pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0009326**
Facility Type	**Industrial**	APS ID	**275256**
Major / Minor	**Minor**	Authorization ID	**1302741**

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

Applicant and Facility Information

Applicant Name	**Motts LLP**	Facility Name	**Motts Juice Proc Plant Aspers**
Applicant Address	45 Aspers North Road	Facility Address	45 Aspers North Road
	Aspers, PA 17304-9486		Aspers, PA 17304-9486
Applicant Contact	Brian Group	Facility Contact	Christopher Moore
Applicant Phone	(717) 677-7121	Facility Phone	(717) 778-6279
Client ID	129964	Site ID	252196
SIC Code	2033,2037	Municipality	Menallen Township
SIC Description	Manufacturing - Canned Fruits and Vegetables, Manufacturing - Frozen Fruits And Vegetables	County	Adams
Date Application Received	January 21, 2020	EPA Waived?	No
Date Application Accepted	January 23, 2020	If No, Reason	Significant CB Discharge

Purpose of Application: NPDES permit renewal.

Summary of Review

The current NPDES permit was issued on September 2, 2015 and became effective on October 1, 2015. On January 9, 2020, POWER Engineers, Inc., on behalf of the permittee, submitted a renewal application for the current NPDES permit. The permit will expire on September 30, 2020.

The permittee currently operates an onsite industrial wastewater treatment facility with a design flow of 1.04 MGD. The Department issued two (2) Water Quality Management (WQM) permits (Nos. 0189201 & 0107203) for the construction and operation of the existing units. The WQM permit No. 0189201 allowed the permittee to spray treated wastewater on the company owned property. The WQM permit No. 0107203 authorized the construction and operation of this centrifuge.

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted and published in the *Pennsylvania Bulletin* for public comments.

Any additional information or public review of documents associated with the discharge or the facility may be available at the PA DEP Southcentral Regional Office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file reviews, contact the SCRO File Review Coordinator at 717.705.4700.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	August 7, 2020
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E. / Clean Water Program Manager	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	1.04
Latitude	39º 58' 15.27"	Longitude	-77º 13' 29.28"
Quad Name	Biglerville	Quad Code	
Wastewater Description:	IW Process Effluent with ELG		
Receiving Waters	Opossum Creek (TSF)	Stream Code	09057
NHD Com ID	57470355	RMI	4.35
Drainage Area	17.3 mi.^{2}	Yield (cfs/mi^2)	0.3
Q_{7-10} Flow (cfs)	5.2	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	605	Slope (ft/ft)	
Watershed No.	7-F	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Tentative	Name	Opossum Creek
Nearest Downstream Public Water Supply Intake	Wrightsville Water Supply Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	43.54 miles	Distance from Outfall (mi)	Approximate 77.0 miles

Changes Since Last Permit Issuance: none

Drainage Area
The discharge is Opossum Creek at RMI 4.35 miles. A drainage area upstream of the discharge is estimated to be 17.3 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow
According to USGS StreamStats, the point of first use at the confluence with Opossum Creek (Stream Code 09057) has a Q7-10 of 5.2 cfs and a drainage area of 17.3 mi.^{2}, which results in a Q7-10 low flow yield of 0.03 cfs/ mi.^{2}. This information is used to obtain a chronic or 30-day (Q30-10), and an acute or 1-day (Q1-10) exposure stream flow for the discharge point as follows (Guidance No. 391-2000-023):

Q7-10 = 5.2 cfs
Low Flow Yield = 5.2 cfs / 17.3 mi.^{2} = 0.3 cfs/ mi.^{2}
Q30-10 = 1.36 * 5.2 cfs = 7.07 cfs
Q1-10 = 0.64 * 5.2 cfs = 3.33 cfs

The resulting Q7-10 dilution ratio is: Qstream / Qdischarge = 5.2 cfs / [1.04 MGD * (1.55 cfs/MGD)] = 3.23:1

Opossum Creek
25 Pa. Code § 93.9o classifies Opossum Creek as Trout Stocking Fishes (TSF) surface water which is described as *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* (25 Pa. Code § 93.3). Based on the 2018 Integrated Report, Opossum Creek, assessment unit ID 13022, is not impaired. A TMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

Public Water Supply
The closest water supply intake located downstream from the discharge in the Wrightsville Water Supply Company, Susquehanna River approximately 77.0 miles from the point of discharge. Given the nature and dilution, the discharge is not expected to significantly impact the water supply.

Treatment Facility Summary

Treatment Facility Name: Motts Juice Proc

WQM Permit No.	Issuance Date
0189021	
0107023	11/19/2007

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Biological (Industrial Waste)	Activated Sludge	UV	1.04

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
		Not Overloaded	Aerobic Digestion	Land Application

Changes Since Last Permit Issuance: none

The treatment process, according to the revised application, is as follows:

Pump Station → Grit Removal → Aeration lagoon (1) → Final Clarifier (1) → 1st polishing lagoon → 2nd polishing lagoon → Outfall 001

Compliance History	
Summary of DMRs:	DMRs reported last 12 months from July 1, 2019 to June 30, 2020 are summarized in the Table below (Pages 5, 6, & 7).
Summary of Inspections:	7/29/2020: Mr. Bettinger, DEP Environmental Trainee, conducted an administrative inspection to follow up on self-reported turbidity increase in treated waste-water effluent at Motts Juice Process that occurred on 7/25/2020. The increase in turbidity was likely a result of residual particles from flushing the line. The discharge was clear. There were no violations notice during inspection. 12/6/2017: Mr. Bowen, DEP WQS, conducted compliant evaluation inspection. Discharge appeared clear. Field test results were within permit limits. Annual TN loading for 2016-2017 was 11,018 lbs, which was compliant with the facility's annual cap load. 11/2/2016: Mr. Haines, DEP WQS, conducted compliant evaluation inspection. The outfall was clear. Field test results were within permit limits. In processing the NH_3-N, the NO_2-NO_3 concentrations/loadings have increased causing the plant to exceed its annual Chesapeake Bay Total Nitrogen (TN) discharge limit and to meet compliance had to purchase TN credits for this compliance year.
Other Comments:	There are three open violations associated with the permittee or the facility.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from July 1, 2019 to June 30, 2020)

