pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0034754**
Facility Type	**Non-Municipal**	APS ID	**835775**
Major / Minor	**Minor**	Authorization ID	**1307824**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**GSP Management Co.**	Facility Name	**Alex Acres MHP**
Applicant Address	PO Box 677	Facility Address	Dawn Lane
	Morgantown, PA 19543-0677		Halifax, PA 17032
Applicant Contact	James Perano	Facility Contact	Leeanne Miller
Applicant Phone	(610) 286-0490	Facility Phone	(610) 286-0490
Client ID	33789	Site ID	1088
Ch 94 Load Status	Not Overloaded	Municipality	Halifax Township
Connection Status	No Limitations	County	Dauphin
Date Application Received	February 12, 2020	EPA Waived?	Yes
Date Application Accepted	March 6, 2020	If No, Reason	

Purpose of Application: Permit renewal for discharge of treated sewage

Summary of Review

1.0 General Discussion

This fact sheet supports the reissuance of an existing NPDES permit for a discharge of treated domestic sewage from an existing wastewater treatment plant that serves a mobile home park known as Alex Acres Mobile Home Park. GSP Management Company owns the wastewater treatment plant that provides sanitary services for the mobile home park located at Dawn Lane, Halifax Township, Dauphin County. The plant has a design capacity of 0.012 mgd, and discharges treated sewage to Gurdy Run which is classified for Warm Water Fishes (WWF). The existing NPDES permit was issued on July 21, 2015 with an effective date of August 1, 2015 and expiration date of July 31, 2020. The applicant submitted permit renewal application to the Department, and currently operating under the terms and conditions in the existing permit pending Department action on the renewal application. A topographic map showing the discharge location is presented in attachment A.

1.1 Enforcement Actions

This facility and other facilities owned by the applicant and related parties are subject to a Consent Decree No. 12 5553, entered on January 30, 2013 in the matter of United States of America and Commonwealth of Pennsylvania v. GSP Management Co. The Consent Decree requires the permittee and related parties to conduct comprehensive environmental audits, identify areas of noncompliance and take corrective necessary to ensure permit compliance. The Consent Decree requires the permittee to self-report permit violations and noncompliance with the Consent Decree and pay stipulated penalty for permit violations and noncompliance consistent with the terms of the Consent Decree. The permittee is in compliance with the Consent Decree.

Approve	Deny	Signatures	Date
X		*J. Pascal Kwedza* J. Pascal Kwedza, P.E. / Environmental Engineer	September 28, 2021
X		*Maria D. Bebenek, for* Daniel W. Martin, P.E. / Environmental Engineer Manager	October 7, 2021
X		*Maria D. Bebenek* Maria D. Bebenek, P.E. / Program Manager	October 7, 2021

Summary of Review

1.2 Sludge use and disposal description and location(s):

Digested sludge is hauled out periodically by a license hauler.

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.

1.3 Changes to the existing Permit

- Monitoring frequency for Total Phosphorus, Total Nitrogen, TKN and nitrate-Nitrite have been reduced to semi-annual
- Annual monitoring of E- Coli has been added.
- Ammonia Nitrogen limitation has been added

1.4 Existing Permit Limits 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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.0	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Kjeldahl---N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	Report Annual	XXX	Report	XXX	XXX	2/month	Calculate
Total Phosphorus	Report	Report Annual	XXX	Report	XXX	XXX	2/month	8-Hr Composite

1.5 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.012
Latitude	40º 29' 41.24"	Longitude	-76º 56' 15.18"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		

Receiving Waters	Gurdy Run (WWF)	Stream Code	16862
NHD Com ID	54974513	RMI	0.19
Drainage Area	5.02	Yield (cfs/mi^2)	0.133
Q_{7-10} Flow (cfs)	**0.67**	Q_{7-10} Basis	USGS Gage station
Elevation (ft)	372	Slope (ft/ft)	
Watershed No.	6-C	Chapter 93 Class.	WWF
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		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Suez Water PA		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	>17

Changes Since Last Permit Issuance: None

1.5.1 Water Supply Intake

The nearest downstream water supply intake is approximately 17 miles downstream by Suez Water PA on Susquehanna River in Susquehanna Township, Dauphin County. No impact is expected from this discharge on the intake.

