by this discharge at the nearest water supply 140 miles downstream on West Branch Susquehanna River.

Emerging Pollutants (TDS, Sulfate, Chloride, Bromide, 1,4-Dioxane)

In accordance with 25 PA Code §95.10, no treatment is required for TDS since the existing load was approved via the respective NPDES permit prior to 8/21/2010. However, under the authority of §92a.61 based on a decision between the Environmental Quality Board and EPA, the Department has begun increased monitoring for the emerging pollutants of TDS, Sulfate, Chloride, Bromide and 1,4-Dioxane.

The Department's SOP for Establishing Effluent Limitations for Individual Sewage Permits (SOP No. BCW-PMT-033) states that discharges where the TDS concentration exceeds 1,000 mg/l or the loading exceeds 20,000 lbs/day and the flow exceeds 0.1 MGD, the permit should include monitoring for TDS, Sulfate, Chloride and Bromide. The application sampling showed the maximum TDS concentration in Outfall 001 to be 428 mg/l (or approximately 3500 lbs/day at 1.0 MGD flows). Therefore, since the TDS threshold has not been exceeded, no monitoring for the above emerging pollutants is required.

Best Professional Judgment (BPJ) Limitations

Based on BPJ, monitoring for total copper, total selenium, total silver, total zinc, 2,4 Dinitrophenol, and Bis(2-Ethylhexyyl)Phthalate will be established at 1/quarter. This will provide the Department at least 60 sample results for each parameter to re-evaluate the parameters during the next NPDES renewal cycle.

Hauled-in Waste

The facility does not accept any hauled in waste.

Anti-Backsliding

In accordance with 40 CFR 122.44(l)(1) and (2), this draft permit does not propose to relax any existing effluent limitation.

Permit No. PA0028631

Whole Effluent Toxicity (WET)

For Outfall 001, ☒ **Chronic** WET Testing was completed:

☒ For the permit renewal application (1 test).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other:

The dilution series used for the tests was: 100%, 69%, 38%, 19%, and 10%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 38%.

Summary of Most Recent Test Results

NOEC/LC50 Data Analysis

Test Date	*Ceriodaphnia* Results (% Effluent)			*Pimephales* Results (% Effluent)			Pass? *
	NOEC Survival	NOEC Reproduction	LC50	NOEC Survival	NOEC Growth	LC50	
3/7/2020	100	100	100	100	100	100	Yes

***** *A "passing" result is that which is greater than or equal to the TIWC value.*

TST Data Analysis

(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
3/7/2020	100	100	100	100

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

Comments: The existing NPDES permit did not require WET tests to be performed. However, the permittee did perform 1 WET test with the submittal of the NPDES renewal application. Since the facility is considered a major sewage discharger (1.0 MGD or greater) WET testing will be required in the new permit. The following is a summary of the calculations determining which WET tests will be required.

Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **0.91** Chronic Partial Mix Factor (PMFc): **1**

1. Determine IWC – Acute (IWCa):

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(1.0 MGD x 1.547) / ((2.3 cfs x 0.91) + (1.0 MGD x 1.547))] x 100 = **42.5%**

Permit No. PA0028631

Is IWCa < 1%? ☐ **YES** ☒ **NO (YES - Acute Tests Required OR NO - Chronic Tests Required)**

Type of Test for Permit Renewal: **Chronic WET Test**

2. Determine Target IWCc (If Chronic Tests Required)

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(1.0 MGD x 1.547) / ((2.3 cfs x 1) + (1.0 MGD x 1.547))] x 100 = **40.2%**

3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 70%, 40%, 20%, and 10%.

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

In accordance with the Department's SOP for WET testing, annual WET testing will be required since no WET permit limitation will be established. The WET test requirement will be in Part C of 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	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
CBOD5 Oct 1 - Apr 30	150	230 Wkly Avg	XXX	18	27 Wkly Avg	36	2/week	24-Hr Composite
CBOD5 May 1 - Sep 30	125	190 Wkly Avg	XXX	15	23 Wkly Avg	30	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	250	380 Wkly Avg	XXX	30	45 Wkly Avg	60	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs) Effluent Net	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Ammonia Oct 1 - Apr 30	50	75 Wkly Avg	XXX	6	9 Wkly Avg	12	2/week	24-Hr Composite
Ammonia May 1 - Sep 30	42	63 Wkly Avg	XXX	5.0	8.0 Wkly Avg	12	2/week	24-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus (lbs) Effluent Net	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Copper (mg/L)	0.117	0.234	XXX	0.021	0.031	0.042	1/week	24-Hr Composite
Hexachlorobutadiene (1)(2) (ug/l)	0.04	0.063	XXX	4.82	7.51	12.0	1/week	24-Hr Composite
Total Selenium (ug/L)	Report Avg Qrtly	Report	XXX	Report Avg Qrtly	Report	XXX	1/quarter	24-Hr Composite
Total Silver (2) (ug/L)	Report Avg Qrtly	Report	XXX	Report Avg Qrtly	Report	XXX	1/quarter	24-Hr Composite
Total Thallium (1) (ug/L)	0.005	0.008	XXX	0.6	0.93	1.49	1/week	24-Hr Composite
Total Zinc (ug/L)	Report Avg Qrtly	Report	XXX	Report Avg Qrtly	Report	XXX	1/quarter	24-Hr Composite
2,4-Dinitrophenol (2) (ug/L)	Report Avg Qrtly	Report	XXX	Report Avg Qrtly	Report Avg Qrtly	XXX	1/quarter	24-Hr Composite
3,3-Dichloro-benzidine (1)(2) (ug/L)	0.002	0.003	XXX	0.23	0.36	0.57	1/week	24-Hr Composite
UV Dosage (mjoules/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Bis(2-Ethylhexy)Phthatlatae (2) (ug/L)	Report Avg Qrtly	Report	XXX	Report Avg Qrtly	Report Avg Qrtly	XXX	1/quarter	24-Hr Composite

Footnotes:

1) This is a newly proposed effluent limitation based on the results of the Toxics Management Spreadsheet (TMS).
2) Parameter was not sampled to the Department's Target Quantitation Limit (TQL). If the parameter is re-tested to the TQL during the draft permit comment period and shown to be non-detect, the parameter can be assumed to be not present and the limitation and/or monitoring requirement will be removed.

Other Comments:

General Information

The associated mass-based limits (lbs/day) for all parameters were based on the formula: design flow (average annual) (MGD) x concentration limit (mg/L) at design flow x conversion factor (8.34). All effluent limits were then rounded down in accordance with the rounding rules established in the *Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001)*, Chapter 5 - Specifying Effluent Limitations in NPDES Permits. The existing monitoring frequencies and sample types for these parameters generally correspond with the *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001) Table 6-3 and will remain.

Flow

Reporting of the average monthly and daily maximum flow is consistent with monitoring requirements for other treatment plants of this size.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)

The results of the previous model WQM 7.0 model show the above proposed limits are protective of water quality standards in the Department's Chapter 93 Regulations.

Total Suspended Solids (TSS)

The previously applied technology based secondary treatment standards (25 PA Code §92a.47 (a) (1&2)) for TSS still apply.

pH

CFR Title 40 §133.102(c) and 25 PA Code §95.2(1) provide the basis of effluent limitations for pH.

Fecal Coliforms

The existing and proposed fecal coliform limits are as specified in 25 PA Code § 92a.47 (a)(4)&(5).

Ammonia-Nitrogen (NH3-N)

The results of the WQM 7.0 model show that the previously applied water quality-based limits for Ammonia-Nitrogen are protective of water quality and will remain. The Department's SOP for Establishing Effluent Limitations for Individual Sewage Permits (SOP No. BCW-PMT-033) states that the winter seasonal limits should be established at 3.0 times the summer limits. However, the existing limitations will remain in accordance with the anti-backsliding regulations of **40 CFR 122.44(l)(1) and (2).**

Influent BOD_5 and TSS

The Department requires the reporting of raw sewage influent monitoring for BOD_5 and TSS in all POTW permits. This provides the Department with the ability to monitor the percent removal of each parameter as stipulated in section 2 of the Part A conditions and maintain records of the BOD_5 loading as required by 25 Pa. Code Chapter 94. The monitoring frequencies and sample types are identical to the effluent sampling.

Dissolved Oxygen (DO)

Given results of the WQM 7.0 model, a discharge of effluent from this facility with a DO concentration of 6 mg/l would not result in an exceedance of water quality requirements for this stream. It is anticipated, based on similar cascade discharge technology used at the facility, that the DO concentration in the effluent would be greater than 6.0 mg/l. Therefore, based on BPJ, only monitoring will be required for this facility. This will also provide historical data to establish baseline DO levels in the effluent for future reviews

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	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen (lbs) Effluent Net	XXX	17100 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs) Effluent Net	XXX	2140 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: 001

Other Comments:

Part C Requirements

The proposed permit will contain the following requirements in Part C:

- Chesapeake Bay Nutrient Requirements
- Combined Sewer Overflows
- Solids Management
- WET Test Condition
- Other Requirements

Model Results

Mid-Cameron Authority, NPDES Permit No. PA0028631, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.910 Analysis Hardness (mg/l): 100 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	
Total Aluminum	0	0		0	750	750	1,765	
Total Antimony	0	0		0	1,100	1,100	2,588	
Total Arsenic	0	0		0	340	340	800	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	49,417	
Total Boron	0	0		0	8,100	8,100	19,061	
Total Cadmium	0	0		0	2.014	2.13	5.02	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	569.763	1,803	4,243	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	38.3	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	224	
Total Copper	0	0		0	13.439	14.0	32.9	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	51.8	
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	64.581	81.6	192	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	3.88	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.236	469	1,104	Chem Translator of 0.998 applied
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.217	3.78	8.91	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	153	
Total Zinc	0	0		0	117.180	120	282	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	7.06	
Acrylonitrile	0	0		0	650	650	1,530	