Parameter	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19
Flow (MGD) Average Monthly	0.36	0.29	0.37	0.34	0.31	0.33	0.24	0.3	0.38	0.28	0.37	0.37
Flow (MGD) Daily Maximum	0.53	0.49	0.6	0.53	0.49	0.54	0.5	0.48	0.6	0.59	0.67	0.7
pH (S.U.) Minimum	8.0	7.9	7.9	7.5	7.6	7.5	7.6	7.5	7.7	7.8	7.8	7.5
pH (S.U.) Maximum	8.4	8.3	8.2	8.0	8.0	8.1	8.1	7.9	8.3	8.3	8.3	8.5
DO (mg/L) Minimum	6.81	7.1	8.9	8.6	7.4	7.6	9.0	8.5	8.0	7.3	7.0	7.4
$CBOD_5$ (lbs/day) Average Monthly	< 10	< 8	< 11	< 10	< 10	< 9	< 7.0	< 10	< 12	< 7	< 12	< 14
$CBOD_5$ (lbs/day) Daily Maximum	12	< 10	< 13	< 11	< 11	< 11	< 13.0	< 11	< 14	< 10	< 13	< 18
$CBOD_5$ (mg/L) Average Monthly	< 3	< 3	< 3	< 3	< 3	< 3	< 3.0	< 3	< 3	< 3	< 3	< 3
$CBOD_5$ (mg/L) Daily Maximum	3	3	< 3	< 3	< 3	< 3	< 3.0	< 3	< 3	< 3	< 3	< 3
TSS (lbs/day) Average Monthly	15	8	10	9	22	20	6.0	7	6	9	11	26
TSS (lbs/day) Daily Maximum	28	10	13	15	67	46	13.0	10	9	17	20	50
TSS (mg/L) Average Monthly	4	3	3	3	7	6	2.0	2	1	4	3	6
TSS (mg/L) Daily Maximum	8	3	4	4	20	13	3.0	3	2	8	5	10
Total Dissolved Solids (lbs/day) Average Monthly	3725	3017	4193	3456	4210	3266	2666	3780	4536	2414	4453	4535
Total Dissolved Solids (lbs/day) Daily Maximum	4197	2143	5274	4007	6329	3692	4579	4496	5046	3169	4918	5896
Total Dissolved Solids (mg/L) Average Monthly	1076	1083	1156	1070	1296	1057	1102	1160	1095	970	1105	982
Total Dissolved Solids (mg/L) Daily Maximum	1164	1168	1216	1232	2108	1104	1210	1238	1210	1000	1182	1030

Nitrate-Nitrite (mg/L) Average Monthly	< 2.32	< 3.49	< 2.32	< 1.95	< 2.82	< 1.51	< 0.8	< 0.83	< 0.8	< 0.8	< 0.8	< 1.09
Nitrate-Nitrite (lbs) Total Monthly	< 246.2	< 351.5	< 240.2	< 194	< 259.8	< 131.5	< 58.6	< 68.9	< 93.9	< 52	< 78.8	< 113.2
Total Nitrogen (mg/L) Average Monthly	< 3.39	< 4.59	< 3.4	< 2.62	< 3.35	< 2.15	< 1.3	< 1.35	< 1.3	< 1.3	< 1.31	< 1.71
Total Nitrogen (lbs) Effluent Net, Total Monthly	358.5	< 463.1	< 348.8	< 260.8	< 307.6	< 188.6	< 95.2	< 111.4	< 152.5	< 84.6	< 129.4	< 178.1
Total Nitrogen (lbs) Total Monthly	< 358.5	< 463.1	< 348.8	< 260.8	< 307.6	< 188.6	< 95.2	< 111.4	< 152.5	< 84.6	< 129.4	< 178.1
Total Nitrogen (lbs) Effluent Net, Total Annual										< 10475		
Total Nitrogen (lbs) Total Annual										< 10475		
Ammonia (lbs/day) Average Monthly	< 0.9	< 1	< 0.8	< 0.3	< 0.4	< 0.3	< 0.2	< 0.3	< 0.4	< 0.3	< 0.3	< 0.3
Ammonia (lbs/day) Daily Maximum	3	3	4	< 0.4	0.7	< 0.4	< 0.4	< 4	< 0.5	0.7	< 0.4	< 0.6
Ammonia (mg/L) Average Monthly	< 0.2	0.4	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1	< 0.1
Ammonia (mg/L) Daily Maximum	0.83	0.86	0.89	0.13	0.28	< 0.1	< 0.1	< 0.1	0.1	0.3	< 0.1	< 0.1
Ammonia (lbs) Total Monthly	< 26.4	< 37.9	< 22.6	< 10.4	< 12.4	< 9	< 7.3	< 8.3	< 11.7	< 10.4	< 9.9	< 10.3
Ammonia (lbs) Total Annual										< 207		
TKN (mg/L) Average Monthly	1.07	1.1	1.07	< 0.67	< 0.53	< 0.64	< 0.5	< 0.52	< 0.5	< 0.5	0.51	< 0.62
TKN (lbs) Total Monthly	112.3	111.6	108.7	< 66.9	< 47.8	< 57.2	< 36.6	< 42.6	< 58.6	< 32.6	< 50.6	< 64.9
Total Phosphorus (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Phosphorus (mg/L) Daily Maximum	0.11	0.1	0.14	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Phosphorus (lbs) Effluent Net, Total Monthly	< 10.6	< 10.1	< 10.4	< 10.1	< 9.1	< 9	< 7.3	< 8.3	< 11.7	< 13.5	< 9.9	< 10.3
Total Phosphorus (lbs) Total Monthly	< 10.6	< 10.1	< 10.4	< 10	< 9.1	< 9	< 7.3	< 8.3	< 11.7	< 13.5	< 9.9	< 10.3
Total Phosphorus (lbs) Effluent Net, Total Annual										< 137		

Total Phosphorus (lbs) Total Annual										< 137		
Sulfate (lbs/day) Average Monthly	659	536	939	619	507	479	376	611	828	521	740	743
Sulfate (lbs/day) Daily Maximum	748	602	1258	567	646	585	709	713	972	729	806	851
Sulfate (mg/L) Average Monthly	190	193	250	193	153	155	154	188	200	208	185	162
Sulfate (mg/L) Daily Maximum	230	210	290	224	180	180	170	190	220	230	210	170
Chloride (lbs/day) Average Monthly	884	741	1141	664	844	859	734	1044	947	598	1037	1267
Chloride (lbs/day) Daily Maximum	917	856	1648	901	934	981	1334	1351	1141	792	1171	1601
Chloride (mg/L) Average Monthly	256	265	302	201	255	278	306	320	228	240	258	274
Chloride (mg/L) Daily Maximum	280	280	380	260	280	300	320	380	240	250	270	320
Bromide (lbs/day) Average Monthly	4	3	4	3	3	2	2.0	3	7	2	< 3	< 3
Bromide (lbs/day) Daily Maximum	5	3	5	4	4	3	4.0	4	9	4	5	4
Bromide (mg/L) Average Monthly	1.09	0.94	1.02	1.07	0.81	0.79	1.0	1.06	1.74	0.99	< 0.81	< 0.6
Bromide (mg/L) Daily Maximum	1.4	1	1.1	1.3	1.0	0.97	1.1	1.2	2.8	1.7	1.1	0.72

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 1.04
Latitude 39º 58' 15.36" **Longitude** -77º 13' 29.22"
Wastewater Description: IW Process Effluent with ELG

Technology-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	12	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
May 1 – Oct 31	24	Daily Maximum	-	-
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
Nov 1 – Apr 30	50	Daily Maximum	133.102(a)(4)(ii)	92a.47(a)(2)
	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
Total Suspended	60	Daily Maximum	133.102(b)(2)	92a.47(a)(2)
Solids	75	IMAX	-	-
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
	2.0	Average Monthly	-	BPJ, 96.5 (c)
	4.0	Daily Maximum	-	-
Total Phosphorus	5.0	IMAX	-	-

Water Quality-Based Limitations

Flow
Flow monitoring requirements will remain in the permit. These requirements are consistent with other typical industrial wastewater discharges throughout the region and are recommended by Table 6-4 of the permit guidance, Technical Guidance for the Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits (385-0400-001).