2.0 Treatment Facility Summary

Treatment Facility Name: Alex Acres MHP

WQM Permit No.	Issuance Date	
2292402 A-3	Jan 28, 2015	Construction of two new 2,000-gallon precast concrete sludge holding tank and one 1,000-gallon precast concrete final clarifier. The sludge holding tanks and clarifier will replace the existing deteriorated steel tanks
2292402 A-2	Feb 25, 2014	Installation of a precast rectangular 500-gallon septic tank and a two tube de-chlorination tablet dispenser at the front end of the tank and two air diffusers in the tank for post aeration
2292402 A-1	Feb 18, 2014	Applicant's name change
2292402		

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Hypochlorite	0.012

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.012		Not Overloaded	Aerobic Digestion	Combination of methods

Changes Since Last Permit Issuance: None

2.1 Treatment Facility

The treatment plant consists of comminutor & bar screen for back-up, an EQ tank, with air pumps to pump to the aeration tank, 1-aeration tank, 2-clarifiers, 1 chlorine contact tank, a De-chlorination tank and 2 Sludge holding tanks

2.2 Chemicals

- Sodium Hypochlorite for disinfection
- Soda Ash for pH adjustment
- Sodium Bisulfite for de-chlorination

3.0 Compliance History

3.1 DMR Data for Outfall 001 (from May 1, 2020 to April 30, 2021)

Parameter	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20
Flow (MGD) Average Monthly	0.0022	0.0028	0.0028	0.0024	0.0034	0.002	0.0021	0.002	0.0019	0.0019	0.0023	0.0031
Flow (MGD) Daily Maximum	0.0079	0.012	0.0104	0.0058	0.0234	0.0042	0.0032	0.0029	0.0041	0.0035	0.0124	0.0273
pH (S.U.) Minimum	7.4	7.1	7.2	7.3	7.5	7.8	7.4	7.6	7.3	7.4	7.5	7.3
pH (S.U.) Maximum	8.4	8.5	8.7	8.8	8.8	8.7	8.7	8.7	8.7	8.7	8.5	8.6
DO (mg/L) Minimum	8.52	6.14	9.07	10.52	10.34	8.61	8.2	8.58	7.1	6.84	7.19	7.97
TRC (mg/L) Average Monthly	< 0.05	< 0.04	< 0.02	< 0.03	< 0.04	< 0.03	< 0.04	< 0.03	< 0.03	< 0.04	< 0.02	< 0.03
TRC (mg/L) Instantaneous Maximum	0.14	0.11	0.12	0.09	0.18	0.09	0.23	0.15	0.09	0.18	0.08	0.07
CBOD5 (mg/L) Average Monthly	5	22.3	< 7.9	8.5	7.8	< 2	< 4.2	< 2	< 2	< 2	< 2	< 2
TSS (mg/L) Average Monthly	20.2	19.1	< 5	12.3	11.4	9.8	< 15	20.5	25.4	< 4	< 4.6	< 10
Fecal Coliform (CFU/100 ml) Geometric Mean	10	1	< 13	11	7	27	22	86	< 13	97	91	40
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	20	1	160	120	27	124	41	92	176	144	392	91
Nitrate-Nitrite (mg/L) Average Monthly	34.3	22.41	27.94	25.2	46.9	49.8	52.3	48.4	50.7	47.8	34.1	22.1
Nitrate-Nitrite (lbs) Total Monthly	15	17	20	14	22	24	27	17	25	17	19	10
Total Nitrogen (mg/L) Average Monthly	37.7	< 24.46	< 29.19	< 26.2	48.4	50.7	< 53.2	< 50.4	51.4	49.3	< 34.7	< 22.8
Total Nitrogen (lbs) Total Monthly	16	< 20	< 21	< 15	23	24	< 28	< 18	25	18	< 19	< 11
Total Nitrogen (lbs) Total Annual								< 209				

TKN (mg/L) Average Monthly	3.4	< 2.07	< 1.26	< 1.02	1.47	0.87	< 0.84	< 2.02	0.69	1.6	< 0.61	< 0.7
TKN (lbs) Total Monthly	1	< 3	< 0.9	< 0.7	0.7	0.4	< 0.5	< 0.7	0.3	0.6	< 0.3	< 0.3
Total Phosphorus (mg/L) Average Monthly	3.89	2.78	2.78	2.67	4.2	4.1	5.67	6.39	7.34	7.68	6.4	2.64
Total Phosphorus (lbs) Total Monthly	2	2	2	2	2	2	3.0	2	3	3	4	1
Total Phosphorus (lbs) Total Annual								28				

3.2 Summary of DMRs:

Discharge Monitoring Reports (DMRs) review for the facility for the last 12 months of operation presented on the table above indicate permit limits have been met consistently. No effluent violation occurred during the past 12 months

3.3 Summary of Inspections:

The facility has been inspected a couple of times during the past permit cycle. Inspection reports review for the facility during the period indicate permit limits have been met consistently. The reports indicate solids wash out occur when storm exceeds 0.75 inches. The permittee should endeavor to address this operational issue. It is recommended to improve operation and maintenance of the facility.