Benzene	0	0		0	640	640	1,506	
Bromoform	0	0		0	1,800	1,800	4,236	
Carbon Tetrachloride	0	0		0	2,800	2,800	6,589	
Chlorobenzene	0	0		0	1,200	1,200	2,824	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	42,357	
Chloroform	0	0		0	1,900	1,900	4,471	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	35,298	
1,1-Dichloroethylene	0	0		0	7,500	7,500	17,649	
1,2-Dichloropropane	0	0		0	11,000	11,000	25,885	
1,3-Dichloropropylene	0	0		0	310	310	729	
Ethylbenzene	0	0		0	2,900	2,900	6,824	
Methyl Bromide	0	0		0	550	550	1,294	
Methyl Chloride	0	0		0	28,000	28,000	65,889	
Methylene Chloride	0	0		0	12,000	12,000	28,238	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	2,353	
Tetrachloroethylene	0	0		0	700	700	1,647	
Toluene	0	0		0	1,700	1,700	4,000	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	16,002	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	7,060	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	8,001	
Trichloroethylene	0	0		0	2,300	2,300	5,412	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,318	
2,4-Dichlorophenol	0	0		0	1,700	1,700	4,000	
2,4-Dimethylphenol	0	0		0	660	660	1,553	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	188	
2,4-Dinitrophenol	0	0		0	660	660	1,553	
2-Nitrophenol	0	0		0	8,000	8,000	18,825	
4-Nitrophenol	0	0		0	2,300	2,300	5,412	
p-Chloro-m-Cresol	0	0		0	160	160	377	
Pentachlorophenol	0	0		0	8.723	8.72	20.5	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,082	
Acenaphthene	0	0		0	83	83.0	195	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	706	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1.18	
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	70,595	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	10,589	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	635	
Butyl Benzyl Phthalate	0	0		0	140	140	329	
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	1,930	
1,3-Dichlorobenzene	0	0		0	350	350	824	
1,4-Dichlorobenzene	0	0		0	730	730	1,718	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	9,413	
Dimethyl Phthalate	0	0		0	2,500	2,500	5,883	
Di-n-Butyl Phthalate	0	0		0	110	110	259	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	3,765	
2,6-Dinitrotoluene	0	0		0	990	990	2,330	
1,2-Diphenylhydrazine	0	0		0	15	15.0	35.3	
Fluoranthene	0	0		0	200	200	471	
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	23.5	
Hexachlorocyclopentadiene	0	0		0	5	5.0	11.8	
Hexachloroethane	0	0		0	60	60.0	141	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	23,532	
Naphthalene	0	0		0	140	140	329	
Nitrobenzene	0	0		0	4,000	4,000	9,413	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	40,004	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	706	
Phenanthrene	0	0		0	5	5.0	11.8	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	306	

☑ ***CFC*** CCT (min): 18.108 PMF: 1 Analysis Hardness (mg/l): 100 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	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	547	
Total Arsenic	0	0		0	150	150	373	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	10,196	
Total Boron	0	0		0	1,600	1,600	3,979	
Total Cadmium	0	0		0	0.246	0.27	0.67	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.115	86.2	214	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	25.8	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	47.2	
Total Copper	0	0		0	8.956	9.33	23.2	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	12.9	

Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	3,730	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	7.91	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	2.25	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.007	52.2	130	Chem Translator of 0.997 applied
Total Selenium	0	0		0	4.600	4.99	12.4	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	32.3	
Total Zinc	0	0		0	118.139	120	298	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	7.46	
Acrylonitrile	0	0		0	130	130	323	
Benzene	0	0		0	130	130	323	
Bromoform	0	0		0	370	370	920	
Carbon Tetrachloride	0	0		0	560	560	1,393	
Chlorobenzene	0	0		0	240	240	597	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	8,704	
Chloroform	0	0		0	390	390	970	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	7,709	
1,1-Dichloroethylene	0	0		0	1,500	1,500	3,730	
1,2-Dichloropropane	0	0		0	2,200	2,200	5,471	
1,3-Dichloropropylene	0	0		0	61	61.0	152	
Ethylbenzene	0	0		0	580	580	1,442	
Methyl Bromide	0	0		0	110	110	274	
Methyl Chloride	0	0		0	5,500	5,500	13,677	
Methylene Chloride	0	0		0	2,400	2,400	5,968	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	522	
Tetrachloroethylene	0	0		0	140	140	348	
Toluene	0	0		0	330	330	821	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	3,481	
1,1,1-Trichloroethane	0	0		0	610	610	1,517	
1,1,2-Trichloroethane	0	0		0	680	680	1,691	
Trichloroethylene	0	0		0	450	450	1,119	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	274	
2,4-Dichlorophenol	0	0		0	340	340	845	
2,4-Dimethylphenol	0	0		0	130	130	323	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	39.8	
2,4-Dinitrophenol	0	0		0	130	130	323	
2-Nitrophenol	0	0		0	1,600	1,600	3,979	
4-Nitrophenol	0	0		0	470	470	1,169	
p-Chloro-m-Cresol	0	0		0	30	30.0	74.6	
Pentachlorophenol	0	0		0	6.693	6.69	16.6	

Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	226	
Acenaphthene	0	0		0	17	17.0	42.3	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	147	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.25	
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	14,920	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	2,263	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	134	
Butyl Benzyl Phthalate	0	0		0	35	35.0	87.0	
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	398	
1,3-Dichlorobenzene	0	0		0	69	69.0	172	
1,4-Dichlorobenzene	0	0		0	150	150	373	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	1,989	
Dimethyl Phthalate	0	0		0	500	500	1,243	
Di-n-Butyl Phthalate	0	0		0	21	21.0	52.2	
2,4-Dinitrotoluene	0	0		0	320	320	796	
2,6-Dinitrotoluene	0	0		0	200	200	497	
1,2-Diphenylhydrazine	0	0		0	3	3.0	7.46	
Fluoranthene	0	0		0	40	40.0	99.5	
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	4.97	
Hexachlorocyclopentadiene	0	0		0	1	1.0	2.49	
Hexachloroethane	0	0		0	12	12.0	29.8	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	5,222	
Naphthalene	0	0		0	43	43.0	107	
Nitrobenzene	0	0		0	810	810	2,014	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	8,455	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	147	
Phenanthrene	0	0		0	1	1.0	2.49	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	64.7	

☑ ***THH*** CCT (min): 18.108 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	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	13.9	
Total Arsenic	0	0		0	10	10.0	24.9	
Total Barium	0	0		0	2,400	2,400	5,968	
Total Boron	0	0		0	3,100	3,100	7,709	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	140	140	348	
Dissolved Iron	0	0		0	300	300	746	
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	2,487	
Total Mercury	0	0		0	0.050	0.05	0.12	
Total Nickel	0	0		0	610	610	1,517	
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	0.6	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	6	6.0	14.9	
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	130	130	323	
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	82.1	
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	530	530	1,318	
Methyl Bromide	0	0		0	47	47.0	117	
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	1,300	1,300	3,233	
1,2-trans-Dichloroethylene	0	0		0	140	140	348	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
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	81	81.0	201	
2,4-Dichlorophenol	0	0		0	77	77.0	191	
2,4-Dimethylphenol	0	0		0	380	380	945	
4,6-Dinitro-o-Cresol	0	0		0	13	13.0	32.3	
2,4-Dinitrophenol	0	0		0	69	69.0	172	
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	10,400	10,400	25,862	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	670	670	1,666	
Anthracene	0	0		0	8,300	8,300	20,640	
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	1,400	1,400	3,481	
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	150	150	373	
2-Chloronaphthalene	0	0		0	1,000	1,000	2,487	
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	420	420	1,044	
1,3-Dichlorobenzene	0	0		0	420	420	1,044	
1,4-Dichlorobenzene	0	0		0	420	420	1,044	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	17,000	17,000	42,275	
Dimethyl Phthalate	0	0		0	270,000	270,000	671,422	
Di-n-Butyl Phthalate	0	0		0	2,000	2,000	4,973	
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	130	130	323	

Fluorene	0	0		0	1,100	1,100	2,735	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	40	40.0	99.5	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.0038	0.004	0.009	
Isophorone	0	0		0	35	35.0	87.0	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	17	17.0	42.3	
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	830	830	2,064	
1,2,4-Trichlorobenzene	0	0		0	35	35.0	87.0	

☑ ***CRL*** CCT (min): 15.727 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	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	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 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	

Acrylonitrile	0	0		0	0.051	0.051	0.56	
Benzene	0	0		0	1.2	1.2	13.1	
Bromoform	0	0		0	4.3	4.3	47.1	
Carbon Tetrachloride	0	0		0	0.23	0.23	2.52	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.4	0.4	4.38	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	62.4	
Dichlorobromomethane	0	0		0	0.55	0.55	6.02	
1,2-Dichloroethane	0	0		0	0.38	0.38	4.16	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	0.34	0.34	3.72	
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	4.6	4.6	50.4	
1,1,2,2-Tetrachloroethane	0	0		0	0.17	0.17	1.86	
Tetrachloroethylene	0	0		0	0.69	0.69	7.55	
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	0.59	0.59	6.46	
Trichloroethylene	0	0		0	2.5	2.5	27.4	
Vinyl Chloride	0	0		0	0.025	0.025	0.27	
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	0.270	0.27	2.96	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.4	1.4	15.3	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.000086	0.00009	0.0009	
Benzo(a)Anthracene	0	0		0	0.0038	0.004	0.042	
Benzo(a)Pyrene	0	0		0	0.0038	0.004	0.042	
3,4-Benzofluoranthene	0	0		0	0.0038	0.004	0.042	
Benzo(k)Fluoranthene	0	0		0	0.0038	0.004	0.042	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.33	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	

Bis(2-Ethylhexyl)Phthalate	0	0		0	1.2	1.2	13.1	
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	0.0038	0.004	0.042	
Dibenzo(a,h)Anthrancene	0	0		0	0.0038	0.004	0.042	
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	0.021	0.021	0.23	
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	0.55	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.55	
1,2-Diphenylhydrazine	0	0		0	0.036	0.036	0.39	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00028	0.0003	0.003	
Hexachlorobutadiene	0	0		0	0.44	0.44	4.82	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	1.4	1.4	15.3	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
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	0.00069	0.0007	0.008	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.055	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	36.1	
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	

☑ ***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 Copper	Report	Report	Report	Report	Report	µg/L	21.1	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Selenium	Report	Report	Report	Report	Report	µg/L	12.4	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	5.71	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Thallium	0.005	0.008	0.6	0.93	1.49	µg/L	0.6	THH	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	181	AFC	Discharge Conc > 10% WQBEL (no RP)