$CBOD_5$, Dissolved Oxygen (D.O.), and Ammonia-Nitrogen (NH_3-N)
The following are limitations that are included in the current NPDES permit.

Table1. Existing Limitations for $CBOD_5$, D.O. and NH_3-N

	$CBOD_5$ (Summer)	$CBOD_5$ (Winter)	D.O.	NH_3-N (Summer)	NH_3-N (Winter)
Average Monthly Concentration	12 mg/L	25 mg/L	6.0 mg/L Minimum	1.5 mg/L	2.5 mg/L
Maximum Daily Concentration	24 mg/L	50 mg/L		3.0 mg/L	5.0 mg/L
Instantaneous Concentration	30 mg/L	62.5 mg/L		3.75 mg/L	6.25 mg/L
Average Monthly Mass	104 lbs/day	217 lbs/day		N/A	N/A
Maximum Daily Mass	208 lbs/day	434 lbs/day		N/A	N/A

$CBOD_5$ and Ammonia-Nitrogen (NH_3-N) are common pollutants for any fruit processing facilities as these facilities use fresh fruits (i.e., washing, sorting, and peeling processes) for their products on a daily basis. Limitations displayed on Table 1 are water quality-based that were previously recommended by WQM 7.0, a water quality model for $CBOD_5$, NH_3-N, and Dissolved Oxygen (D.O.).

WQM 7.0 model was re-utilized for this permit renewal. Based on the modeling results, the Department is able to determine if existing WQBELs for these pollutants are still protective of water quality. Using existing limits, new Q7-10, and the design flow of the facility, the model was utilized and recommended that existing limits are still appropriate to protect water quality standards in the receiving stream. The permittee has been consistently meeting these limits; accordingly, existing limits will remain in the proposed permit. Seasonal limits were previously established based on achieving the "target" instream $CBOD_5$ concentration of 10 mg/L to prevent or reduce the impacts of filamentous bacteria which has a direct relationship with floc (i.e., settleability, floc structure/abundance, etc.). Due to this reason, seasonal limits will be maintained in the proposed permit. Seasonal limitation strategies were derived from Table 8-1 of the Department's guidance, Determining Water Quality-Based Effluent Limits (391-2000-003).

pH

25 Pa. Code § 95.2(1) requires industrial wastes to control a pH effluent level of not less than 6.0 and not greater than 9.0 standard units (S.U.). These pH limits are currently specified in the existing permit. Sample results reported on past Discharge Monitoring Reports (DMRs) indicate that the effluent pH has ranged from 7.5 to 8.5 S.U. Accordingly, existing pH limits will remain unchanged.

Total Suspended Solids (TSS)

Accordingly, existing TSS limits of 30 mg/L (average monthly), 60 mg/L (daily maximum), and 75 mg/L (instantaneous maximum) will remain unchanged in the proposed permit. The average monthly limit is based on traditional secondary treatment standards found in 40 CFR § 133.102. The daily maximum and instantaneous maximum limits were previously determined using multipliers of 2 and 2.5, respectively.

Total Phosphorus (TP)

TP limits were previously included in the permit on a case-by-case basis using best professional judgment (BPJ). As determined previously, the discharge of phosphorus from this facility is of concern as facilities with lagoons are generally having issues with algal growth. It is well known that the level of phosphorus is directly related to algal growth in the steam which may cause to adverse environmental impacts on aquatic life and potential nutrient enrichment in the stream. In order to prevent or to minimize these issues, the effluent phosphorus level must be controlled in accordance with 25 Pa Code § 96.5(c). The Department has determined that limits specified in the existing permit are appropriate (i.e., 2.0 mg/L (average monthly), 4.0 mg/L (daily maximum), 5.0 mg/L (instantaneous maximum)) as these limits have been assigned to other facilities with similar technology. Accordingly, existing TP limits will remain in the proposed permit. See the EPA guidance, Nutrient Criteria Technical Guidance Manual – Rivers and Streams, 07/2000 EPA-822-B-00-002, for more information about nutrient impacts on streams.

Oil and Grease

Oil and Grease can also be of concern if facilities utilize or store any oil-based materials for their products at the place that may potentially come in contact with stormwater. 25 Pa. Code § 95.2 (2) requires all oil-bearing wastewaters must achieve less than 15 mg/L for average monthly and 30 mg/L for instantaneous maximum. However, the sample results reported in the renewal application detected no Oil and Grease (6.0 mg/L). The Department's SOP also states that no monitoring or limitation is necessary if the sample result is less than 4 mg/L. At this time, the facility historically had no issues in regard to the presence of Oil and Grease in the effluent (also no visible film on the surface of the receiving water). Accordingly, no monitoring of Oil and Grease is necessary.

Total Residual Chlorine (TRC)

The facility currently utilizes UV disinfection for their well water but uses chlorine-based chemical (i.e., Sodium Hypochlorite 12.5%) for sanitizing purposes (i.e., tank cleaning). Nevertheless, the application indicates that this chemical will not be expected to be present in the effluent. Accordingly, water quality modeling for TRC is not necessary as it is not a parameter of concern.

Temperature

Previously, non-contact cooling water (NCCW) was discharged via two (2) different outfalls; Outfalls 001 and 002. The permittee has decided to convey this flow directly into the treatment facility. The volume of this NCCW is insignificant as opposed to other wastewater. Also, the discharge of NCCW is to the existing aeration lagoon where significant cooling can be expected. Accordingly, temperature is not of concern at this time and no monitoring or limitation is necessary.

Total Maximum Daily Loads (TMDLs)

A TMDL was developed in 2013 to address impairments noted in 303(d) list as well as other nonpoint sources such as agriculture. Although it has not been finalized yet, this document contains wasteload allocations (WLAs) for the following point source dischargers in the Opossum Creek watershed:

Table 2. Opossum Creek TMDL (Reference: page # 13: Opossum Creek Watershed TMDL)

Name	NPDES Permit #	Sediment WLA (lb/yr)	Sediment WLA (lb/day)	Basis
Motts Incorporated	PA0009326	79,194.0500	216.9700	25.0 mg/L
Rice Foods	PA0088455	3,655.1100	10.0140	30.0 mg/L
Opossum Valley Municipal Authority	PA0247154	19,965.3300	30.0420	30.0 mg/L
Bulk Reserve	-	83,146.4160	227.7984	-
Total	-	**176,960.906**	484.8244	-

It is unknown as to when this TMDL document will be finalized or approved by the U.S. Environmental Protection Agency (US-EPA). Consequently, the permit will be drafted without including the TMDL requirement. The permit, during the permit term, can be modified or reopened to include requirements/conditions based on new information that was not available at the time of permit issuance (40 CFR § 122.62 (a)). Accordingly, it is recommended that the following reopener clause be included in Part C of the permit:

"On April 30, 2013, the Total Maximum Daily Load (TMDL) was developed to provide a full picture of and solution to water quality problems identified in the Opossum Creek watershed. Once the Opossum Creek Watershed TMDL is finalized, the Department may reopen the permit to reflect the allocated Total Suspended Solids loading addressed in the TMDL."