4.0 Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .012
Latitude 40º 29' 41.25" **Longitude** -76º 56' 15.20"
Wastewater Description: Sewage Effluent

4.1 Basis for Effluent Limitations

In general, the Clean Water Act(AWA) requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

4.2 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)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: Weekly averages are not application to this discharge.

4.3.0 Water Quality-Based Limitations

4.3.1 Streamflow:

Streamflows for the water quality analysis were determined by correlating with the yield of USGS gauging station No. 01570500 on Susquehanna River in Harrisburg. The Q_{7-10} and drainage area at the gage is 3200 ft^3/s and 24100mi^2 respectively. The resulting yields are as follows:

- Q_{7-10} = (3200 ft^3/s)/ 24100 mi^2 = 0.133 $ft^3/s/ mi^2$
- Q_{30-10} / Q_{7-10} = 1.15
- Q_{1-10} / Q_{7-10} = 0.94

The drainage area taken from the previous factsheet = 5.02 mi^2

The Q_{7-10} at discharge = 5.02 mi^2 x 0.133 $ft^3/s/mi^2$ = 0.67 ft^3/s.

4.3.2 NH_3N Calculations

NH_3N calculations will be based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the instream NH_3N criteria used in the attached computer model of the stream:

* Discharge pH = 7.4 (July -Sept DMR median)

* Discharge Temperature = 25 ° C (Default)
* Stream pH = 8.2 (Taken from WQN station at Harrisburg)
* Stream Temperature = 23.5°C (Taken from WQN station at Harrisburg)
* Background NH_3-N = 0.0 (default)

4.3.3 $CBOD_5$:

The attached result of WQM 7.0 stream model (attachment B) indicates that, for a discharge of 0.0120MGD, from Alex Acres STP, a limitation of 25 mg/l $CBOD_5$ as a monthly average limit (AML) and 50 mg/l as instantaneous maximum (IMAX) is adequate to protect the water quality of the stream. This limit is consistent with the existing permit and the STP has been complying with this limitation. Therefore, a limit of 25mg/l AML, and 50 mg/l IMAX is again recommended for this permit cycle.

4.3.4 NH_3-N:

The attached result of WQM 7.0 stream model (attachment B) also indicates that a summer limitation of 20mg/l NH_3-N as a monthly average is necessary to protect the aquatic life from toxicity effects. Limitation for winter months is 3 times the limitation for summer months (60.0 mg/l). The facility can meet this new limitation.

4.3.5 Dissolved Oxygen

The existing permit contains a limit of 5 mg/l for Dissolved Oxygen (DO). DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001, 10/97) suggests that either the adopted minimum stream D.O. criteria for the receiving stream or the effluent level determined through water quality modeling be used for the limit. Since the WQM 7.0 model was run using a minimum D.O. of 5.0 mg/l, this limit will be continued in the renewed permit with a daily monitoring requirement per DEP guidance.

4.3.6 Total Suspended Solids (TSS):

There is no water quality criterion for TSS. A limit of 30 mg/l AML will be required based on the minimum level of effluent quality attainable by secondary treatment as defined in 40 CFR 133.102b(1) and 25 PA § 92a.47(a)(1)

4.3.7 Total Residual Chlorine

The attached TRC results utilize the equations and calculations as presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92a, Section 92a.48 (b) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The attached results presented in attachment C indicates that, a technology limit of 0.5 mg/l as a monthly average and 1.63 mg/l IMAX would be needed to prevent toxicity concerns. However, the existing limits of 0.5 mg/l as a monthly average and 1.0 mg/l IMAX will remain in the permit due to anti-backsliding restrictions. DMR and inspection report indicate the facility has been meeting this limit.

4.3.8 Toxics

There are no parameters of concern associated with this discharge. Therefore, no reasonable potential analysis was conducted for toxic parameters.

4.3.9 Chesapeake Bay Strategy:

The Department formulated a strategy in April 2007, to comply with the EPA and Chesapeake Bay Foundation requirements to reduce point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP) to the Bay. In the Strategy, sewage dischargers have been prioritized by Central Office based on their delivered TN loadings to the Bay. The highest priority (Phases 1, 2, and 3) dischargers received annual loading caps based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. Phase 4 (0.2 -0.4mgd) and Phase 5(below 0.2mdg) are required to monitor and report TN and TP during permit renewal and any facility in Phases 4 and 5 that undergoes expansion is subjected to cap load right away. EPA published Chesapeake Bay TMDL in December of 2010. In order to address the TMDL, Pennsylvania developed Chesapeake Watershed Implementation Plan (WIP) Phase 1, Phase 2 and currently Phase 3 WIP and a supplement to the WIPs to be implemented with the original Chesapeake Bay Strategy.

As outlined in the current Phase 3 WIP and the current supplement to the WIP, re-issuing permits for significant dischargers would follow the same phased approach formulated in the original Bay strategy whilst Phase 4 and Phase 5 will be required to monitor and report TN and TP during permit renewal. This facility is classified as a phase 5, and has been monitoring Total Phosphorus, Nitrate-Nitrite as N, Total Kjeldahl Nitrogen and Total Nitrogen, and will continue to monitor them during this permit cycle, but at a reduced monitoring frequency of semi-annually. The previous permit required 2/month that produced enough data for Total Nitrogen, Nitrate-Nitrite as N, and Total Kjeldahl Nitrogen to support a reduced monitoring frequency.

4.4.10 Fecal Coliform and E. coli

The existing Fecal Coliform limit is consistent with the technology limit recommended in 92a.47(a)(4) and (a)(5) and will remain in the permit. Annual monitoring of E,Coli is required in the permit following DEP recommendation of 1/year monitoring of E.coli at a minimum for this type of facility.

5.0 Other Requirements

5.1 Anti-backsliding

Not applicable to this permit

5.2 Stormwater

There is no stormwater outfall associated with this facility.

5.3 Anti-Degradation (93.4)

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

5.4 Class A Wild Trout Fisheries

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

5.5 303d Listed Streams

The discharge is not located on a 303d listed stream segment.

5.6 Special Permit Conditions

The permit contains the following special conditions:

Stormwater Prohibition, Approval Contingencies, Proper Waste/solids Management, and Chlorine minimization requirement

5.7 Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

5.8 Effluent Monitoring Frequency

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

6.0 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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.0	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	Calculation
TKN	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/6 months	8-Hr Composite

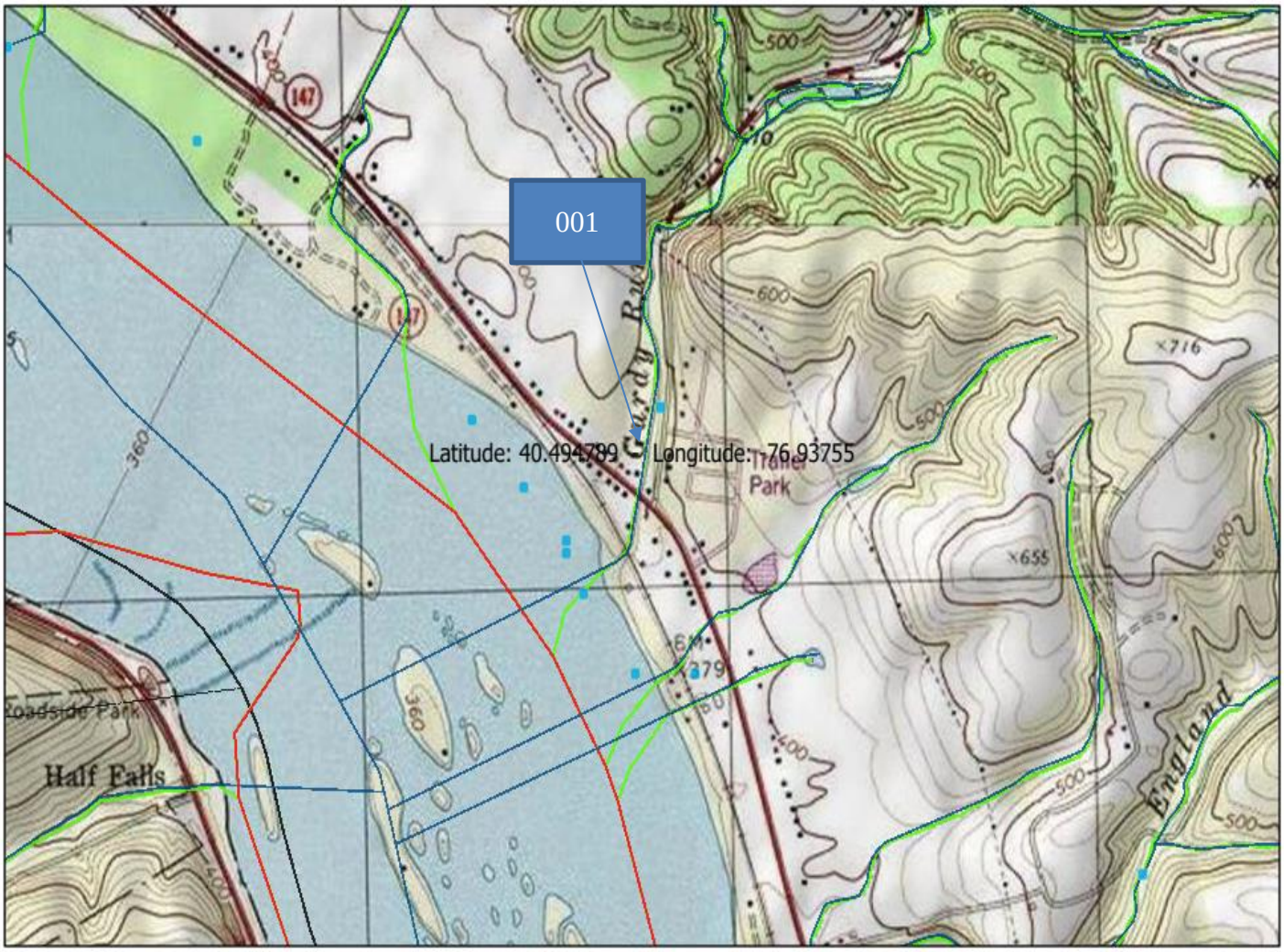
Compliance Sampling Location: Outfall 001

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

Permit No. PA0034754

8. Attachments

A. Topographical Map



September 27, 2021

1:18,056
0 0.1 0.2 0.4 mi
0 0.17 0.35 0.7 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri,

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B. WQM Model Results

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
06C	16862	GURDY RUN

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)
0.190	Alex Acres MHP	PA0034754	0.012	CBOD5	25		
				NH3-N	20.94	41.88	
				Dissolved Oxygen			5

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Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
06C	16862	GURDY RUN	**0.190**	372.00	5.02	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.133	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.50	8.20	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
Alex Acres MHP	PA0034754	0.0120	0.0120	0.0120	0.000	25.00	7.40

Parameter Data

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

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Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
06C	16862	GURDY RUN	**0.010**	358.00	5.17	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.133	0.00	0.00	0.000	0.000	0.0	0.00	0.00	23.50	8.20	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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

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WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
06C	16862	GURDY RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.190	0.012	23.541	8.142
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
10.945	0.480	22.782	0.131
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.62	0.366	0.57	0.919
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.155	23.410	Owens	5
Reach Travel Time (days)			
0.084			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.008	2.61	0.56	7.73
0.017	2.60	0.56	7.73
0.025	2.59	0.55	7.73
0.034	2.58	0.55	7.73
0.042	2.58	0.55	7.73
0.051	2.57	0.54	7.73
0.059	2.56	0.54	7.73
0.067	2.55	0.53	7.73
0.076	2.54	0.53	7.73
0.084	2.53	0.52	7.73

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WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.94	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.15	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

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WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
06C	16862	GURDY RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.190	0.67	0.00	0.67	.0186	0.01473	.48	10.95	22.78	0.13	0.084	23.54	8.14
Q1-10 Flow												
0.190	0.63	0.00	0.63	.0186	0.01473	NA	NA	NA	0.13	0.087	23.54	8.14
Q30-10 Flow												
0.190	0.77	0.00	0.77	.0186	0.01473	NA	NA	NA	0.14	0.078	23.54	8.15

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WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
06C	16862	GURDY RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.190	Alex Acres MHP	2.23	50	2.23	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.190	Alex Acres MHP	.49	20.94	.49	20.94	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.19	Alex Acres MHP	25	25	20.94	20.94	5	5	0	0

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C. TRC Calculation

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.67	= Q stream (cfs)	0.5	= CV Daily
0.012	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 11.532	1.3.2.iii	WLA cfc = 11.235
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 4.297	5.1d	LTA_cfc = 6.532

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

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