2,4-Dinitrophenol	Report	Report	Report	Report	Report	µg/L	172	THH	Discharge Conc > 25% WQBEL (no RP)
Bis(2-Ethylhexyl)Phthalate	Report	Report	Report	Report	Report	µg/L	13.1	CRL	Discharge Conc > 25% WQBEL (no RP)
3,3-Dichlorobenzidine	0.002	0.003	0.23	0.36	0.57	µg/L	0.23	CRL	Discharge Conc ≥ 50% WQBEL (RP)
Hexachlorobutadiene	0.04	0.063	4.82	7.51	12.0	µg/L	4.82	CRL	Discharge Conc ≥ 50% WQBEL (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
Total Aluminum	1,131	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	13.9	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	5,968	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	3,979	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	0.67	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	214	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	24.6	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	47.2	µg/L	Discharge Conc ≤ 10% WQBEL
Free Cyanide	12.9	µg/L	Discharge Conc ≤ 25% WQBEL
Dissolved Iron	746	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	3,730	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	7.91	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	2,487	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.12	µg/L	Discharge Conc < TQL
Total Nickel	130	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	4.52	µg/L	Discharge Conc < TQL
Acrylonitrile	0.56	µg/L	Discharge Conc < TQL
Benzene	13.1	µg/L	Discharge Conc < TQL
Bromoform	47.1	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	2.52	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	323	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	4.38	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	8,704	µg/L	Discharge Conc < TQL
Chloroform	62.4	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	6.02	µg/L	Discharge Conc < TQL

1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	4.16	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	82.1	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	5,471	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	3.72	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	1,318	µg/L	Discharge Conc < TQL
Methyl Bromide	117	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	13,677	µg/L	Discharge Conc ≤ 25% WQBEL
Methylene Chloride	50.4	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	1.86	µg/L	Discharge Conc < TQL
Tetrachloroethylene	7.55	µg/L	Discharge Conc ≤ 25% WQBEL
Toluene	821	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	348	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	1,517	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	6.46	µg/L	Discharge Conc < TQL
Trichloroethylene	27.4	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.27	µg/L	Discharge Conc < TQL
2-Chlorophenol	201	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	191	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	323	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	32.3	µg/L	Discharge Conc < TQL
2-Nitrophenol	3,979	µg/L	Discharge Conc < TQL
4-Nitrophenol	1,169	µg/L	Discharge Conc ≤ 25% WQBEL
p-Chloro-m-Cresol	74.6	µg/L	Discharge Conc < TQL
Pentachlorophenol	2.96	µg/L	Discharge Conc < TQL
Phenol	25,862	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	15.3	µg/L	Discharge Conc < TQL
Acenaphthene	42.3	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	20,640	µg/L	Discharge Conc ≤ 25% WQBEL
Benzidine	0.0009	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.042	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.042	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.042	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.042	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.33	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	3,481	µg/L	Discharge Conc ≤ 25% WQBEL
4-Bromophenyl Phenyl Ether	134	µg/L	Discharge Conc ≤ 25% WQBEL
Butyl Benzyl Phthalate	87.0	µg/L	Discharge Conc ≤ 25% WQBEL
2-Chloronaphthalene	2,487	µg/L	Discharge Conc ≤ 25% WQBEL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.042	µg/L	Discharge Conc < TQL

Dibenzo(a,h)Anthrancene	0.042	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	398	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	172	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	373	µg/L	Discharge Conc ≤ 25% WQBEL
Diethyl Phthalate	1,989	µg/L	Discharge Conc ≤ 25% WQBEL
Dimethyl Phthalate	1,243	µg/L	Discharge Conc ≤ 25% WQBEL
Di-n-Butyl Phthalate	52.2	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrotoluene	0.55	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.55	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.39	µg/L	Discharge Conc < TQL
Fluoranthene	99.5	µg/L	Discharge Conc ≤ 25% WQBEL
Fluorene	2,735	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorobenzene	0.003	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	2.49	µg/L	Discharge Conc < TQL
Hexachloroethane	15.3	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.009	µg/L	Discharge Conc < TQL
Isophorone	87.0	µg/L	Discharge Conc ≤ 25% WQBEL
Naphthalene	107	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	42.3	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.008	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.055	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	36.1	µg/L	Discharge Conc < TQL
Phenanthrene	2.49	µg/L	Discharge Conc < TQL
Pyrene	2,064	µg/L	Discharge Conc ≤ 25% WQBEL
1,2,4-Trichlorobenzene	64.7	µg/L	Discharge Conc ≤ 25% WQBEL

Discharge Information

Instructions | Discharge | Stream

Facility: **Mid-Cameron Authority** NPDES Permit No.: **PA0028631** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **WWTP effluent, 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
1	100	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		428									
	Chloride (PWS)	mg/L		191									
	Bromide	mg/L		0.101									
	Sulfate (PWS)	mg/L		28.4									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		93.9									
	Total Antimony	µg/L		1.25									
	Total Arsenic	µg/L	<	3									
	Total Barium	µg/L		42.6									
	Total Beryllium	µg/L		0.28									
	Total Boron	µg/L		244									
	Total Cadmium	µg/L		0.05									
	Total Chromium (III)	µg/L		1.27									
	Hexavalent Chromium	µg/L		0.05									
	Total Cobalt	µg/L		1									
	Total Copper	µg/L		7.85									
	Free Cyanide	µg/L		0.01									
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L		39.7									
	Total Iron	µg/L		74.4									
	Total Lead	µg/L		0.353									
	Total Manganese	µg/L		153									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		2.94									
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L		5.34									
	Total Silver	µg/L	<	0.8									
	Total Thallium	µg/L		5.81									
	Total Zinc	µg/L		31.8									
	Total Molybdenum	µg/L		6.41									
	Acrolein	µg/L	<	0.85									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	0.43									
	Benzene	µg/L	<	0.26									
	Bromoform	µg/L	<	0.31									

Group 3	Carbon Tetrachloride	µg/L	<	0.52									
	Chlorobenzene	µg/L		0.26									
	Chlorodibromomethane	µg/L	<	0.33									
	Chloroethane	µg/L	<	0.89									
	2-Chloroethyl Vinyl Ether	µg/L	<	0.247									
	Chloroform	µg/L	<	2									
	Dichlorobromomethane	µg/L	<	0.26									
	1,1-Dichloroethane	µg/L	<	0.38									
	1,2-Dichloroethane	µg/L	<	0.44									
	1,1-Dichloroethylene	µg/L	<	0.2									
	1,2-Dichloropropane	µg/L	<	0.33									
	1,3-Dichloropropylene	µg/L	<	0.4									
	1,4-Dioxane	µg/L	<	3.99									
	Ethylbenzene	µg/L	<	0.21									
	Methyl Bromide	µg/L	<	1.31									
	Methyl Chloride	µg/L	<	2.38									
	Methylene Chloride	µg/L	<	1.2									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.29									
	Tetrachloroethylene	µg/L	<	0.86									
	Toluene	µg/L	<	0.23									
	1,2-trans-Dichloroethylene	µg/L	<	0.32									
	1,1,1-Trichloroethane	µg/L	<	0.32									
	1,1,2-Trichloroethane	µg/L	<	0.26									
	Trichloroethylene	µg/L	<	0.31									
	Vinyl Chloride	µg/L	<	0.43									
Group 4	2-Chlorophenol	µg/L	<	0.76									
	2,4-Dichlorophenol	µg/L	<	10									
	2,4-Dimethylphenol	µg/L	<	10									
	4,6-Dinitro-o-Cresol	µg/L	<	2.11									
	2,4-Dinitrophenol	µg/L	<	50									
	2-Nitrophenol	µg/L	<	10									
	4-Nitrophenol	µg/L	<	50									
	p-Chloro-m-Cresol	µg/L	<	2.11									
	Pentachlorophenol	µg/L	<	2.71									
	Phenol	µg/L	<	10									
	2,4,6-Trichlorophenol	µg/L	<	10									
Group 5	Acenaphthene	µg/L	<	0.7									
	Acenaphthylene	µg/L	<	10									
	Anthracene	µg/L	<	10									
	Benzidine	µg/L	<	50									
	Benzo(a)Anthracene	µg/L	<	0.71									
	Benzo(a)Pyrene	µg/L	<	1.11									
	3,4-Benzofluoranthene	µg/L	<	1.12									
	Benzo(ghi)Perylene	µg/L	<	10									
	Benzo(k)Fluoranthene	µg/L	<	1.06									
	Bis(2-Chloroethoxy)Methane	µg/L	<	10									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.74									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	10									
	Bis(2-Ethylhexyl)Phthalate	µg/L		4.46									
	4-Bromophenyl Phenyl Ether	µg/L	<	10									
	Butyl Benzyl Phthalate	µg/L		3.84									
	2-Chloronaphthalene	µg/L	<	10									
	4-Chlorophenyl Phenyl Ether	µg/L	<	10									
	Chrysene	µg/L	<	0.94									
	Dibenzo(a,h)Anthrancene	µg/L	<	1.31									
	1,2-Dichlorobenzene	µg/L	<	10									
	1,3-Dichlorobenzene	µg/L	<	10									
	1,4-Dichlorobenzene	µg/L	<	10									
	3,3-Dichlorobenzidine	µg/L	<	50									
	Diethyl Phthalate	µg/L	<	10									
	Dimethyl Phthalate	µg/L	<	10									
	Di-n-Butyl Phthalate	µg/L	<	10									
	2,4-Dinitrotoluene	µg/L	<	0.75									