Chesapeake Bay

In the Phase 2 WIP Wastewater Supplement revised on December 17, 2019, Table 7 of this document shows that Motts LLP has been allocated 18,645 lbs/year of TN and 729 lbs/year of TP. This approach is consistent with the Chesapeake Bay TMDL was based on the actual performance data previously evaluated by the Department. Since the permittee is easily capable of achieving compliance with these loads, the Department determines that no "compliance schedule" for the requirements associated with the Chesapeake Bay Strategy is necessary. Accordingly, the Chesapeake Bay nutrient existing limitations and monitoring requirements will remain in the proposed permit.

Toxic

Toxic pollutants are not generally considered pollutants of concern for facilities involved with fruits and vegetables processing. The wastewater treatment facility currently receives "brine waste" from the company's reverse osmosis (RO) system for their water use. Also, the facility has been utilizing wastewater treatment additives that may contain toxic chemicals. Based on these facts, the Department needs to evaluate toxic pollutants of concern for water quality modeling and to facilitate determinations of reasonable potential to cause an excursion above water quality standards by using the "Toxic Screening Analysis" spreadsheet. The maximum effluent concentrations of pollutants reported in the application (i.e., Pages # 15) were entered in the spreadsheet. The results are as follows:

TOXICS SCREENING ANALYSIS
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.7

CLEAR FORM

Facility: **Motts LLP** NPDES Permit No.: **PA0009326** Outfall: **001**
Analysis Hardness (mg/L): **19** Discharge Flow (MGD): **1.04** Analysis pH (SU): **7**
Stream Flow, Q_{7-10} (cfs): **5.2**

	Parameter	Maximum Concentration in Application or DMRs (µg/L)		Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Group 1	Total Dissolved Solids		1328000	500000	Yes		Monitor
Group 1	Chloride		460000	250000	Yes		Monitor
Group 1	Bromide	<	1300	N/A	No		Monitor
Group 1	Sulfate		260000	250000	Yes		Monitor
Group 1	Fluoride	<	200	2000	No (Value < QL)		
	Total Aluminum	<	1.5	750	No (Value < QL)	13,946.26	
	Total Antimony	<		5.6			
	Total Arsenic			10			
	Total Barium	<		2400			
	Total Beryllium	<		N/A			
	Total Boron	<		1600			

The minimum measurement frequencies and sample types for all existing parameters such as TDS, Sulfate, Chloride, and Bromide will remain in the proposed permit. These requirements are either based on BPJ or recommended by Table 6-4 of the permit guidance.

Chemical Additives Analysis

Module 1 Section Chemical Additives of the application indicates that the facility is currently using following chemical additives: AC55-5 Red, AC-101, Enforce LP, Exelerate HS, Oxonia Active, Quorum Yellow II, Hydrogen Peroxide, Sodium Hypochlorite, Vortexx, Lubri-Klenz S, Quorum Purple, Synergex, Ster-Bac Quat, Quorum Pink II HF, and Lift RT. These chemical additives are generally used for cleaning purposes. The application (Module 1) also indicates that none of these chemical additives are expected to be present in the effluent; accordingly, there is no potential for toxicity in the effluent in regard to these chemical additives. Part C of the draft permit will contain standard "chemical additives" conditions.

Mass Loading Limitations

The current NPDES permit contains average monthly and maximum daily mass loading limitations for $CBOD_5$ and Total Suspended Solids as recommended by Table 5-2 of the permit guidance. These limitations were previously established based on the formula: The design flow (MGD) x concentration at the design flow (mg/L) x 8.34 (conversion factor). For this renewal, it is recommended to include mass loading limitations for NH_3-N as recommended Table 5-2 of the permit guidance.

Antidegradation (93.4)

The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303d Listed Streams

The discharge is not located on a 303d listed stream segment. The stream segment that receives the discharge is listed as attaining its used for aquatic life and fish consumption.

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

Anti-Backsliding

All proposed limitations and monitoring requirements established based on BPJ, water quality, and state/federal effluent standards meet the antibacksliding requirements found in 40 CFR § 122.44(l)(1) and (2). These proposed limitations and monitoring requirements specified in the draft permit are at least as stringent as requirements/conditions specified in the current NPDES permit.

WQM7.0 / PENTOXSD Data

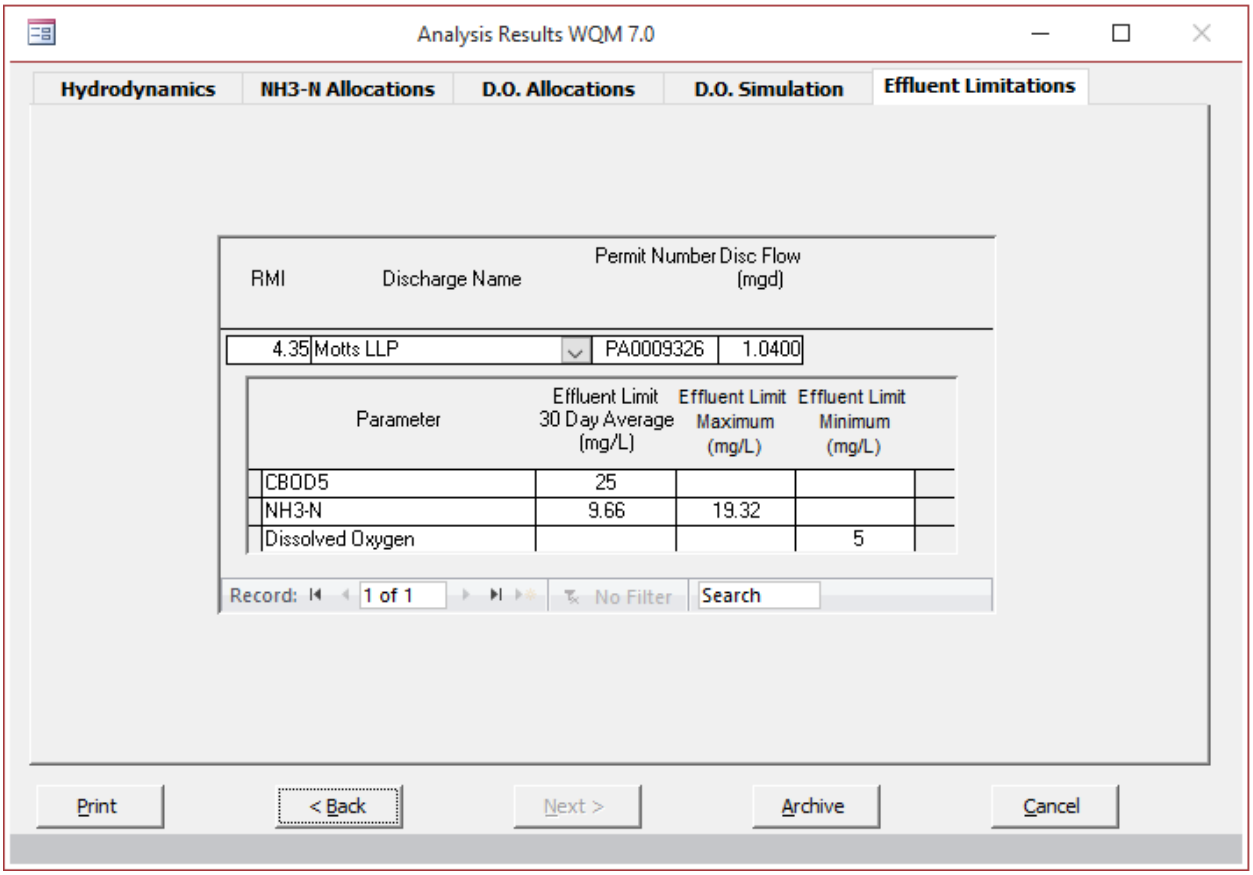
There are no other nearby upstream or downstream WWTPs. The following two nodes were used in the modeling effort.