	2,6-Dinitrotoluene	µg/L	<	0.7										
	Di-n-Octyl Phthalate	µg/L	<	10										
	1,2-Diphenylhydrazine	µg/L	<	10										
	Fluoranthene	µg/L	<	10										
	Fluorene	µg/L	<	10										
	Hexachlorobenzene	µg/L	<	0.66										
	Hexachlorobutadiene	µg/L	<	4.35										
	Hexachlorocyclopentadiene	µg/L	<	2.94										
	Hexachloroethane	µg/L	<	1.62										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.01										
	Isophorone	µg/L	<	10										
	Naphthalene	µg/L	<	10										
	Nitrobenzene	µg/L	<	0.62										
	n-Nitrosodimethylamine	µg/L	<	1.65										
	n-Nitrosodi-n-Propylamine	µg/L	<	0.86										
	n-Nitrosodiphenylamine	µg/L	<	0.86										
	Phenanthrene	µg/L	<	0.87										
	Pyrene	µg/L	<	10										
	1,2,4-Trichlorobenzene	µg/L	<	10										
Group 6	Aldrin	µg/L	<											
	alpha-BHC	µg/L	<											
	beta-BHC	µg/L	<											
	gamma-BHC	µg/L	<											
	delta BHC	µg/L	<											
	Chlordane	µg/L	<											
	4,4-DDT	µg/L	<											
	4,4-DDE	µg/L	<											
	4,4-DDD	µg/L	<											
	Dieldrin	µg/L	<											
	alpha-Endosulfan	µg/L	<											
	beta-Endosulfan	µg/L	<											
	Endosulfan Sulfate	µg/L	<											
	Endrin	µg/L	<											
	Endrin Aldehyde	µg/L	<											
	Heptachlor	µg/L	<											
	Heptachlor Epoxide	µg/L	<											
	PCB-1016	µg/L	<											
	PCB-1221	µg/L	<											
	PCB-1232	µg/L	<											
	PCB-1242	µg/L	<											
	PCB-1248	µg/L	<											
	PCB-1254	µg/L	<											
	PCB-1260	µg/L	<											
	PCBs, Total	µg/L	<											
	Toxaphene	µg/L	<											
	2,3,7,8-TCDD	ng/L	<											
Group 7	Gross Alpha	pCi/L												
	Total Beta	pCi/L	<											
	Radium 226/228	pCi/L	<											
	Total Strontium	µg/L	<											
	Total Uranium	µg/L	<											
	Osmotic Pressure	mOs/kg												

Stream / Surface Water Information

Mid-Cameron Authority, NPDES Permit No. PA0028631, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Driftwood Branch Sinemahoning Creek**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	024963	21	1005	149			Yes
End of Reach 1	024963	20.75	1000	223			Yes

Q $_{7\text{-}10}$

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	21		2.3									100	7		
End of Reach 1	20.75		3.44												

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	21														
End of Reach 1	20.75														

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
OBA	24963	DRIFTWOOD BRANCH SINNEMAHONING CR.

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)
21.000	**Mid Cameron Aul**	PA0028631	0.000	CBOD5	15		
				NH3-N	5	10	
				Dissolved Oxygen			6
--							

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq ml)	Slope (fUft)	PWS Withdrawal (mgd)	Apply FC
OBA	24963	DRIFTWOOD BRANCH SINNEMAHO	**21.000**	1015.00	149.00	0.00000	0.00	

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (els)	Reh Trav Time (days)	Reh Velocity (fps)	WO Ratio	Reh Width (ft)	Reh Depth (ft)	Tributary Temp (OC)	Tributary pH	Stream Temp (OC)	Stream pH
Q7-10	0.100	0.00	2.25	0.000	0.000	0.0	0.00	0.00	20.00	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	PermitNumber	Existing Disc Flow (mgd)	Permitted Design Disc Flow (mgd)	Disc Flow (mgd)	Reserve Factor	Disc Temp (OC)	Disc pH
MidCameronAut	PA0028631	0.0000	1.0000	1.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Cone (mg/L)	Trib Cone (mg/L)	Stream Cone (mg/L)	Fate Coef (1/days)
CBOD5	15.00	2.00	0.0(	1.50
Dissolved Oxygen	3.00	8.24	0.0(	0.00
NH3-N	5.00	0.00	0.0(	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (fl)	Drainage Area (sq mi)	Slope (Mt)	PWS Withdrawal (mgd)	Apply FC
08A	24963	DRIFTWOOD BRANCH SINNEMAHO	**20.750**	1000.00	223.00	0.00000	0.00	

Stream Data

Design Cond,	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Reh Trav Time (days)	Reh Velocity (fps)	WO Ratio	Reh Width (ft)	Reh Depth (ft)	Tributary Temp ('C)	Tributary pH	Stream Temp ('C)	Stream pH
Q7-10	0.100	0.00	3.36	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp ('C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	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 Out uts

SWP Basin	Stream Code	Stream Name
OBA	24963	DRIFTWOOD BRANCH SINNEMAHONING CR.

RMI	Stream Flow (cfs)	PWS Wilh (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (fVft)	Depth (ft)	Width (fl)	W/D Ratio	Velocily (fps)	Reach Trav Time (days)	Analysis Temp ('C)	Analysis pH
Q7-10 Flow												
21.000	2.25	0.00	2.25	1.547	0.01136	.725	33.17	45.76	0.16	0.097	22.04	7.00
Q1-10 Flow												
21.000	1.44	0.00	0.00	1.547	0.01136	NA	NA	NA	0.00	0.000	0.00	0.00
Q30-10 Flow												
21.000	3.06	0.00	0.00	1.547	0.01136	NA	NA	NA	0.00	0.000	0.00	0.00

WQM 7.0 Modeling Specifications

Parameters	D.O.	Use Inpulled 01-10 and 030-10 Flows	
WLA Method	EMPR	Use Inpulled W/D Ratio	☐
01-10/07-10 Ratio	0.64	**Use Inputted Reach Travel Times**	☐
030-10/07-10 Ratio	1.36	**Temperature Adjust Kr**	
D.O. Saturation	*90.00* %	**Use Balanced Technology**	☑
D.O. Goal	7		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
OBA	24963	DRIFTWOOD BRANCH SINNEMAHONING CR.

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 (mglL)	Baseline (mg/L)	Multiple (mg/L)		
21.00	Mid Cameron Aul	15	15	5	5	6	6	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
OBA	24963	DRIFTWOOD BRANCH SINNEMAHONING CR.

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
21.000	1.000	22.037	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
33.173	0.725	45.763	0.158
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.30	1.240	2.04	0.819
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.329	17.894	Tsivoglou	7
Reach Travel Time (days)			
0.097			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.010	7.20	2.02	7.37
0.019	7.11	2.01	7.40
0.029	7.01	1.99	7.43
0.039	6.92	1.97	7.46
0.048	6.83	1.96	7.49
0.058	6.74	1.94	7.51
0.068	6.65	1.93	7.54
0.077	6.57	1.91	7.56
0.087	6.48	1.90	7.58
0.097	6.40	1.88	7.59

Commonwealth of Pennsylvania
Department of Environmental Protection
Water Management

Long Term Control Plan Update
December 2015

Mid-Cameron Authority
Cameron County, Pennsylvania

Prepared by:

Mid-Cameron Authority
421 North Broad Street
Emporium, PA 15834
(814) 486-0481

1.0 EXECUTIVE SUMMARY

Combined sewer systems (CSS) exist in many older communities in the United States. CSS are designed to transport both sanitary wastewater and non-sanitary water, primarily including runoff from rain events. Wastewater treatment plants that treat influent flows from CSS are not typically designed to handle all of the flow from large rain events. The excess is discharged to receiving streams through one or more combined sewer overflows (CSO) without treatment, resulting in pollution of the aquatic environment and potential health hazards. The U.S. Environmental Protection Agency (EPA) issued a National Combined Sewer Overflow (CSO) policy in 1994 to address the pollution of receiving waters by CSOs. As part of the policy, communities operating a CSS had to develop a Long Term Control Plan (LTCP) to minimize the impact of CSO discharges on receiving streams. LTCPs needed to address the implementation of DEP's technology-based nine minimum controls (NMCs) for CSO management.

The Mid-Cameron Authority ("Authority"), which serves approximately 3200 persons in the Borough of Emporium and Shippen Township, Cameron County, owns and operates a CSS. Early in 2003, the Authority entered into a Consent Order and Agreement (COA) with the Pennsylvania Department of Environmental Protection (DEP) that required it to complete several tasks to eliminate deficiencies at the treatment facilities and in the CSS. At the same time, the Authority received NPDES Permit PA 0028631 to operate the treatment plant. Both documents addressed the need for the Authority to (1) upgrade and expand the treatment plant; and (2) meet state and federal requirements for compliance with the control of CSOs.

An extensive upgrade and expansion of the treatment plant, and improvements to the CSO facilities, was completed in January 2009. A new, dual-basin sequencing bath reactor (SBR) was constructed, which can achieve Biological Nutrient Removal limits for total nitrogen and total phosphorous. The SBR has an average daily flow treatment capacity of 1.0 MGD, and a peak flow treatment capacity of 3.7 MGD. The single CSO has been relocated to the treatment plant site, and flows in excess of 3.7 MGD receive floatables and solids removal, and chlorination prior to discharge through the CSO.

The Authority prepared and submitted to DEP a LTCP in August 2005, which was approved in December 2005. Subsequently, in 2009, said LTCP was revised to provide an update on the new treatment facilities, CSO control strategies, and progress towards meeting the goals for the elimination of pollution caused by CSO discharges. As documented in that report, significant progress was achieved in all areas, with the construction of the new treatment and CSO facilities. The purpose of this report is to reiterate the accomplishments of the prior LTCP and provide updated information on CSO management.

2.0 INTRODUCTION AND SCOPE OF WORK

2.1 Background on Combined Sewer Overflows and National Policy

CSO discharges are a mixture of sanitary sewer, industrial wastewater, and stormwater runoff, which often contain high concentrations of suspended solids, floatables, bacteria, heavy metals, nutrients, oil and grease, and other pollutants. Discharges of these materials degrade water quality, pose risk to human health, and threaten aquatic habitats.

In an attempt to improve water quality in the receiving waters of the CSSs, the EPA issued a National CSO Control Strategy in 1994. The Policy contains provisions for developing site-specific provisions for controlling CSOs and requires that compliance with all federal Clean Water Act requirements.

The CSO Control Policy outlines these expectations for permittees, State WQS authorities, and NPDES permitting and enforcement authorities:

- Permittees should immediately implement the NMCs, which are designed to reduce CSOs and their effects on receiving water quality.
- Permittees should give priority to environmentally sensitive areas. Permittees should develop LTCPs for controlling CSOs.
- WQS authorities should review and revise, as appropriate, State WQS during the CSO long-term planning process.
- NPDES permitting authorities should consider the financial capability of permittees when reviewing CSO control plans.

2.2 Mid-Cameron Authority Facilities

The Authority was created in 1985 to provide sanitary sewer services to the Borough of Emporium and adjoining portions of Shippen Township, Cameron County. The Authority was formed when service was extended from the Borough of Emporium into Shippen Township. Prior to that time, the Municipal Authority of the Borough of Emporium was responsible for sewage collection and treatment in the Borough of Emporium. The Authority's CSS serves approximately 1150 residential, commercial and industrial customers (3200 persons). The system is very old and is known to have a high number of stormwater connections. A single CSO that existed prior to the construction of the new treatment facilities had a history of a high number of by-pass events. Treatment plant by-pass occurrences were closely associated with rainfall events although they did not occur after every rainfall.

The Authority originally owned and operated the Emporium Shippen Township Wastewater Treatment Plant. The facilities that existed previously utilized a combination of a trickling filter and four Rotating Biological Contactors (RBCs) in series to treat a permitted average daily flow of 0.525 MGD, with a permitted discharge to Driftwood Branch of Sinnemahoning Creek. A wet weather CSO diversion structure located on the interceptor upstream (and across Driftwood Branch) from the treatment plant discharged all flows in excess of 1.05 MGD to Driftwood Branch.

2.3 Scope of Work

The Authority has operated a wastewater collection and treatment system under NPDES Permit PA0028631. The Permit, issued originally in February 2003, included several requirements under Part C. Item No. 8 addressed the Management and Control of CSOs. A specific requirement was the need to continue implementation of technology-based NMCs, as defined by EPA, to minimize the impact of CSO discharges. Additionally, the Authority was required to develop a LTCP incorporating, at a minimum:

- Continued implementation of the NMCs.
- Protection of sensitive areas.
- Public participation in developing the LTCP.

The LTCP was to be prepared in accordance with EPA's guidance document entitled "Guidance for Long Term Control Plan" (EPA-832-B-95-002). An LTCP was developed for the Authority and it was approved by DEP on December 2, 2005.

The Authority also entered into a Consent Order and Agreement (COA) with the DEP in January 2003 that required the Authority to upgrade its treatment facilities to eliminate Permit violations caused by hydraulic and organically overloading of the plant. This upgrade, which was completed in January 2009, is discussed in more detail in the following section. A further stipulation of the COA was that the Authority was required to submit new documentation of implementation of the NMCs to the DEP after completion of construction of the new treatment facilities.

The current effort includes updating the LTCP to provide current information on the treatment facilities, CSO control strategies, and success in continuing to meeting the goals for the elimination of pollution caused by CSO discharges. Additionally, this effort includes recognizing the requirement of the COA to address continued execution of the NMCs.

3.0 ENVIRONMENTAL CHARACTERISTICS

An understanding of the environment in the areas around the Authority service area is an important aspect in developing and executing an appropriate long term control plan. Conditions such as climate and average precipitation are important factors when determining the best plan of action. Other environmental characteristics such as soils, topography, and land use are also an important part of the decision making process. These topics are discussed below.

3.1 Watershed Description

The Driftwood Branch of Sinnemahoning Creek is part of the Susquehanna River Basin and drains to the West Branch Susquehanna River. The West Branch Susquehanna River has a WWF (Warm Water Fisheries) protected use. Approximately 95 percent of the area is forested. The rest consists of farmland, small towns, and sites for industry, commerce, and community services. The mountainous character and steep slopes present in the area limit the possibilities for land uses such as agriculture and urbanuses.

The majority of the area tributary to the Driftwood Branch is forested mountainous terrain. Many of the small mountain streams tributary to the Driftwood Branch are classified with protected use High Quality Cold Water Fishes (HQ-CWF).

3.2 Temperature

Comparatively short cool summers and long cold winters with 41 inches of precipitation well distributed throughout the year characterize the climate of Emporium. From December through February temperatures remain below freezing most of the time. Although daytime temperatures normally reach into the 50s by April and into the low 70s in May, nights remain cool until mid May. Summer temperatures are near 68°F on average, although the record high was 103°F on July 9, 1936. The coldest month is January and the warmest month is July.

3.3 Precipitation

Precipitation is normally abundant throughout the year. The annual average precipitation in the region is slightly over 41 inches. Nearly 50% of the annual precipitation is received during the 5 months, May through September, growing season resulting primarily from showers and thunderstorms. The area receives an average of 30 to 35 thunderstorms per year. As a result, the rainfall is mostly short in duration. Dry spells may develop anytime but are most numerous during summer and fall. The record 24-hour rainfall recorded in Emporium was 7.5 inches.

3.4 Soils

The soils found in the Driftwood Branch Sinnemahoning Creek river basin are mostly of the Leck Kill-Harleton-Albrights Association. These soils are very deep, somewhat poorly drained to well drained, and nearly level to very steep. They are formed in materials weathered from shale, sandstone, and siltstone. The association is about 50 percent Leck Kill soils, 40 percent Hartleton soils, 4 percent Albright soils, and 6 percent soils of minor extent.

Other soil groups found in the drainage area include those in the Hazleton-Buchanan-Cookport Association, the Hazleton-Cookport-Buchanan Association, and the Hazleton-Wharton-Buchanan Association. These soils are all very deep and somewhat poorly drained to well drained, and nearly level to very steep. A more detailed description of these soil associations can be found in the Soil Survey of Cameron and Elk Counties, Pennsylvania produced by the United States Department of Agriculture and the Soil Conservation Service.

3.5 Topography

Emporium is located in the Allegheny Mountain region of north central Pennsylvania where a well developed dendritic stream pattern has produced many narrow V-shaped valleys separated by rounded tree covered mountain peaks. The town itself is situated in a relatively narrow east-west oriented valley surrounded by forested mountains. Elevations above sea level range from 1025 feet in the downtown area to 1660 feet one-half mile to the north and south. Emporium is bounded by the Driftwood Branch Sinnemahoning Creek to the south and to the east by the Sinnemahoning Portage Creek. The two branches join just to the southeast of the city.

3.6 Natural Resources

Located in the Allegheny Mountains of Northwestern Pennsylvania, Cameron County is rich in forest related natural resources. However, the county is not a major producer of mineral resources. The mountainous terrain and poor soils limit the amount of land available for agricultural uses. The expansive forests in the forest are rich in fish, forest, and wildlife resources. Many of these resources are available to the public, as nearly half of the land in the county is publicly owned. Two of the state's largest industries, timber production and forest-based recreation, are the primary utilization of natural resources in Cameron County.

3.7 Land Use

Cameron County covers approximately 254,080 acres, 397.2 square miles; with a population of 5,085 according to the 2010 census (2014 estimate is 4,805). Forestland is by far the most prominent land use. The county is covered by 238,700 acres of forest, or 94% of the county. Nearly half of this land (48%) is public owned, 30% is private owned, and 22% is owned by the forest industry.

3.8 Recreational Areas

Cameron County is home to an abundance of public access recreational areas. The public has expansive tracts of land reserved for camping, hiking, hunting, fishing, boating, biking, horseback riding, and other outdoor recreational activities. The county's vast forests and abundance of publicly owned land afford endless opportunities for outdoor activity. Sizerville State Park, Sinnemahoning State Park, Bucktail State Park, and Elk State Forest are all found in close proximity to Emporium. Other recreational facilities include golf courses, athletic fields, and community parks.

3.9 Endangered Species

One wildlife species that previously was identified as an endangered species, the Bald Eagle, is found in the Driftwood Branch watershed; its endangered status was lifted in 2007. The Eastern Woodrat, an identified threatened species, is also found in this region. Water pollution and loss of habitat due to human development were partly responsible for the prior drastic decline in the eagle population. The primary reason, however, was the negative effects of the chemical pesticide DDT. Eagle populations have made great improvements in the recent years due to extensive conservation efforts.

3.10 River Uses

The Driftwood Branch of the Sinnemahoning Creek is the receiving water of the Mid-Cameron Authority CSO. This waterway is listed in the Pennsylvania Code Title 25 Chapter 93 on Drainage List L: West Branch Susquehanna River Basin. The section of Driftwood Branch of the Sinnemahoning Creek from Elk Fork to the confluence with Bennett Branch is designated with the protective use symbol TSF. This symbol stands for: *Trout Stocking*—Maintenance of stocked trout from February 15 to July 31 and maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat. There are no affected downstream public water supply intakes.

3.11 DEP Stream Study

In June of 2000, the Authority met with the DEP to discuss the Wastewater Treatment Plant Evaluation and the Plan and Schedule. At that time, the DEP presented the findings of a limited stream survey that was conducted by DEP staff in September of 1999. That study identified poor water quality conditions in the Driftwood Branch in the vicinity of the WWTP outfall. Grease and solids deposits were noted in the stream. As a result of this survey, the DEP requested that enhanced solids removal capabilities be evaluated and added to the scope of the recommended plant upgrade alternative. By letter dated August 18, 2000, the DEP presented preliminary effluent limits for the expanded discharge to the Driftwood Branch. Utilizing these effluent limits, Amendment No. 1 was prepared to the Wastewater Treatment Plant Evaluation. This report, dated October 2000, presented filtration and enhanced solids removal alternatives and provided an updated schedule. The amendment recommended the use of a constructed wetland system to provide the additional solids removal; however, it was later determined that construction of SBRs and utilization of the primary clarifiers for solids removal of CSOs flows would achieve the required solids removal.

4.0 OPERATIONAL CONTROLS

4.1 Existing Operational Controls

The purpose of this section is to identify and document the existing operating practices utilized by the Authority to minimize the impacts of its CSO discharges to the receiving waters. Accordingly, on November 19, 2002, the DEP conducted an inspection of the Authority wastewater treatment plant and CSO structure. During that inspection, representatives of the DEP reviewed the documentation, operation, and management procedures for the CSO structure for compliance with EPA and DEP NMCs. A visual inspection of the treatment plant and CSO were also performed and deficiencies in both the reporting and record keeping and physical components of the facilities were noted and conveyed to the Authority.

The deficiencies noted in the November 19, 2002 inspection were incorporated into a revised version of the COA that was executed on February 21, 2003. The COA included a plan and schedule for the upgrade of the Authority's treatment plant to achieve compliance with most of the physical requirements of the NMCs. The treatment plant upgrade became operational in January 2009.

The LTCP prepared in 2005 addressed the DEP Findings from the 2002 inspection, and included proposed corrective actions to achieve compliance with the NMCs. The current status of the NMCs, are presented in the following sections.

4.2 NMC #1: Proper Operation and Regular Maintenance Programs for the Sewer System and CSO Outfalls

The Mid-Cameron Authority is a board of local representatives appointed by the Borough of Emporium and Shippen Township to oversee the public wastewater facilities in the community. The Board has an elected chairperson and other officers. The Authority maintains a staff of four individuals, including an Office Manager and three (one licensed) Wastewater Treatment Plant Operators.

The Authority Board is responsible for development of policies, rules, and regulations for the use of the public wastewater facilities. The Board establishes annual budgets for operation and maintenance of the CSS, the CSO, and the treatment plant. The Board also is responsible for maintaining an adequate and qualified staff to see that monitoring, operation and maintenance programs are carried out.