Node 1: Outfall 001 on UNT Opossum Creek (09057)

Elevation:	605 ft (USGS National Map Viewer)
Drainage Area:	17.3 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	4.35 (PA DEP eMapPA)
Low Flow Yield:	0.3 $cfs/mi.^2$
Discharge Flow:	1.04 MGD

Node 2: Just before confluence with UNT 09097 of Opossum Creek

Elevation:	598 ft (USGS National Map Viewer)
Drainage Area:	18.4 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	4.2 (PA DEP eMapPA)
Low Flow Yield:	0.3 $cfs/mi.^2$
Discharge Flow:	0.0 MGD


Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
4.35
Motts LLP
PA0009326
1.0400
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
9.66
19.32
Dissolved Oxygen
5
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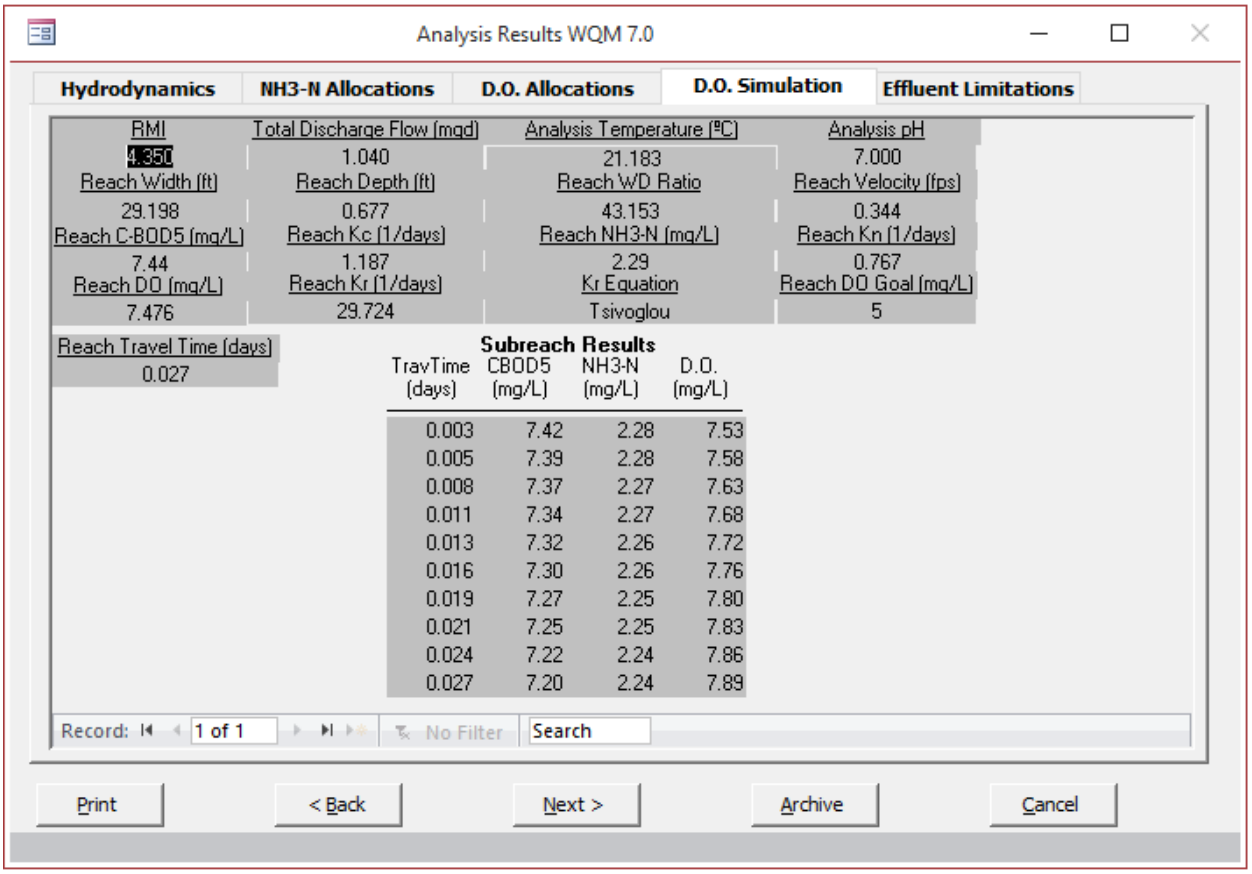
Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
4.350
Total Discharge Flow (mgd)
1.040
Analysis Temperature (°C)
21.183
Analysis pH
7.000