The duties of the administrative staff include public notification in the event of non-routine CSO occurrences. The administrative office also maintains records of meeting minutes, policies, budgets and other documents relating to operation of the CSO. Records and logs of CSO and CSS operations and maintenance are maintained for a minimum of five years.

The wastewater treatment plant operators are responsible for the operation, maintenance, monitoring, and repair of the critical facilities in the CSS and CSO structure. The following is a list of the most critical elements in the combined sanitary sewer that need to be maintained to ensure proper operation. The table reflects the facilities cleaning and maintenance schedule with frequency at which it occurs.

Critical Facility	Cleaning/Maintenance	Frequency of Cleaning/Maintenance
Wastewater Treatment Plant	Record overflow events	Daily
	Maximize flows to 3.7 MGD	Daily
Combined Sewer Overflow Structure (CSO structure)	Visual inspection	Daily
	Clear debris from CSO outfall structure	Performed after each CSO outfall event**
	Clean debris from discharge pipe or shoreline	Performed after each CSO outfall event**
Combined Sewer System	Inspect critical manholes in the combined sewer system	Quarterly
	Remove debris/sedimentation buildup	Annual

**Overflow events, including duration and volume shall be recorded on a daily basis. In the event an overflow event does not occur within six month, the critical facilities should be checked and cleaned on a quarterly basis.

4.3 NMC #2: Maximum Use of the Collection System for Storage

The Authority collection system is capable of providing only minimal storage volume due to hydraulic grade issues. Sewer connections in the Borough of Emporium located nearest to the new CSO outfall would experience sewage back-ups if the Authority attempted to restrict flows.

4.4 NMC #3: Review and Modification of Pretreatment Requirements to Ensure that CSOImpacts are Minimized

The Authority has a Pretreatment Program in place. Currently, four industrial customers discharge to the system and are monitored by the program. The total quantity of industrial wastewater discharged to the system is estimated at less than 1,025 gallons per month.

4.5 NMC #4: Maximization of Flow to the Wastewater Treatment Plant

As described earlier, the Authority has met the terms of the COA and upgraded the treatment plant to treat peak flows of up to 3.7 MGD. As documented in Chapter 94 Wasteload Management Reports, very few bypass events occurred after the SBR was completed in August 2008, including two events which occurred within five days of the plant becoming operational. Additionally, prior to the treatment plant upgrade, CSO discharges did not receive any treatment. The new CSO facilities, completed in January 2009, provide the capabilities of screening and grit removal at the headworks, primary clarification, and chlorination prior to discharge; the latter of which was discontinued the last couple of years with the concurrence of DEP. The expanded treatment plant utilizes SBR technology, which affords the plant operators with the ability to treat extended periods of high flow with very little degradation of effluent quality.

Additionally, Mid-Cameron Authority will use the capacity of the old primary tanks, (62,000 gallons each) and the 14,000 gallon capacity of the Chlorine Contact tank to provide a total of 138,000 gallons of flow equalization and storage to minimize the C.S.O. flow totals.

4.6 NMC #5: Elimination of the CSOs During Dry Weather

No CSO events have occurred during dry weather since the new treatment facilities became operational. It is not anticipated that there will be dry weather CSO events occurring in the future.

4.7 NMC #6: Control of Solid and Floatable Materials in CSOs

The old primary clarifiers are now utilized to provide settling and clarification for the CSO discharges. The skimming equipment on the clarifiers removes floatable materials.

4.8 NMC#7: Pollution Prevention Programs to Reduce Contaminants in CSOs

The Borough of Emporium is responsible for the cleaning of streets in the areas that include the portion of the Authority's CSS. The Borough is responsible for maintenance of records regarding the street sweeping campaign. The Borough forces begin street sweeping operations in the spring to remove excess anti-skid materials. The street sweeping operations continue on a monthly basis until the onset of winter maintenance operations. The Borough of Emporium owns a street sweeper and provides annual budgets for street sweeping.

The Authority and the Borough of Emporium share ownership of a sewer inspection camera and sewer jet cleaning equipment. This equipment is utilized on a non-routine basis to remove debris or clogs from sewer mains. In the event that additional heavy equipment is required, the Authority maintains a working relationship with several local contractors that could provide additional assistance to repair the CSS, CSO or other critical system facilities in the event of an emergency. Pipe-Eye Sewer Services, Inc., conducted maintenance on the CSS in 2006 and 2007 that included Jet-Vac cleaning, heavy cleaning, root cutting and closed-circuit television inspection of approximately two-thirds of the CSS. Major blockages were noted and removed during the cleaning process.

4.9 NMC #8: Public Notification to Ensure Adequate Notification of CSO Occurrences and Impacts

The Authority installed a sign at the site of the new CSO outfall in April 2009. In the event of non-routine or unusually severe CSO discharges that would have an impact upon the public, the Authority will provide public notification over local radio broadcasts and newspapers. Local emergency management officials would also be contacted. Notifications will be posted at selected locations, including municipal buildings, banks and churches. The Authority will also contact the DEP Regional Office at (570) 327-3636.

The telephone number for notifying the Authority is posted on the new sign adjacent to the CSO outfall. The number is also included in the local phone book and Authority invoices. In the event of long term restriction or impact, the Authority will issue a mass mailing to all customers within the service area.

4.10 NMC #9: Monitoring to Characterize the CSO Impacts and the Efficacy of CSO Controls

The Authority maintains records at the wastewater treatment facility office and at the Emporium Borough Building. These records are readily available for review by the public and review agencies. Monitoring is utilized to characterize the CSO impacts and the efficacy of CSO controls. Parameters to be monitored include:

- Reduction in the number of annual by-pass (CSO) events to an estimated four per year or less.

Only three bypass events were recorded in 2008 after the SBR became operational in August, of which two occurred within five days of the facilities becoming operational. Since then the number of bypass events have been minimal and within NPDES permit requirements. In comparison, sixty bypass events were recorded in 2008 before the SBR became operational.

- Improved effluent quality.

Effluent quality improved significantly beginning in September 2008 and has since reviewed at high levels. All discharge parameters have continued to be well below NPDES discharge limits.

- Improved water quality immediately downstream of the treatment plant.

Test results of Authority staff water quality monitoring immediately downstream of the treatment plant during CSO events have demonstrated improved stream conditions for bypass events occurring after April 2009.

5.0 CSO, COLLECTION SYSTEM, AND WASTEWATER TREATMENT PLANT

5.1 Background

The Authority's treatment plant upgrade was completed in January, 2009, as presented below. The plant capacity is based upon an average daily flow of 1.0 MGD, and a peak flow of 3.7 MGD. Flows in excess of 3.7 MGD are discharged through a new, single CSO structure, which is located immediately upstream of the treatment plant processes. CSO discharges are downstream of the plant's process discharges at NPDES Outfall 002. This is the only discharge location for the Authority's CSS.

5.2 CSO Treatment and Discharge

During a bypass event, when flows at the treatment plant exceed 3.7 MGD, excess flows enter the CSO wet well and are then pumped into the old primary clarifiers for solids removal and flow equalization/storage. Subsequent clarifier overflows receive additional flow equalization/storage in the old chlorine contact tank before being discharged through a new outfall pipe. Until otherwise directed by DEP, flows from the old chlorine contact tank were receiving chlorine disinfection prior to discharge.

5.3 Wastewater Collection System

Sanitary sewers within the Authority collection system are constructed of a variety of materials and range in diameter from 6 through 24 inches. Approximately 52,000 L.F. of vitrified clay, concrete, and PVC pipe is located within the Borough of Emporium. Most of the sewers within the Borough date to the early 1900s. The Authority has completed numerous repair and replacement projects, which were successful in

identifying and removing several major sources of extraneous surface and ground water from the collection system. The combined efforts of these rehabilitation projects were reported to have reduced infiltration and inflow by approximately 240,000 to 340,000 GPD. Sewers that serve adjacent areas of Shippen Township are newer, constructed in the early 1990s. There is approximately 40,000 L.F. of PVC sewer mains in the Township, ranging in diameter from 8 to 12 inches.

5.4 Wastewater Treatment Plant

The treatment plant upgrade was completed in August 2008. Construction of the new treatment facilities included increasing the average daily flow treatment capacity to 1.0 MGD, and the peak flow treatment capacity to 3.7 MGD. The CSO located across Driftwood Branch was eliminated and replaced by new CSO facilities at the treatment plant site. Flows in excess of 3.7 MGD will receive primary treatment (solids removal) and disinfection prior to discharge through the new CSO. The treatment facilities upgrade included:

- New headworks and dewatering building including grit removal and screening; raw sewage pumps; CSO diversion structure; CSO pumps; related valving, process piping and controls.
- Dual-basin sequencing batch reactor (SBR) designed to achieve Biological Nutrient Removal (BNR) discharge limits for total nitrogen and total phosphorous.
- UV disinfection.
- Sludge dewatering belt filter press and related chemical feed and control systems.
- Utilization of the existing primary clarifiers and chlorine contact tank for solids removal of CSO discharges.
- Utilization of the existing chlorine contact tank to disinfect CSO discharges (Note: Chlorine disinfection was curtailed under a DEP directive dated December 22, 2014, as it is not required under NPDES permit requirements.

6.0 PUBLIC PARTICIPATION

6.1 General

Establishing early communication with both the public and regulatory agencies is an important first step in long term planning and crucial to the success of a CSO control program. By informing the public early about the scope and goals of the program, and encouraging public involvement during the development, evaluation, and selection of the control strategy, potential conflicts can be identified and addressed more expeditiously, minimizing the likelihood of prolonged delay or additional expenses.

6.2 Public Participation Program

Public Notification Procedures

Several measures have been implemented to aid in public participation. The Authority has posted a sign at the site of the CSO outfall. In the event of non-routine or unusually severe CSO discharges that would have an impact upon the public, the Authority has a procedure in place to provide public notification over local radio broadcasts, public access television, and newspapers. Local emergency management officials would also be contacted. Notifications would be posted at selected public locations, including municipal buildings, banks and churches.

The telephone number for notifying the Authority has been posted on the sign adjacent to the CSO structure. The number is also included in the local phone book and Authority invoices. In the event of long-term restriction or impact, the Authority will issue a mass mailing to all customers within the service area.

Notices have been sent to Authority customers concerning the connection of roof drains to the CSS as part of an ongoing effort to help reduce the occurrence of total CSO overflows. Educating the public about the negative effects of this practice, which contributes heavily to wet weather flows, should help reduce the total flow during precipitation events.

The public is also encouraged to attend the monthly meetings held by the Authority. Monthly proceedings and current issues are discussed during these meetings, which are open for public attendance. Concerned parties are encouraged to attend and to voice their opinions.

Litter Reduction

One cost effective method of improving the water quality of CSOs is to reduce the amount of floatables entering a CSS. Floatables pass through the CSO and eventually enter the receiving waterway. Reducing floatables can be achieved through a public litter collection program. This program has a twofold benefit: the amount of debris discharged to the collection system is reduced and the community's aesthetics are improved. Emporium Borough has an active litter reduction program. Litter is collected daily at the "Mini-Park" in town, as well as at known trouble spots in the business district. Additionally, the Borough has an annual "Emporium Cleanup" day in April, utilizing local volunteers. Any debris generated during the cleanup process (such as window washing) is intercepted before it enters the CSS. As noted in Chapter 4, CSO flows now pass through the old primary clarifiers. The skimming equipment on the clarifiers removes floatables before they can be discharged through the CSO.

Public Awareness

Explaining the means by which environmental benefits offset the financial impacts associated with CSO improvements is very important. By demonstrating the importance of improved water quality and the cost-effectiveness of proposed control activities, ratepayers and taxpayers will be assured that environmental protection is being provided at the lowest responsible cost. One method of education is presentations to the public explaining the benefits of CSO control. These presentations should explain how improvements in water quality could significantly improve aesthetics, recreational areas, fishing, and the overall environmental quality. Providing public tours of the upgraded wastewater treatment plant is another awareness program. The Authority can provide these tours for any interested groups. Tours of the treatment facilities have been conducted with representatives from the Emporium Fire Company, Cameron County Emergency Management Agency, school group, and other interested parties. Tours for local citizen and youth groups have been encouraged and are ongoing.

The Authority is encouraging the inspection of homes during property sales and transfers. These inspections would be conducted to determine the presence of connections that are not allowed to the CSS, such as roof downspouts.

7.0 LONG TERM CONTROL PLAN

7.1 Mid-Cameron Authority LTCP Approach

The EPA CSO Control Policy identifies two general approaches to achieve compliance with the Clean Water Act. These approaches are described as the demonstration approach and the presumption approach. Generally, if sufficient data is available to demonstrate that the proposed plan would result in an appropriate level of CSO control, then the demonstration approach would be selected. The demonstration approach is particularly appropriate where attainment of water quality standards cannot be achieved through CSO control alone. In such cases, an appropriate level of CSO control cannot be dictated directly by existing standards, but must be defined based upon water quality data, system performance modeling, and economic factors.

If the data collected does not provide “a clear picture of the level of CSO controls necessary to protect water quality standards", the presumption approach may be considered. Use of the presumption approach is contingent, however, upon the municipality presenting sufficient data to the NPDES permitting authority to allow the agency to make a reasonable judgment that standards will probably be met with a control plan that meets one of the three presumptioncriteria.

Under the presumption approach, controls adopted in the LTCP should be required to meet one of the following criteria:

i. No more than an average of four overflow events per year, provided that the permitting authority may allow up to two additional overflow events per year. For the purpose of this criterion, an overflow event is one or more overflows from a CSS as the result of a precipitation event that does not receive the minimum treatment specified. [See definition of minimum treatment, which follows]; or

ii. The elimination or the capture for treatment of no less than 85% by volume of the combined sewage collected in the combined sewer system (CSS) during precipitation events on a system-wide annual average basis; or

iii. The elimination or removal of no less than the mass of the pollutants identified as causing water quality impairment through the sewer system characterization, monitoring, and modeling effort for the volumes that would be eliminated or captured for treatment under Item ii above.

The minimum level of treatment applicable to the above criteria is defined in the CSO Control Policy as follows:

- Primary clarification; removal of floatable and settleable solids may be achieved by any combination of treatment technologies or methods that are shown to be equivalent to primary clarification.
- Solids and floatables disposal.
- Disinfection of effluent if necessary, to meet water quality standards, protect designated uses and protect human health, including removal of harmful disinfection chemical residuals, where necessary.

7.2 Description of Plan

The long term control plan for the Authority is based on implementation of the nine minimum controls, which are required by their COA with DEP. Each of the LTCP objectives has been included to improve water quality while satisfying the nine minimum control requirements. The individual measures of the LTCP can be divided into three categories: Management, Operational, and Capital Improvements.

Proper allocation of resources is the first step in implementing the control plan. The Authority is responsible for establishing in their budget an appropriate amount of funds each year for CSO system improvements. The current annual budget for the Authority includes a significant allocation for sewer repairs, maintenance and cleaning. Management designates an appropriate of man-hours to address scheduled system improvements as well as finding problems in the existing system and fixing them. Authority

employees are responsible for maintaining all system records including CSO data. This information is communicated to the public and regulating agencies as required by the Authority's COA. The Authority monitors the effectiveness of the long term control plan and overseeing that the required actions are taken to comply with the NMCs. They are also ultimately responsible for modifications or updates to the LTCP that may be required.

The Authority staff is responsible for all operational issues involved in implementing the LTCP. They are responsible for daily treatment operations. In addition they must perform maintenance on existing equipment as well as locating and fixing problems in the current system. The staff members are responsible for all CSO monitoring and sampling, data collection, and ensuring that the Authority's facilities are in permit compliance.

Capital improvements provide the most noticeable impact on improving the water quality in the CSO receiving waters. The Authority's treatment plant and CSO facilities upgrade was completed in January 2009, in order to have a higher treatment capacity, therefore reducing the number of overflow events occurring every year. Only three overflow events occurred from August 1, 2008, to December 31, 2008, and two occurred within the first five days of operation of the new SBR facilities. Since then overflow events have been minimal, as reported.

The Authority continues to monitor and seek improvement in the condition of the current CSS. The Authority owns the equipment to conduct television camera collection line inspections. This equipment aids in finding damaged sections of collection pipes that warrant replacement. However, to make a line inspection program worthwhile it must be complemented with a cost-effective line rehabilitation program. Several options exist to improve the condition of the existing sewer lines. The most effective method would be a line replacement program that included removal of damaged existing pipe and replacement with new pipe. However, this may not be the best option in all cases due to the high costs associated with such projects. Another alternative is installing slip lining to restore some integrity to the existing pipe. Some sections of collection pipe may only require line flushing to remove accumulated sediments that may be clogging the pipes and causing adverse effects to the system. Periodically flushing of lines during dry weather conditions can help reduce the amount of sediment discharged during overflow events. As noted in Chapter 4, a significant cleaning program was conducted by Pipe-Eye Sewer Services, Inc. in 2006 and 2007.

A campaign to reduce the amount of stormwater received by the CSS would be very beneficial to the Authority's CSO. A significant number of stormwater connections to the CSS are known to exist. Flow detention ponds, use of pervious areas for infiltration, and removal of area drains and roof leader connections would all help drastically reduce the wastewater received by the treatment plant during wet

weather conditions. Reducing sources of infiltration would also reduce the flow through the CSO. Installing manhole inserts to catch water that leaks around the manhole lid or rehabilitating manholes that are in poor condition with a new concrete lining can also assist with reducing wet weather CSO overflows. Notices have been sent to Authority customers concerning the connection of roof drains to the CSS as part of an ongoing effort to help reduce the occurrence of wet weather CSOs.

7.3 Implementation of Nine Minimum Controls

The Authority is required to implement the NMCs and has complied. The original Consent COA between DEP and the Mid-Cameron Authority was revised and executed on February 21, 2003, following a November 19, 2002, inspection by DEP. The COA includes measures to correct the deficiencies observed in implementing the NMCs. The actions taken by MCA to correct the deficiencies were presented in Chapter 4 of this report. All other minimum controls were already adhered to as outlined in the sameChapter.

The major task completed by the Authority to attain compliance with the CSO Policy was the construction of an expanded wastewater treatment facility, with the final completion of all facilities (SBR and CSO) in January 2009. The new facilities were designed to treat peak flows of up to 3.7 MGD. The design provides for a reduction in the number of by-pass events to an estimated four events per year and the capture of over 85% of the hydraulic load to the system during rain events. In addition, the treatment plant upgrade provides primary treatment (clarification) of CSO overflows. Floatables are removed by the skimming equipment during primary clarification. Only three bypass events occurred from August 1, 2008 to December 31, 2008, including two within the first five days of operation of the SBR; since then the number of bypass events have been negligible. Furthermore, the plant facilities have continued to address the 85% hydraulic load capture requirement during rain events noted in Section 7.1.

The current treatment facilities utilize the SBR system to provide biological treatment of the wastewater. SBRs are capable of providing high levels of treatment over varying flow regimes due to the "batch" process. This treatment process has vastly improved effluent water quality and has provided flexibility for treating high flows from the CSS. Major treatment plant operational components include an efficient headworks facility (incorporating coarse screening and grit removal); two tank SBR system; UV disinfection; biosolids handling equipment (including a belt filter press), and associated. A generator is provided to maintain treatment during pro-longed power failures.

7.4 Public Education/Notification

The Authority has two aspects to its public participation program: public education and public involvement. These programs were instituted to help reduce the amount of materials discharged to the Driftwood

Branch. Public education is crucial to gaining support for raised fees or other sources of revenue that are required to pay for completed capital improvements. Public education and communication gives interested individuals the opportunity to voice their opinions and present their ideas for possible improvements. Public participation is also important because it can help reduce the cost of improving the water quality and allows concerned individuals to contribute to the efforts to improve the environment for everyone. The involvement of the public concerning the Authority's CSS is described in Chapter 6. All efforts are being made to educate and notify the public of the impact of CSO discharges on the environment, and the importance of CSO control.

7.5 Program Verification

Based upon the current NPDES Permit (PA0028631), the Authority is required to adhere to the following monitoring and reporting requirements for the CSO structure (Outfall 002) at the treatment plant:

i. Monthly Discharge Monitoring Reports for Combined Sewer Overflows (DMRs for CSOs) – The Authority must record data on CSO discharges in the format specified by the DEP. The data must then be submitted to the appropriate DEP regional office monthly.

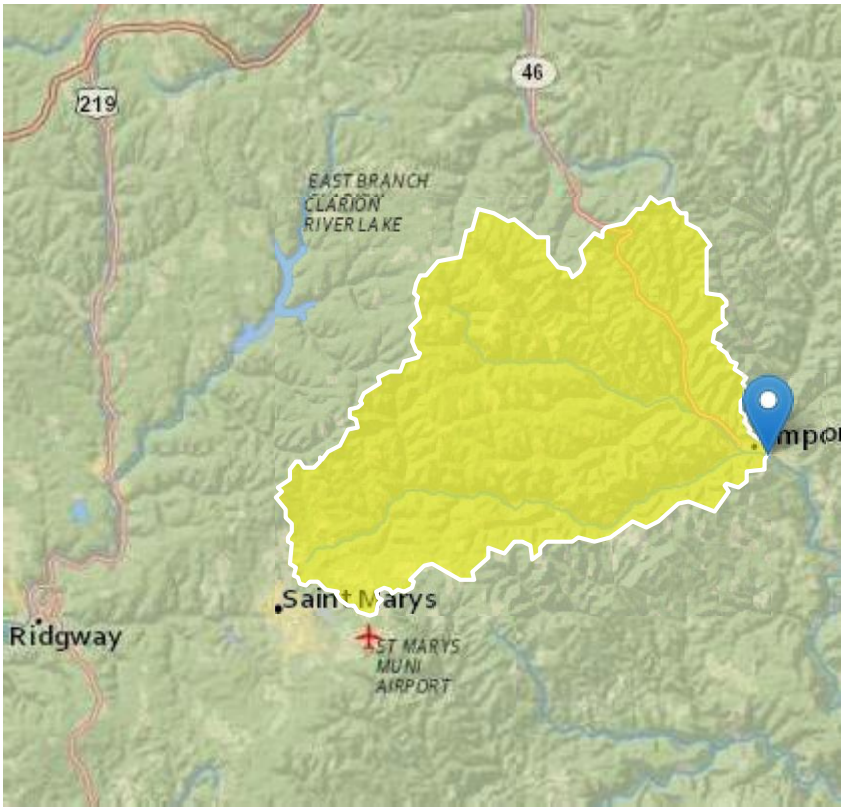
ii. Annual CSO Status Report – By March 31 of each year, an Annual CSO Status Report shall be submitted to the DEP with the annual "Municipal Wasteload Management Report" required by 25 Pa. Code Chapter 94, Section 94.12. The Annual CSO Status Report shall:

- Provide a summary of the frequency, duration, and volume of the CSO discharges for the past calendar year.
- Provide the operational status of overflow points.
- Provide an identification of known in-stream water quality impacts, their causes, and their effects on downstream water uses.
- Summarize all actions taken to implement the NMCs and the LTCP and their effectiveness.
- Evaluate and provide a progress report on implementing and necessary revisions to the NMC and LTCP.

The annual CSO Status report contains CSO-related information such as rain gauge data, inspection and maintenance performed, dry weather overflow data, and wet weather overflow data.

StreamStats Report

Region ID: PA
Workspace ID: PA20201201191830626000
Clicked Point (Latitude, Longitude): 41.50649, -78.22660
Time: 2020-12-01 14:18:48 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	150	square miles
PRECIP	Mean Annual Precipitation	44	inches
GLACIATED	Percentage of basin area that was historically covered by glaciers	0	percent
FOREST	Percentage of area covered by forest	9 5. 91 73	percent

Low-Flow Statistics Parameters1100 Percent (150 square miles) Low Flow Region 5]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	150	square miles	4.84	982
PRECIP	Mean Annual Precipitation	44	inches	33.1	47.1
GLACIATED	Percent of Glaciation	0	percent	0	100
FOREST	Percent Forest	95.9173	percent	41	100

Low-Flow Statistics Flow Report1100 Percent (150 square miles) Low Flow Region 5]

Pl [: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp : Standard Error of Prediction, SE: Standard Error (other -- see report)

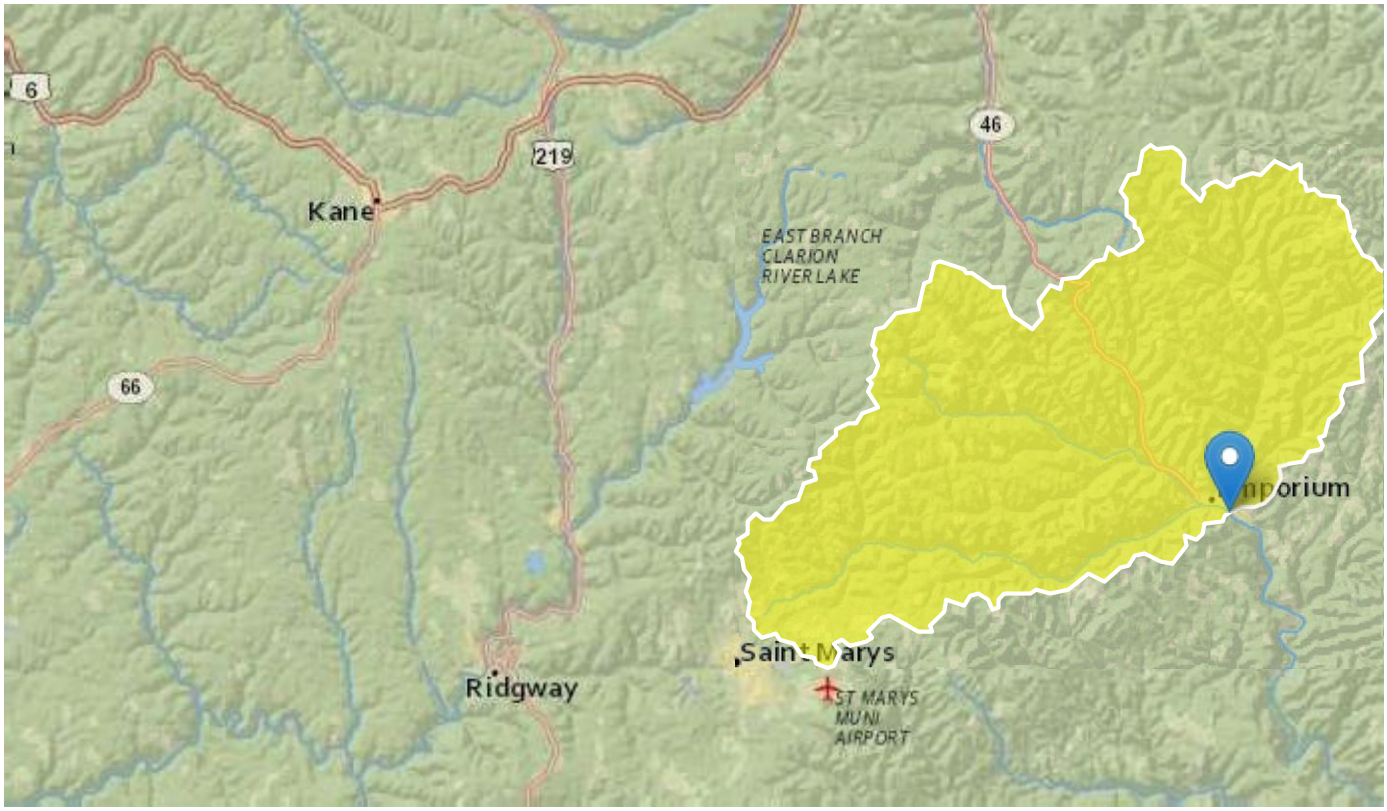
Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	14	ftA3/S	38	38
30 Day 2 Year Low Flow	21.2	ftA3/S	33	33
7 Day 1 O Year Low Flow	5.01	ftA3/S	57	57
30 Day 1 O Year Low Flow	9.01	ftA3/S	51	51
90 Day 1 O Year Low Flow	14.7	ftA3/S	41	41

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/)

StreamStats Report

Region ID: PA
Workspace ID: PA20201201182743398000
Clicked Point (Latitude, Longitude): 41.50482, -78.22354
Time: 2020-12-01 13:28:01 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	223	square miles
PRECIP	Mean Annual Precipitation	44	inches
GLACIATED	Percentage of basin area that was historically covered by glaciers	0	percent
FOREST	Percentage of area covered by forest	96.276	percent

Low-Flow Statistics Parameters 1100 Percent (223 square miles) Low Flow Region 5]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	223	square miles	4.84	982
PRECIP	Mean Annual Precipitation	44	inches	33.1	47.1
GLACIATED	Percent of Glaciation	0	percent	0	100
FOREST	Percent Forest	96.276	percent	41	100

Low-Flow Statistics Flow Report 1100 Percent (223 square miles) Low Flow Region 5]

Pl [: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp : Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	22.3	ftA3/S	38	38
30 Day 2 Year Low Flow	33.3	ftA3/S	33	33
7 Day 1 O Year Low Flow	8.39	ftA3/S	57	57
30 Day 1 O Year Low Flow	14.8	ftA3/S	51	51
90 Day 1 O Year Low Flow	23.6	ftA3/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/)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Mr. Donald G. Reed
Chairman
Mid-Cameron Authority
421 N. Broad Street
Emporium, PA 15834

JUL 08 2019

Re: Pretreatment Program
NPDES Permit Number: PA0028631
Public Notice Number PA-437-SGC

Dear Mr. Reed:

This is to notify you of the Environmental Protection Agency's approval of your request to terminate pretreatment program implementation requirements for Mid-Cameron Authority. The intention to approve this modification was announced to the public on May 29, 2019 and no comments were received.

Although the requirement for Mid-Cameron to implement a formal pretreatment program has been eliminated, Mid-Cameron is still responsible for compliance with its NPDES permit including prevention of any problems that may be caused by new industrial users that connect to your system. Note that pretreatment program implementation requirements in your NPDES permit remain in effect until the permit is amended or reissued by the Pennsylvania Department of Environmental Protection.

If you have any questions regarding the acceptance of any additional discharge from industrial sources or need any assistance in maintaining compliance with the Authority's NPDES permit, please contact Ryan Shuart at 215-814-2714 or by email at Shuart.ryan@epa.gov.

Sincerely,

Michelle Price-Fay, Chief
Clean Water Branch
Water Division

cc: Ryan Neyman, Mid-Cameron Authority
✓ Dennis Lingenfelter, Uni-Tec Consulting Engineers, Inc
Thomas Randis, PADEP, North Central Region
Sean Furjanic, PADEP Central Office