Reach Width (ft)
29.198
Reach Depth (ft)
0.677
Reach WD Ratio
43.153
Reach Velocity (fps)
0.344
Reach C-BOD5 (mg/L)
7.44
Reach Kc (1/days)
1.187
Reach NH3-N (mg/L)
2.29
Reach Kn (1/days)
0.767
Reach DO (mg/L)
7.476
Reach Kr (1/days)
29.724
Kr Equation
Tsivoglou
Reach DO Goal (mg/L)
5
Reach Travel Time (days)
0.027
Subreach Results
TravTime (days)
CBOD5 (mg/L)
NH3-N (mg/L)
D.O. (mg/L)
0.003 7.42 2.28 7.53
0.005 7.39 2.28 7.58
0.008 7.37 2.27 7.63
0.011 7.34 2.27 7.68
0.013 7.32 2.26 7.72
0.016 7.30 2.26 7.76
0.019 7.27 2.25 7.80
0.021 7.25 2.25 7.83
0.024 7.22 2.24 7.86
0.027 7.20 2.24 7.89
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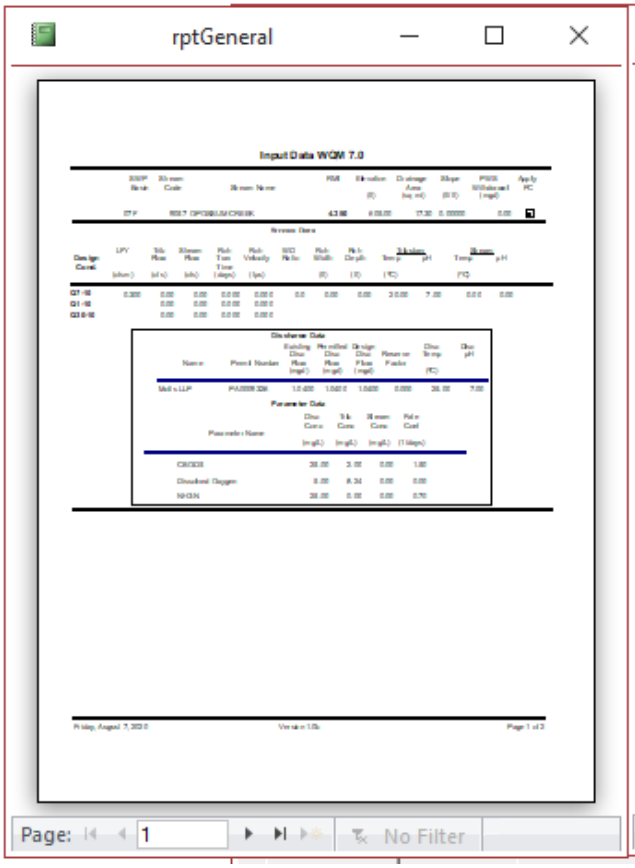
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Input Data WQM 7.0
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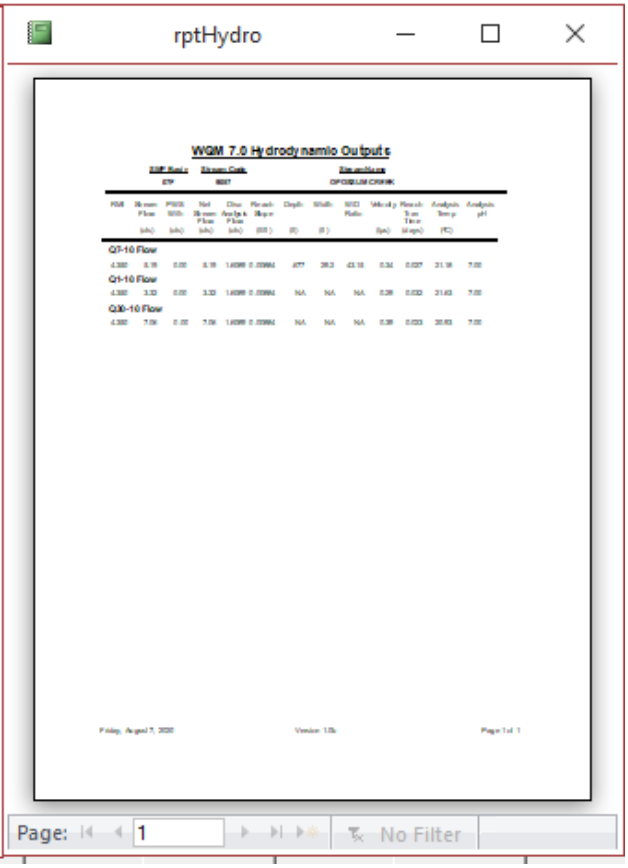
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WQM 7.0 Hydrodynamic Outputs
Q7-10 Flow
Q1-10 Flow
Q30-10 Flow
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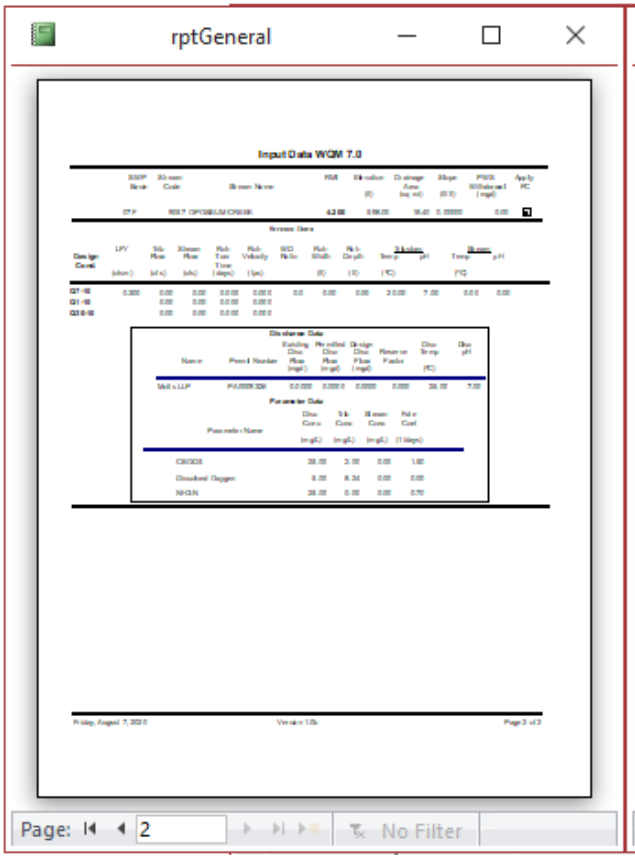
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Input Data WQM 7.0
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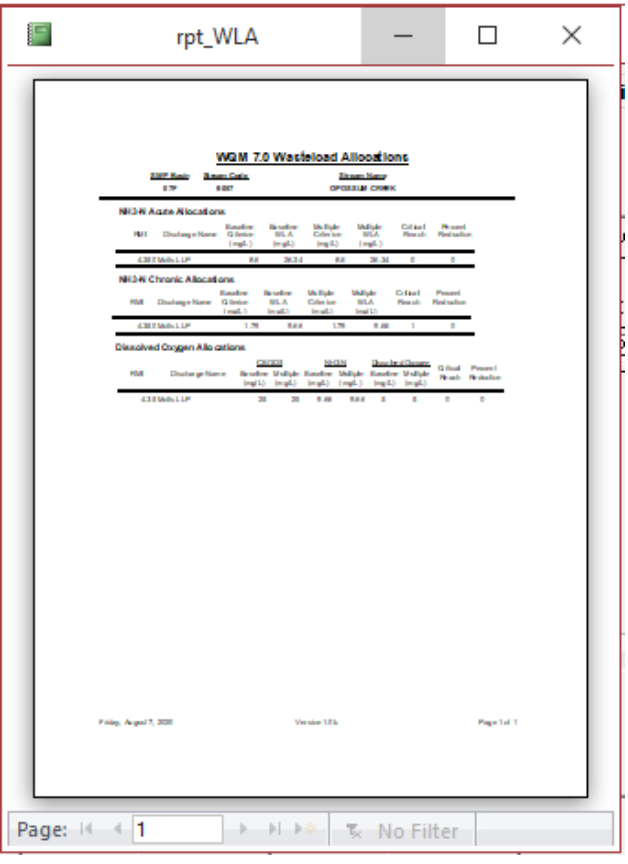
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WQM 7.0 Wasteload Allocations
NH3-N Acute Allocations
NH3-N Chronic Allocations
Dissolved Oxygen Allocations
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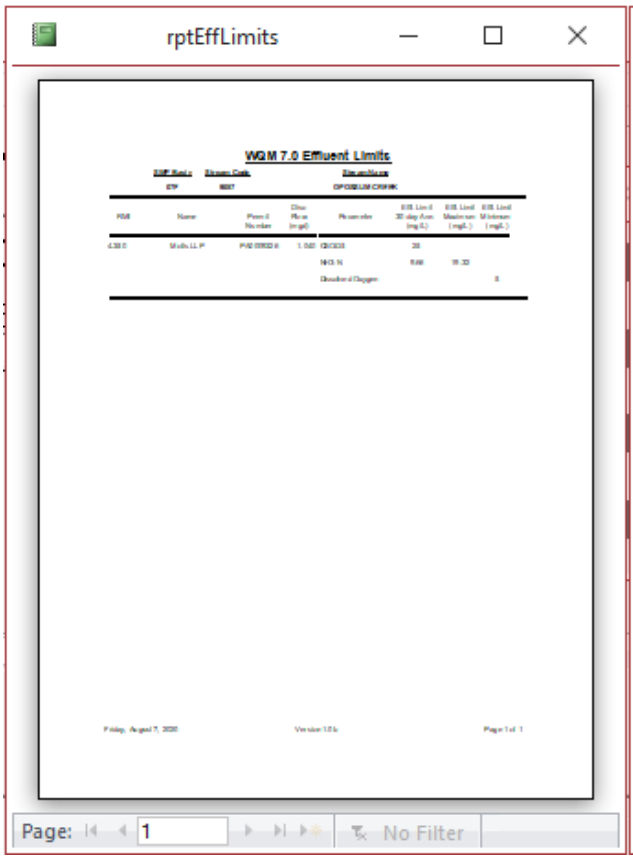
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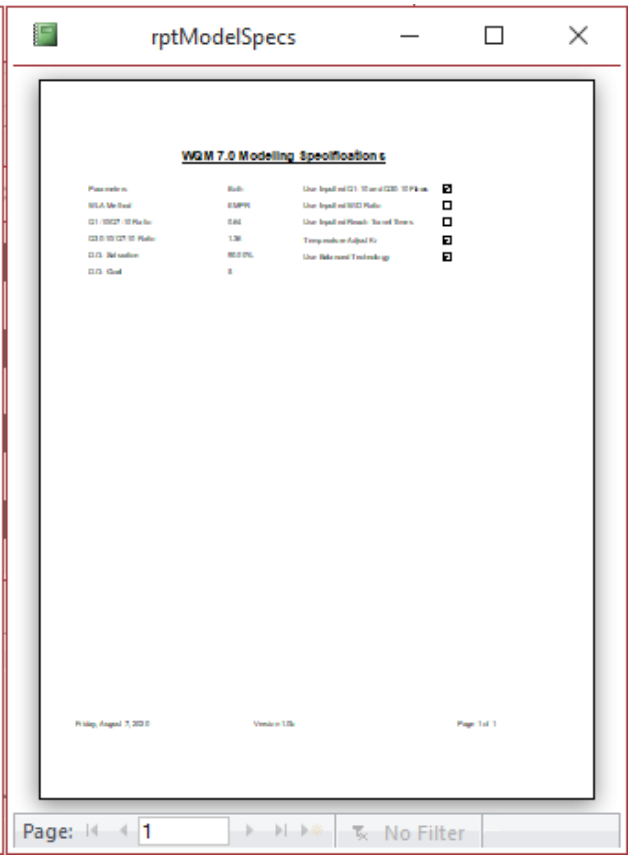
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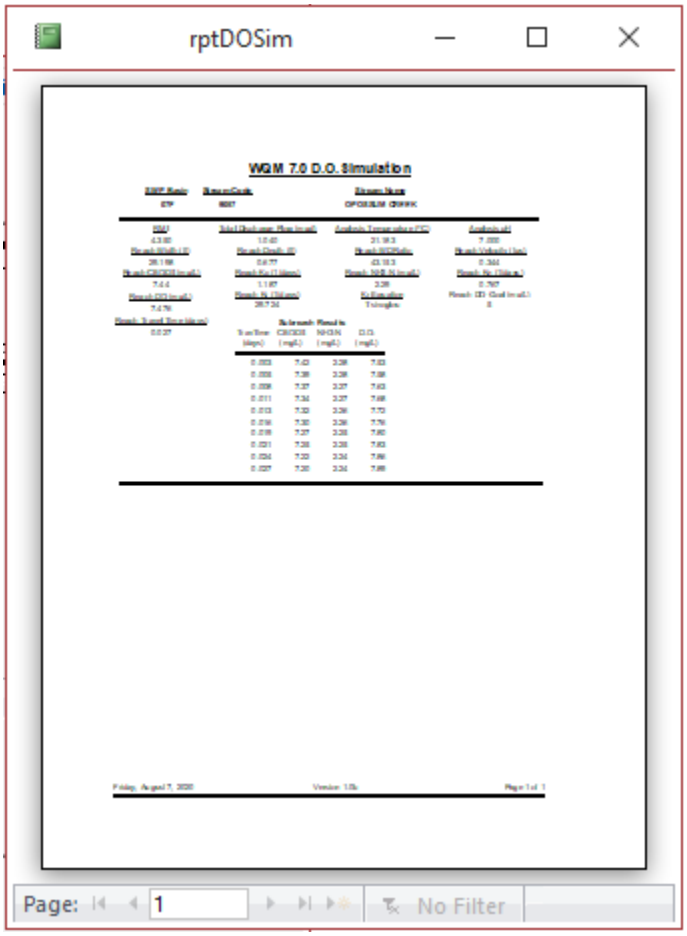
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WQM 7.0 D.O. Simulation
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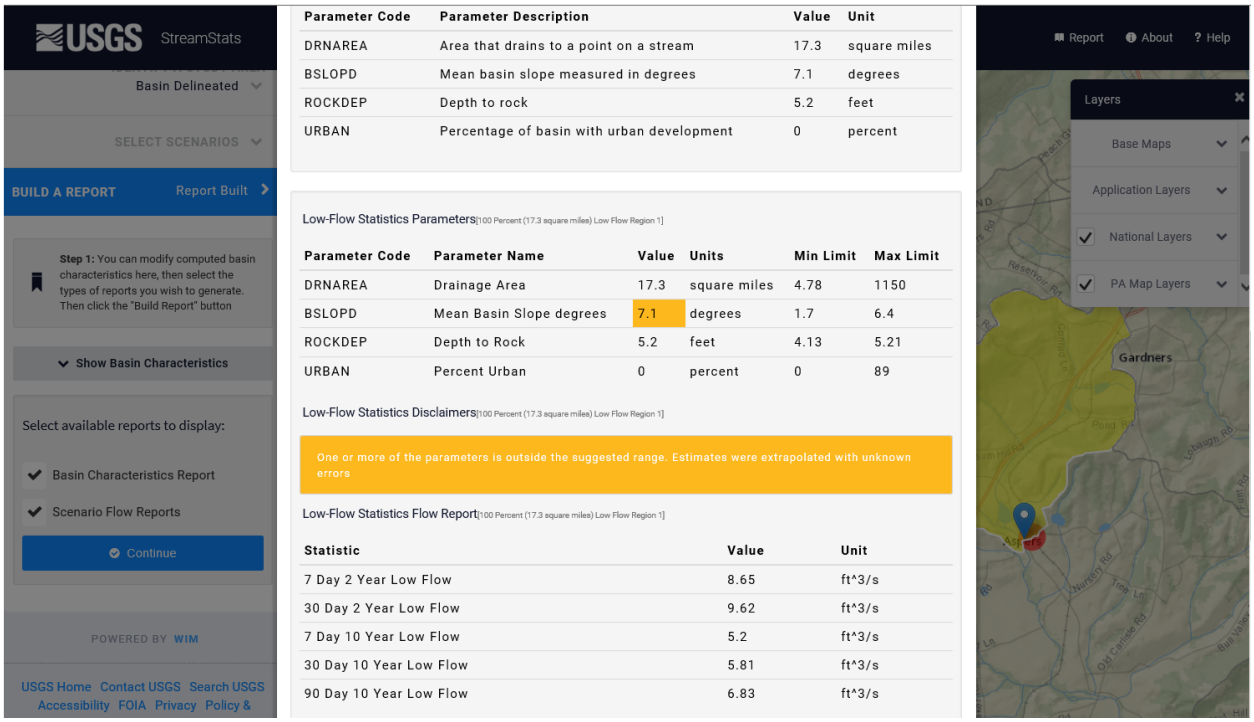


Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	17.3	square miles
BSLOPD	Mean basin slope measured in degrees	7.1	degrees
ROCKDEP	Depth to rock	5.2	feet
URBAN	Percentage of basin with urban development	0	percent

Low-Flow Statistics Parameters[100 Percent (17.3 square miles) Low Flow Region 1]

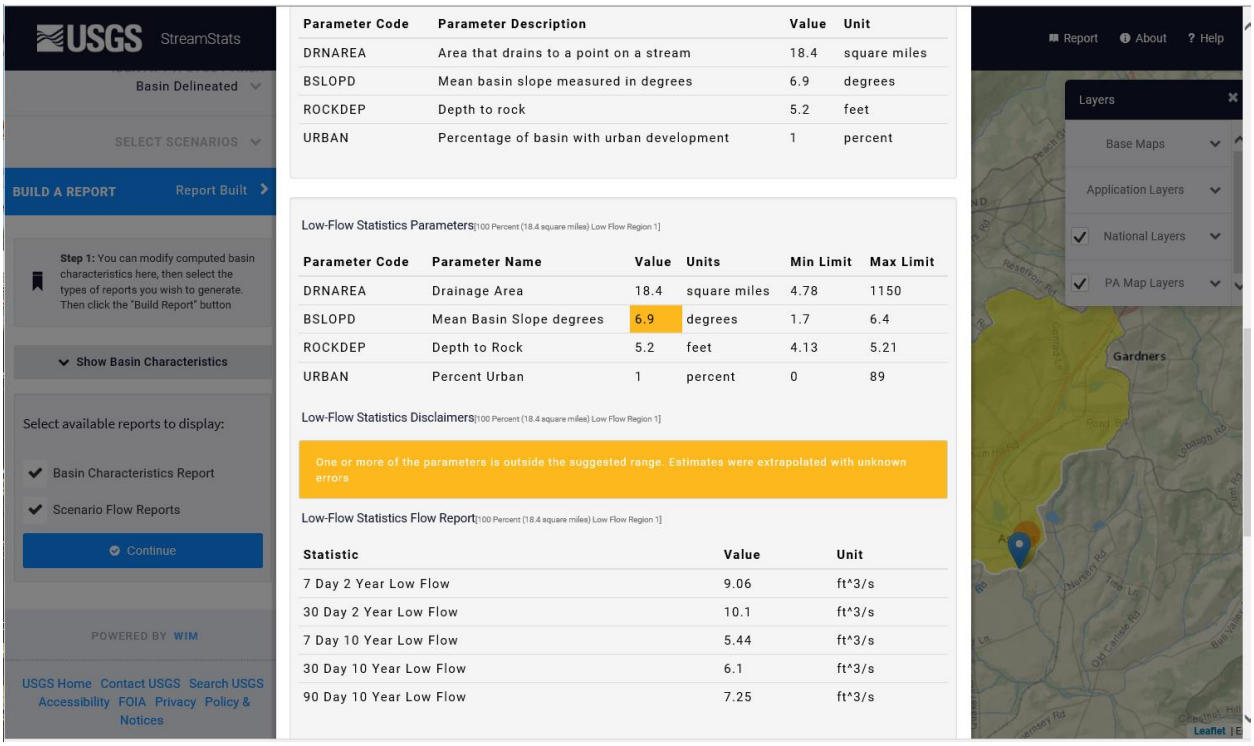
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	17.3	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	7.1	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5.2	feet	4.13	5.21
URBAN	Percent Urban	0	percent	0	89

Low-Flow Statistics Disclaimers[100 Percent (17.3 square miles) Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[100 Percent (17.3 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	8.65	ft^3/s
30 Day 2 Year Low Flow	9.62	ft^3/s
7 Day 10 Year Low Flow	5.2	ft^3/s
30 Day 10 Year Low Flow	5.81	ft^3/s
90 Day 10 Year Low Flow	6.83	ft^3/s



Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	18.4	square miles
BSLOPD	Mean basin slope measured in degrees	6.9	degrees
ROCKDEP	Depth to rock	5.2	feet
URBAN	Percentage of basin with urban development	1	percent

Low-Flow Statistics Parameters[100 Percent (18.4 square miles) Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	18.4	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	6.9	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5.2	feet	4.13	5.21
URBAN	Percent Urban	1	percent	0	89

Low-Flow Statistics Disclaimers[100 Percent (18.4 square miles) Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[100 Percent (18.4 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	9.06	ft^3/s
30 Day 2 Year Low Flow	10.1	ft^3/s
7 Day 10 Year Low Flow	5.44	ft^3/s
30 Day 10 Year Low Flow	6.1	ft^3/s
90 Day 10 Year Low Flow	7.25	ft^3/s

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0	XXX	XXX	XXX	1/day	Grab
$CBOD_5$ May 1 - Oct 31	104	208	XXX	12	24	30	1/week	24-Hr Composite
$CBOD_5$ Nov 1 - Apr 30	217	434	XXX	25	50	62.5	1/week	24-Hr Composite
TSS	260	520	XXX	30	60	75	1/week	24-Hr Composite
Ammonia May 1 - Oct 31	13	26	XXX	1.5	3.0	3.75	2/week	24-Hr Composite
Ammonia Nov 1 - Apr 30	22	43	XXX	2.5	5.0	6.25	2/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	4.0	5.0	2/week	24-Hr Composite
Total Dissolved Solids	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Sulfate	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite

Existing Effluent Limitations and Monitoring Requirements (cont.)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen (lbs)	Report	18,645	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus (lbs)	Report	729	XXX	XXX	XXX	XXX	1/month	Calculation

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0	XXX	XXX	XXX	1/day	Grab
$CBOD_5$ May 1 - Oct 31	104	208	XXX	12.0	24.0	30.0	1/week	24-Hr Composite
$CBOD_5$ Nov 1 - Apr 30	217	434	XXX	25.0	50.0	62.5	1/week	24-Hr Composite
TSS	260	520	XXX	30.0	60.0	75.0	1/week	24-Hr Composite
Ammonia May 1 - Oct 31	13.0	26.0	XXX	1.5	3.0	3.75	2/week	24-Hr Composite
Ammonia Nov 1 - Apr 30	22.0	43.0	XXX	2.5	5.0	6.25	2/week	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	4.0	5.0	2/week	24-Hr Composite
Total Dissolved Solids	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Sulfate	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite

Compliance Sampling Location:

Other Comments:

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
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen (lbs)	Report	18,645	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus (lbs)	Report	729	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location:

Other Comments:

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	PENTOXSD for Windows Model (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Toxics Screening Analysis Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☒	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☒	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other: