pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0261645**
Facility Type	**Non-Municipal**	APS ID	**741806**
Major / Minor	**Minor**	Authorization ID	**1398511**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Officers Christian Fellowship**	Facility Name	**Heritage House White Sulphur Springs STP**
Applicant Address	4500 Milligans Cove Road	Facility Address	4500 Milligans Cove Road
	Manns Choice, PA 15550-8016		Manns Choice, PA 15550-8016
Applicant Contact	Paul Robyn	Facility Contact	Fred Bryan
Applicant Phone	(814) 623-5583	Facility Phone	(814) 623-5583
Client ID	253231	Site ID	745059
Ch 94 Load Status	Not Overloaded	Municipality	Harrison Township
Connection Status	No Limitations	County	Bedford
Date Application Received	June 3, 2022	EPA Waived?	Yes
Date Application Accepted	June 6, 2022	If No, Reason	

Purpose of Application: This is an application for NPDES renewal.

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	July 7, 2022
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for Daniel W. Martin	July 19, 2022
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	July 19, 2022

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Heritage House White Sulphur Springs STP located at 4500 Milligans Cove Road, Manns Choice, PA 15550 in Bedford County, municipality of Harrison Township. The existing permit became effective on December 1, 2017 and expires(d) on November 30, 2022. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on June 3, 2022.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes a description of the facility, a description of the facility's receiving waters, a description of the facility's receiving waters attainment/non-attainment assessment status, and a description of any changes to the proposed monitoring/sampling frequency. Section 6 provides the justification for the proposed NPDES effluent limits derived from technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), total maximum daily loading (TMDL), antidegradation, anti-backsliding, and/or whole effluent toxicity (WET). A brief summary of the outlined descriptions has been included in the Summary of Review section.

The subject facility is a 0.0098 MGD treatment facility. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as a Minor Sewage Facility (Level 1) due to the type of sewage and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Bedford County Commissioners and Harrison Township Supervisors and the notice was received by the parties on May 31, 2022. A planning approval letter was not necessary as the facility is neither new or expanding.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be Sulphur Springs Creek. The sequence of receiving streams that the Sulphur Springs Creek discharges into are Buffalo Run, Raystown Branch Juniata River, Juniata River, Susquehanna River which eventually drains into the Chesapeake Bay. The subject site is subject to the Chesapeake Bay implementation requirements. The receiving water has protected water usage for warm water fishes (WWF) and migratory fishes (MF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The Sulphur Springs Creek is a Category 2 stream listed in the 2020 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream that supports aquatic life. The receiving waters is not subject to a total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- **Monitoring for pH, DO, and TRC has been reduced to 5x/wk**
- **Due to the EPA Triennial review, monitoring for E. Coli shall be 1x/yr.**
- **Monitoring for influent raw sewage has been eliminated.**
- **Ammonia nitrogen has been reduced to 3.5 mg/l during the summer months and 10.5 mg/l during winter months**
- **TRC has been reduced to 0.15 mg/l as an average monthly and 0.50 mg/l as an instantaneous maximum**

Sludge use and disposal description and location(s): Sewage sludge/biosolids disposed at K-3 in Bedford County.

The proposed permit will expire five (5) years from the effective date.

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

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

1.0 Applicant

1.1 General Information

This fact sheet summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

Facility Name:	Officer's Christian Fellowship / Heritage House
NPDES Permit #	PA0261645
Physical Address:	4500 Milligans Cove Road Manns Choice, PA 15550
Mailing Address:	4500 Milligans Cove Road Manns Choice, PA 15550
Contact:	Paul Robyn Center Director wssoffice@ocfusa.org
Consultant:	There was not a consultant utilized for this NPDES renewal.

1.2 Permit History

Permit submittal included the following information.

- NPDES Application
- Effluent Sample Data

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 4500 Milligans Cove Road, Manns Choice, PA 15550. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

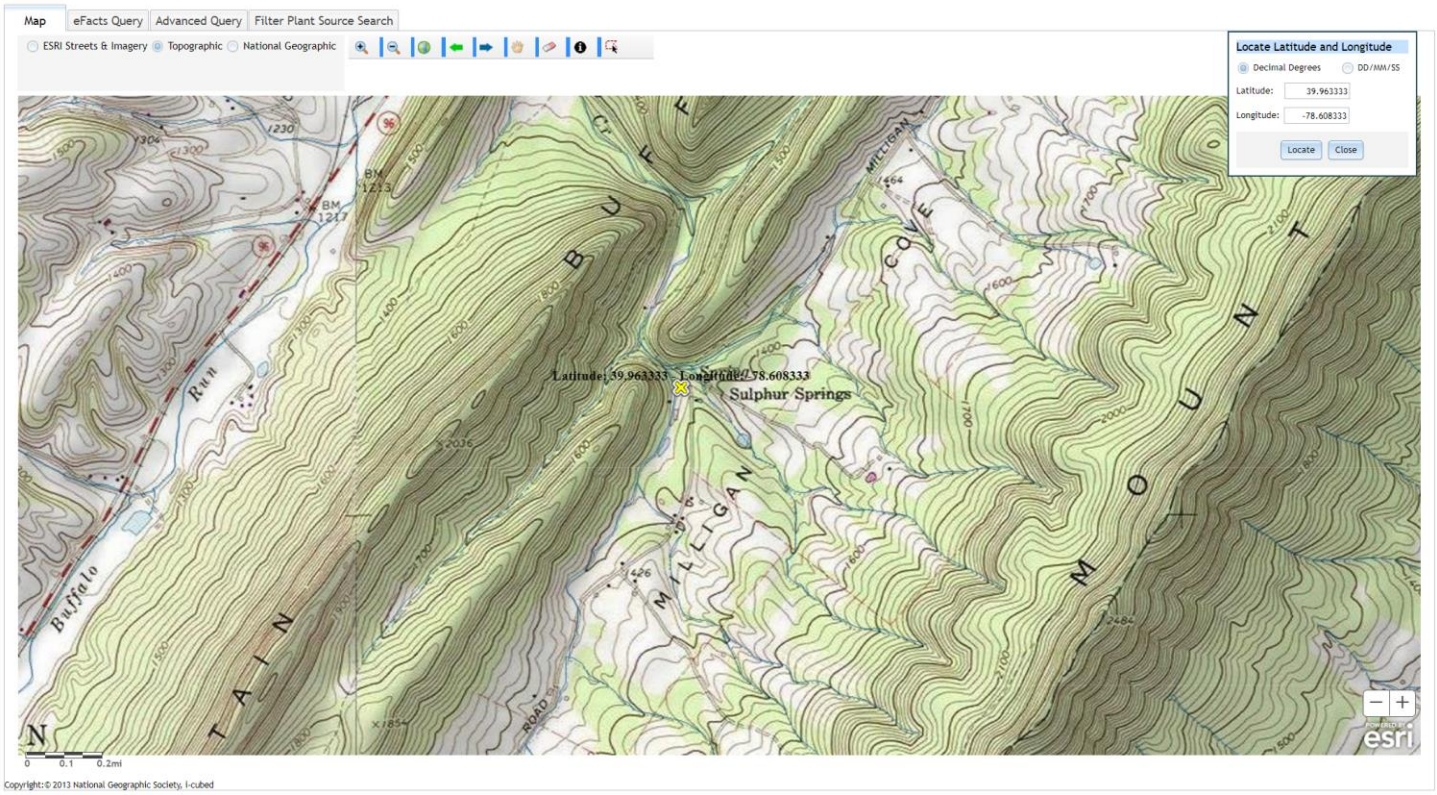
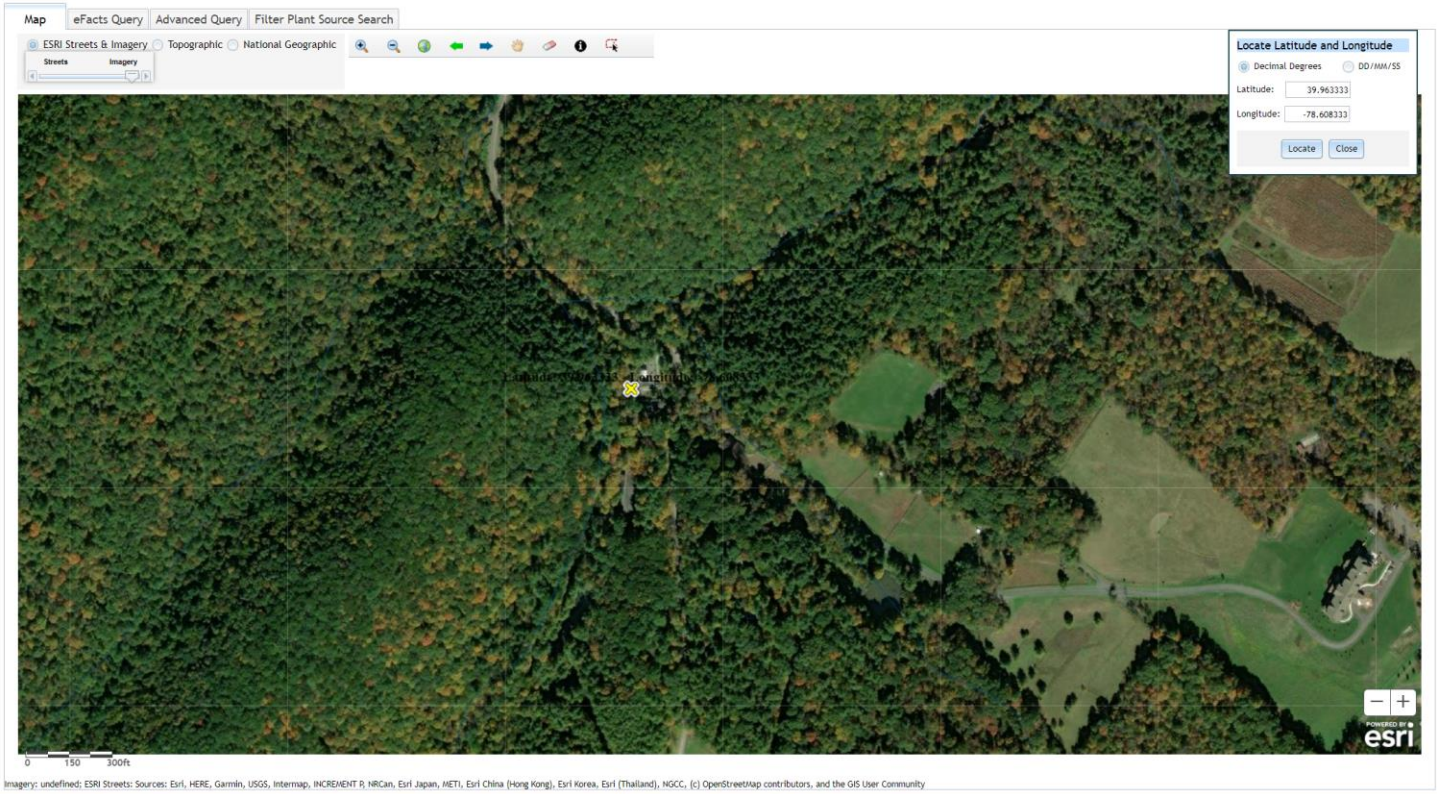


Figure 2: Aerial Photograph of the subject facility



2.2 Description of Wastewater Treatment Process

The subject facility is a 0.0098 MGD design flow facility. The subject facility treats wastewater using an equalization basin, an anoxic tank(s), and aeration tank(s), and a clarifier. The facility is being evaluated for flow, pH, dissolved oxygen, TRC, CBOD5, TSS, fecal coliform, nitrogen species, and phosphorus. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

Treatment Facility Summary

Treatment Facility Name: Heritage House White Sulphur Springs

WQM Permit No.	Issuance Date
0511401	05/23/2011

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia And Phosphorus	Extended Aeration	Hypochlorite	0.0098

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0098	27.2	Not Overloaded		Other WWTP

2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No. 001 **Design Flow (MGD)** .0098
Latitude 39º 57' 48.00" **Longitude** -78º 36' 30.00"
Wastewater Description: Sewage Effluent

2.3.1 Operational Considerations- Chemical Additives

Chemical additives are chemical products introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Chemicals excluded are those used for neutralization of waste streams, the production of goods, and treatment of wastewater.

The subject facility utilizes the following chemicals as part of their treatment process.

- Solid chlorine tablets for disinfection

2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 39º 57' 48.00" , **Longitude** 78º 36' 30.00" , **River Mile Index** 1.7 , **Stream Code** 15121

Receiving Waters: Sulphur Springs Creek

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **December 1, 2017** through **November 30, 2022**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

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	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	Report	Report	XXX	25.0	40.0	XXX	2/month	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Suspended Solids	Report	Report	XXX	30.0	45.0	XXX	2/month	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	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
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 001 , **Latitude** 39º 57' 48.00" , **Longitude** 78º 36' 30.00" , **River Mile Index** 1.7 , **Stream Code** 15121

Receiving Waters: Sulphur Springs Creek

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **December 1, 2017** through **November 30, 2022**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

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/month	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Net Total Nitrogen	Report	380.0	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	0.0	XXX	XXX	XXX	XXX	1/month	Calculation

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

Footnotes:
(1) See Part C for Chesapeake Bay Requirements.
(2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events required.

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

A summary of the most recent inspections during the existing permit review cycle is as follows.

The DEP inspector noted the following during the inspection.

01/05/2018:

- Nutrient credits were purchased from the New Oxford Municipal Authority for phosphorus exceedance.
- The facility was advised to revise the annual report to reflect the purchase of phosphorus credits.

6/21/2018:

- The facility reported the plant was experiencing higher than normal flows due to recent heavy rain.
- The facility was manually backwashing the sand filters in order to not to have to add additional water to the EQ tank where the level was high because of stormwater infiltration.
- The facility should address stormwater inflow problems as soon as possible to reduce the high flows to the plant and the potential for operational problems.
- The facility should be collecting samples for influent flow.
- The flow chart recorder should be adjusted to allow all levels of flow to be recorded on the paper chart. Currently the marker does off the chart during high flow events.

07/25/2019:

- Besides the conference center, the treatment plant received flow from a historic hotel on the grounds.
- The flow chart recorder should be adjusted to allow all levels of flow to be recorded on the paper chart. Currently the marker does off the chart during high flow events.

07/21/2020:

- A review of DMRs shows permit exceedances for TSS in October 2019 and January 2020 and multiple violations for dissolved oxygen in 2019 and 2020.
- The facility stated that the flow to the plant is much lower than usual due to a decrease in attendance this summer. Guests are staying in cabins and camping on the grounds. The hotel was closed to guests but was used by some staff members. Portable toiles were used to accommodate campers further reducing flow to the plant.
- The operator attributed some of the past DO violations to operator error and other times due to low DO in the aeration tanks. The operator stated that the TSS violation in March was caused by a malfunction of the backwash tank which was repaired. The facility was advised to check the DO level at the outfall pipe if the reading at the chlorine contact tank was below the permit limit.
- The facility repairs included replacement of the inline DO meter and sensor and replacement of the grinder pump in the anoxic tank. Additional repairs included the collection system. Terracotta piping was replaced under and near the horse barn due to leaking. The operator suspected that was a major source of stormwater inflow and infiltration.

01/06/2021:

- The facility was advised to use the most current Chesapeake Bay annual spreadsheet.

3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility below the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.00494 MGD in July 2021. The design capacity of the treatment system is 0.0098 MGD.

The off-site laboratory used for the analysis of the parameters was Fairway Laboratories located at PO Box 1925, Altoona, PA 16603.

DMR Data for Outfall 001 (from May 1, 2021 to April 30, 2022)

Parameter	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21
Flow (MGD) Average Monthly	0.00282	0.00202	0.00255	0.00121	0.00159	0.00139	0.00237	0.00338	0.00224	0.00494	0.00302	0.00185
Flow (MGD) Daily Maximum	0.00785	0.00491	0.00621	0.00504	0.00465	0.00374	0.00556	0.00706	0.00596	0.00857	0.00612	0.0198
pH (S.U.) Minimum	6.87	7.72	7.64	8.01	7.83	7.93	7.92	7.82	7.75	7.68	7.78	7.97
pH (S.U.) Maximum	7.86	7.91	8.09	8.76	8.43	8.44	8.39	8.23	8.26	8.27	8.27	8.36
DO (mg/L) Minimum	5.98	6.62	6.9	8.57	7.04	7.3	6.24	7.32	2.64	5.1	7.31	8.52
TRC (mg/L) Average Monthly	0.25	0.48	0.44	0.32	0.31	0.3	0.36	0.41	0.37	0.45	0.31	0.4
CBOD5 (lbs/day) Average Monthly	< 0.09	< 0.05	< 0.01	< 3.53	< 0.02	< 0.02	< 0.07	< 0.07	< 0.10	< 0.1	< 3.0	< 0.02
CBOD5 (lbs/day) Weekly Average	< 0.1	0.07	< 0.05	4.0	< 0.03	< 0.03	< 0.08	< 0.09	< 0.10	0.1	< 3.0	< 0.03
CBOD5 (mg/L) Average Monthly	< 4.3	< 6.32	< 3.38	< 0.05	< 3.0	< 3.0	< 5.4	< 3.0	< 3.0	< 3.1	< 0.04	< 3.08
CBOD5 (mg/L) Weekly Average	< 6.0	10.0	4.0	0.09	< 3.0	< 3.0	8.0	< 3.0	< 3.0	3.0	< 0.05	3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	8.0	2.0	4	6.0	4.0	3	4.0	3	19	24	7	2
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	13	2.0	5.0	10	4	5	4	4	26	33	12	2
BOD5 (mg/L) Raw Sewage Influent Average Monthly	0.003	352.0	232	412	410	374	334	119	715	546	371	241
TSS (lbs/day) Average Monthly	0.2	0.06	< 0.05	0.07	0.03	0.02	0.10	0.05	0.20	0.1	6.6	0.04
TSS (lbs/day) Raw Sewage Influent Average Monthly	3.0	1.0	1.0	1.0	1.0	1	1.0	1	6.0	11	2	1
TSS (lbs/day) Raw Sewage Influent Daily Maximum	4.0	1.0	2.0	2.0	1.0	1.0	1.0	2	8.0	18	4	1

TSS (lbs/day) Weekly Average	0.3	0.07	0.08	0.1	0.03	0.03	0.2	0.07	0.30	0.1	9	0.05
TSS (mg/L) Average Monthly	8.1	8.0	< 4.6	4.8	4.8	2.8	5.4	2.4	4.2	2.8	0.09	5.2
TSS (mg/L) Raw Sewage Influent Average Monthly	119.0	147.0	60	86	115	107	61	48	213	259	104	86
TSS (mg/L) Weekly Average	9.0	10.0	8.0	5.0	8.0	3.0	7.0	2.0	6.0	3.0	0.1	6.0
Fecal Coliform (No./100 ml) Geometric Mean	127	< 9.0	< 27	< 1.0	< 1.0	< 1.0	< 1.0	7	< 2.0	< 5.0	2.0	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	1299.7	20.8	187.2	2.0	1.0	1.0	1.0	47.1	3.0	21.3	4.1	< 1.0
Nitrate-Nitrite (mg/L) Average Monthly	< 2.594	< 3.029	< 2.271	< 2.065	< 1.677	< 4.441	< 2.969	< 1.747	< 1.641	< 1.525	< 2.425	1.757
Nitrate-Nitrite (lbs) Total Monthly	< 2.2	< 1.3	< 0.8	< 1.1	< 0.6	< 1.1	< 1.2	< 1.1	< 2.0	< 2.0	< 1.0	0.4
Total Nitrogen (mg/L) Average Monthly	< 10.621	< 32.884	< 21.981	< 10.15	< 8.287	< 6.121	< 11.731	< 6.082	< 3.391	< 2.358	< 6.823	< 2.257
Total Nitrogen (lbs) Effluent Net Total Monthly	< 10.1	< 15.0	< 7.4	< 6.7	< 2.8	< 1.5	< 8.3	< 3.2	< 3.4	< 3.1	< 2.9	< 0.6
Total Nitrogen (lbs) Total Monthly	< 10.1	< 15	< 7.4	< 6.7	< 2.8	< 1.5	< 8.3	< 3.2	< 3.4	< 3.1	< 2.9	< 0.6
Total Nitrogen (lbs) Effluent Net Total Annual								< 37.0				
Total Nitrogen (lbs) Total Annual								< 37				
Ammonia (mg/L) Average Monthly	5.909	27.935	19.71	< 6.37	< 5.365	< 0.346	8.306	< 2.183	< 0.1	< 0.478	2.174	< 0.281
Ammonia (lbs) Total Monthly	6.1	12.6	6.6	< 4.6	< 1.8	< 0.1	7.0	< 1.0	< 0.1	< 0.7	1.0	< 0.07
Ammonia (lbs) Total Annual								< 12				
TKN (mg/L) Average Monthly	8.028	28.415	19.11	8.088	< 6.61	1.68	8.543	4.335	1.75	< 0.833	4.398	< 0.05
TKN (lbs) Total Monthly	7.9	13.3	6.4	5.6	< 2.3	0.4	6.9	2.2	1.4	< 1.1	1.8	< 0.1

Total Phosphorus (lbs/day) Average Monthly	0.7	2.8	0.4	0.4	0.9	0.88	1.4	3.2	5.4	1.5	0.8	0.3
Total Phosphorus (mg/L) Average Monthly	0.81	4.97	1.2	0.7	2.68	0.2	2.14	5.88	7.33	1.16	1.92	1.16
Total Phosphorus (lbs) Effluent Net Total Monthly	0.7	2.8	0.4	0.4	0.9	0.2	1.4	3.2	5.4	1.5	0.8	0.3
Total Phosphorus (lbs) Total Monthly	0.7	2.8	0.4	0.4	0.9	0.88	1.4	3.2	5.4	1.5	0.8	0.3
Total Phosphorus (lbs) Effluent Net Total Annual								0.0				
Total Phosphorus (lbs) Total Annual								18				

3.2.1 Chesapeake Bay Truing

The table summarizes the facility's compliance/noncompliance with Chesapeake Bay cap loads. The facility purchased phosphorus credits from New Oxford Municipal Authority.

Chesapeake Bay Annual Nutrient Summary
Officers Christian Fellowship / Heritage House
PA0261645

Year for Truing Period (Oct 1 - Sept 30)	Net Effluent Limits				Compliant with Permit Limits (Yes/No)	
	Nitrogen (lbs)	Phosphorus (lbs)				
	Net	Annual Total Mass	Purchased	Net	Nitrogen	Phosphorus
Cap Load	***380***	-----	-----	***0***		
2018	115	22	23	-1	Yes	Yes
2019	107	18	41	-23	Yes	Yes
2020	64	18	41	-23	Yes	Yes
2021	37	18	41	-23	Yes	Yes

3.3 Non-Compliance

3.3.1 Non-Compliance- NPDES Effluent

A summary of the non-compliance to the permit limits for the existing permit cycle is as follows.

From the DMR data beginning on December 1, 2017 to July 5, 2022, the following were observed effluent non-compliances.

Summary of Non-Compliance w/ NPDES Effluent Limits
Beginning December 1, 2017 and Ending July 5, 2022

OUTFALL_NUMBER	STAGE_DESC	NON_COMPLIANCE_DATE	NON_COMPL_TYPE_DESC	NON_COMPL_CATEGORY_DESC	PARAMETER	SAMPLE_VALUE	VIOLATION_CONDITION	PERMIT_VALUE	UNIT_OF_MEASURE	STAT_BASE_CODE	FACILITY_COMMENTS
		2/28/2018	Other	Other Violations							
		3/1/2018	Late DMR Submission	Other Violations							
001	Raw Sewage Influent	3/23/2018	Sample collection less frequent than required	Other Violations	Biochemical Oxygen Demand (BOD5)						
001	Raw Sewage Influent	3/23/2018	Sample collection less frequent than required	Other Violations	Total Suspended Solids						
		4/28/2018	Violation of permit condition	Other Violations							
001	Final Effluent	9/28/2018	Violation of permit condition	Effluent	Fecal Coliform	19863	>	1000	No./100 ml	Instantaneous Maximum	During weeks of higher than normal rain fall, CL level spiked and fell more than normally as I&I caused large flow fluxuations. CL level was too low to sufficiently treat sample.
001	Final Effluent	9/28/2018	Violation of permit condition	Effluent	Fecal Coliform	785	>	200	No./100 ml	Geometric Mean	During weeks of higher than normal rain fall, CL level spiked and fell more than normally as I&I caused large flow fluctuation. CL level was too low to sufficiently treat sample.
		8/28/2018	Violation of permit condition	Other Violations							
001	Final Effluent	11/27/2018	Violation of permit condition	Effluent	Dissolved Oxygen	4.5	<	5.0	mg/L	Minimum	DO decreased after sudden increase in flow but was corrected immediately upon discovery by increasing volume of aeration which runs continuously.
001	Final Effluent	8/25/2019	Violation of permit condition	Effluent	Dissolved Oxygen	4.52	<	5.0	mg/L	Minimum	Corrected immediately by increasing volume of air.
001	Final Effluent	8/25/2019	Violation of permit condition	Effluent	Fecal Coliform	1094	>	200	No./100 ml	Geometric Mean	See comments on 7/4/19 Non-Compliance Report.
001	Final Effluent	8/25/2019	Violation of permit condition	Effluent	Fecal Coliform	9678	>	1000	No./100 ml	Instantaneous Maximum	See comments on 7/4/19 Non=Compliance Report.
		7/4/2019	Violation of permit condition	Other Violations							
001	Final Effluent	9/27/2019	Violation of permit condition	Effluent	Dissolved Oxygen	3.14	<	5.0	mg/L	Minimum	Operator collected effluent sample following tertiary filter backwash cycle which stopped effluent flow for some time. This stoppage allowed the effluent in the effluent box to stagnate. The situation resolved itself when the flow resumed.
001	Final Effluent	10/26/2019	Violation of permit condition	Effluent	Dissolved Oxygen	3.84	<	5.0	mg/L	Minimum	Sample was drawn after a backwash cycle so Effluent box contained stagnant water. The DO level increased to compliant levels as soon as the flow resumed (within an hour or two).
001	Final Effluent	10/26/2019	Violation of permit condition	Effluent	Fecal Coliform	1230.4	>	1000	No./100 ml	Instantaneous Maximum	During low flow periods, our erosion chlorinator does not maintain contact with a sufficient amount of water to ensure a proper level of CL. During these times we add supplemental CL and on this occasion it wasn't added in a timely manner. The CL concentration increased over 11 times by the next day.
001	Final Effluent	11/19/2019	Violation of permit condition	Effluent	Dissolved Oxygen	3.86	<	5.0	mg/L	Minimum	Low guest occupancy caused low flow which caused oxygen level to decrease.
001	Final Effluent	11/19/2019	Violation of permit condition	Effluent	Fecal Coliform	2243	>	2000	No./100 ml	Geometric Mean	Higher than expected flow. Did not allow sufficient contact time to kill fecal coliform. Chemical feed was increased and corrected by next sample.
001	Final Effluent	11/19/2019	Violation of permit condition	Effluent	Total Suspended Solids	36.8	>	30.0	mg/L	Average Monthly	Higher than expected inflow caused mean cell residence time to decrease.
001	Final Effluent	11/19/2019	Violation of permit condition	Effluent	Total Suspended Solids	46.0	>	45.0	mg/L	Weekly Average	Higher than expected inflow caused mean cell residence time to decrease.
001	Final Effluent	2/27/2020	Violation of permit condition	Effluent	Dissolved Oxygen	2.34	<	5.0	mg/L	Minimum	Increased aeration --effluent DO was 8.16 the following day.
001	Final Effluent	2/27/2020	Violation of permit condition	Effluent	Total Suspended Solids	47.0	>	30.0	mg/L	Average Monthly	Tertiary filter backwash cycle working intermittently led to increase in effluent TSS. Problem since identified as air compressor supplying air actuated valves. Fixed early February.
001	Final Effluent	2/27/2020	Violation of permit condition	Effluent	Total Suspended Solids	50.0	>	45.0	mg/L	Weekly Average	Tertiary filter backwash cycle working intermittently led to increase in effluent TSS. Problem since identified as air compressor supplying air actuated valves. Fixed early February.
001	Final Effluent	4/25/2020	Violation of permit condition	Effluent	Dissolved Oxygen	4.04	<	5.0	mg/L	Minimum	Operator measured DO when no effluent was flowing out so the sample sat long enough for DO to drop. Once flow resumed, DO increased above permit limit.
		11/21/2020	Violation of permit condition	Other Violations							
001	Final Effluent	3/27/2021	Violation of permit condition	Effluent	Dissolved Oxygen	2.32	<	5.0	mg/L	Minimum	Instructed operator to increase aeration as needed.
001	Final Effluent	4/28/2021	Violation of permit condition	Effluent	Dissolved Oxygen	2.86	<	5.0	mg/L	Minimum	Operator was instructed on how to adjust aeration in Clearwell to ensure O2 level was kept above minimum.
001	Final Effluent	9/28/2021	Violation of permit condition	Effluent	Dissolved Oxygen	2.64	<	5.0	mg/L	Minimum	During our end of summer break there were days of extremely low flow which allowed the effluent in the effluent box to languish and causing the DO level to fall below permitted amount.

3.3.2 Non-Compliance- Enforcement Actions

A summary of the non-compliance enforcement actions for the current permit cycle is as follows:

Beginning in December 1, 2017 to July 5, 2022, there were no observed enforcement actions.

3.4 Summary of Biosolids Disposal

A summary of the biosolids disposed of from the facility is as follows.

2021			
Sewage Sludge / Biosolids Production Information			
Hauled Off-Site			
2021	Gallons	% Solids	Dry Tons
January			
February			
March			
April	2500	8.25	0.886
May			
June	2500	8.25	0.886
July	2500	8.25	0.886
August	2500	8.25	0.886
September	2500	8.25	0.886
October	2500	8.25	0.886
November			
December			
Notes:			
Biosolids/sewage sludge disposed at K-3 in Bedford County			

3.5 Open Violations

As of July 2022, an open violation existed in the Safe Drinking Water program due to failure of a noncommunity water system to obtain a permit or approval. The final executed NPDES permit may be withheld until the open violation is addressed.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be Sulphur Springs Creek. The sequence of receiving streams that the Sulphur Springs Creek discharges into are Buffalo Run, Raystown Branch Juniata River, Juniata River, Susquehanna River which eventually drains into the Chesapeake Bay.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is Bedford Borough Municipal Authority (PWS ID # 4050002) located approximately 11 miles downstream of the subject facility on the Raystown Branch Juniata River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

Class A Wild Trout Streams are waters that support a population of naturally produced trout of sufficient size and abundance to support long-term and rewarding sport fishery. DEP classifies these waters as high-quality coldwater fisheries.

The information obtained from EMAP suggests that no Class A Wild Trout Fishery will be impacted by this discharge.

4.4 2020 Integrated List of All Waters (303d Listed Streams)

Section 303(d) of the Clean Water Act requires States to list all impaired surface waters not supporting uses even after appropriate and required water pollution control technologies have been applied. The 303(d) list includes the reason for impairment which may be one or more point sources (i.e. industrial or sewage discharges) or non-point sources (i.e. abandoned mine lands or agricultural runoff and the pollutant causing the impairment such as metals, pH, mercury or siltation).

States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to a condition that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water.

The water quality status of Pennsylvania's waters uses a five-part categorization (lists) of waters per their attainment use status. The categories represent varying levels of attainment, ranging from Category 1, where all designated water uses are met to Category 5 where impairment by pollutants requires a TMDL for water quality protection.

The receiving waters is listed in the 2020 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 waterbody. The surface waters is an attaining stream that supports aquatic life. The designated use has been classified as protected waters for warm water fishes (WWF) and migratory fishes (MF).

4.5 Low Flow Stream Conditions

Water quality modeling estimates are based upon conservative data inputs. The data are typically estimated using either a stream gauge or through USGS web based StreamStats program. The NPDES effluent limits are based upon the combined flows from both the stream and the facility discharge.

A conservative approach to estimate the impact of the facility discharge using values which minimize the total combined volume of the stream and the facility discharge. The volumetric flow rate for the stream is based upon the seven-day, 10-year low flow (Q710) which is the lowest estimated flow rate of the stream during a 7 consecutive day period that occurs once in 10 -year time period. The facility discharge is based upon a known design capacity of the subject facility.

For WQM modeling, default values were used for pH and stream water temperature data. The default value for pH is 7 and the stream water temperature was estimated to be 25 C.

The low flow yield and the Q710 for the subject facility was estimated using StreamStats.

The low flow yield is 0.0086 $ft^3/s/mi^2$ and the Q710 is 0.0149 is ft^3/s.

4.6 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.0098
Latitude	39º 57' 47.58"	Longitude	-78º 36' 31.13"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		

Receiving Waters	Sulphur Springs Creek (WWF)	Stream Code	15121
NHD Com ID	65849637	RMI	1.7
Drainage Area	1.72	Yield (cfs/mi^2)	0.0086
Q_{7-10} Flow (cfs)	0.0149	Q_{7-10} Basis	Stream Stats
Elevation (ft)	411	Slope (ft/ft)	
Watershed No.	11-C	Chapter 93 Class.	WWF. MF
Existing Use	Same as Chapter 93 class.	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s) supports aquatic life		
Cause(s) of Impairment	Not appl.		
Source(s) of Impairment	Not appl.		
TMDL Status	Not appl.	Name	

Background/Ambient Data		Data Source
pH (SU)	7	Default
Temperature (°C)	25	Default
Hardness (mg/L)	Not appl	
Other:		

Nearest Downstream Public Water Supply Intake	Bedford Borough Municipal Authority		
PWS Waters	Raystown Branch Juniata River	Flow at Intake (cfs)	
PWS RMI	93	Distance from Outfall (mi)	11

5.0: Overview of Presiding Water Quality Standards

5.1 General

There are at least six (6) different policies which determines the effluent performance limits for the NPDES permit. The policies are technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), antidegradation, total maximum daily loading (TMDL), anti-backsliding, and whole effluent toxicity (WET) The effluent performance limitations enforced are the selected permit limits that is most protective to the designated use of the receiving waters. An overview of each of the policies that are applicable to the subject facility has been presented in Section 6.

5.2.1 Technology-Based Limitations

TBEL treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act (40 CFR 125.3). Available TBEL requirements for the state of Pennsylvania are itemized in PA Code 25, Chapter 92a.47.

The presiding sources for the basis for the effluent limitations are governed by either federal or state regulation. The reference sources for each of the parameters is itemized in the tables. The following technology-based limitations apply, subject to water quality analysis and best professional judgement (BPJ) where applicable:

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

5.3 Water Quality-Based Limitations

WQBEL are based on the need to attain or maintain the water quality criteria and to assure protection of designated and existing uses (PA Code 25, Chapter 92a.2). The subject facility that is typically enforced is the more stringent limit of either the TBEL or the WQBEL.

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chorine (TRC); (2) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen Version 1.1 (WQM Model) and (3) Toxics using DEP Toxics Management Spreadsheet for Toxics pollutants.

The modeling point nodes utilized for this facility are summarized below.

General Data 1 (Modeling Point #1)	***Input Value***	***Units***
Stream Code	15121	
River Mile Index	1.7	miles
Elevation	411	feet
Latitude	39.963333	
Longitude	-78.608333	
Drainage Area	1.72	sq miles
Low Flow Yield	0.0086	cfs/sq mile
General Data 2 (Modeling Point #2)	***Input Value***	***Units***
Stream Code	15121	
River Mile Index	0.44	miles
Elevation	372	feet
Latitude	39.9769	
Longitude	-78.617088	
Drainage Area	5.28	sq miles
Low Flow Yield	0.0086	cfs/sq mile

5.3.1 Water Quality Modeling 7.0

The WQM Model is a computer model that is used to determine NPDES discharge effluent limitations for Carbonaceous BOD (CBOD5), Ammonia Nitrogen (NH3-N), and Dissolved Oxygen (DO) for single and multiple point source discharges scenarios. WQM Model is a complete-mix model which means that the discharge flow and the stream flow are assumed to instantly and completely mixed at the discharge node.

WQM recommends effluent limits for DO, CBOD5, and NH_3-N in mg/l for the discharge(s) in the simulation.

Four types of limits may be recommended. The limits are

(a) a *minimum concentration for DO in the discharge as 30-day average;*
(b) a 30-day average concentration for CBOD5 in the discharge;
(c) a 30-day average concentration for the NH_3-N in the discharge;
(d) *24-hour average concentration for NH_3-N in the discharge*.

The WQM Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

The applicable WQM Effluent Limit Type are discussed in Section 6 under the corresponding parameter which is either DO, CBOD, or ammonia-nitrogen.

5.3.2 Toxics Modeling

The facility is not subject to toxics modeling.

5.3.3 Whole Effluent Toxicity (WET)

The facility is not subject to WET.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

$$TMDL = \Sigma WLAs + \Sigma LAs + MOS$$

Pennsylvania has committed to restoring all impaired waters by developing TMDLs and TMDL alternatives for all impaired waterbodies. The TMDL serves as the starting point or planning tool for restoring water quality.

5.4.1.1 Local TMDL

The subject facility does not discharge into a local TMDL.

5.4.1.2 Chesapeake Bay TMDL Requirement

The Chesapeake Bay Watershed is a large ecosystem that encompasses approximately 64,000 square miles in Maryland, Delaware, Virginia, West Virginia, Pennsylvania, New York and the District of Columbia. An ecosystem is composed of interrelated parts that interact with each other to form a whole. All of the plants and animals in an ecosystem depend on each other in some way. Every living thing needs a healthy ecosystem to survive. Human activities affect the Chesapeake Bay ecosystem by adding pollution, using resources and changing the character of the land.

Most of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the federal Water Pollution Control Act ("Clean Water Act"), 33 U.S.C. § 1313(d). While the Chesapeake Bay is outside the boundaries of Pennsylvania, more than half of the State lies within the watershed. Two major rivers in Pennsylvania are part of the Chesapeake Bay Watershed. They are (a) the Susquehanna River and (b) the Potomac River. These two rivers total 40 percent of the entire Chesapeake Bay watershed.

The overall management approach needed for reducing nitrogen, phosphorus and sediment are provided in the Bay TMDL document and the Phase I, II, and III WIPs which is described in the Bay TMDL document and Executive Order 13508.

The Bay TMDL is a comprehensive pollution reduction effort in the Chesapeake Bay watershed identifying the necessary pollution reductions of nitrogen, phosphorus and sediment across the seven Bay watershed jurisdictions of Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia to meet applicable water quality standards in the Bay and its tidal waters.

The Watershed Implementation Plans (WIPs) provides objectives for how the jurisdictions in partnership with federal and local governments will achieve the Bay TMDL's nutrient and sediment allocations.

Phase 3 WIP provides an update on Chesapeake Bay TMDL implementation activities for point sources and DEP's current implementation strategy for wastewater. The latest revision of the supplement was September 13, 2021.

The Chesapeake Bay TMDL (Appendix Q) categorizes point sources into four sectors:

- Sector A- significant sewage dischargers;
- Sector B- significant industrial waste (IW) dischargers;
- Sector C- non-significant dischargers (both sewage and IW facilities); and
- Sector D- combined sewer overflows (CSOs).

All sectors contain a listing of individual facilities with NPDES permits that were believed to be discharging at the time the TMDL was published (2010). All sectors with the exception of the non-significant dischargers have individual wasteload allocations (WLAs) for TN and TP assigned to specific facilities. Non-significant dischargers have a bulk or aggregate allocation for TN and TP based on the facilities in that sector that were believed to be discharging at that time and their estimated nutrient loads.

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30. For facilities that have received Cap Loads in any other form, the Cap Loads will be modified accordingly when the permits are renewed.

Offsets have been incorporated into Cap Loads in several permits issued to date. From this point forward, permits will be issued with the WLAs as Cap Loads and will identify Offsets separately to facilitate nutrient trading activities and compliance with the TMDL.

Based upon the supplement the subject facility has been categorized as a Sector C discharger. The supplement defines Sector C as a non-significant dischargers include sewage facilities (Phase 4 facilities: ≥ 0.2 MGD and < 0.4 MGD and Phase 5 facilities: > 0.002 MGD and < 0.2 MGD), small flow/single residence sewage treatment facilities (≤ 0.002 MGD), and non-significant IW facilities, all of which may be covered by statewide General Permits or may have individual NPDES permits.

At this time, there are approximately 850 Phase 4 and 5 sewage facilities, approximately 715 small flow sewage treatment facilities covered by a statewide General Permit, and approximately 300 non-significant IW facilities.

For Phase 5 sewage facilities with individual permits (average annual design flow on August 29, 2005 > 0.002 MGD and < 0.2 MGD), DEP will issue individual permits with monitoring and reporting for TN and TP throughout the permit term at a frequency no less than annually, unless 1) the facility has already conducted at least two years of nutrient monitoring and 2) a summary of the monitoring results are included in the next permit's fact sheet. If, however, Phase 5 facilities choose to expand, the renewed or amended permits will contain Cap Loads based on the lesser of a) existing TN/TP concentrations at current design average annual flow or b) 7,306 lbs/yr TN and 974 lbs/yr TP.

If no data are available to determine existing concentrations for expanding Phase 4 or 5 facilities, default concentrations of 25 mg/l TN and 4 mg/l TP may be used (these are the average estimated concentrations of all non-significant sewage facilities).

DEP will not issue permits to existing Phase 4 and 5 facilities containing Cap Loads unless it is done on a broad scale or unless the facilities are expanding.

For new Phase 4 and 5 sewage discharges, in general DEP will issue new permits containing Cap Loads of "0" and new facilities will be expected to purchase credits and/or apply offsets to achieve compliance, with the exception of small flow and single residence facilities.

A list of non-significant sewage and industrial waste dischargers with Cap Loads in NPDES permits is presented in Attachment C of the Phase 3 WIP. Heritage House is itemized in Attachment C with the following cap loads and delivery ratios.

TN Cap Load (lbs/yr)	380
TN Delivery Ratio	0.627
TP Cap Load (lbs/yr)	0
TP Delivery Ratio	0.670

This facility is subject to Sector C monitoring requirements. Monitoring shall be at least 1x/month.

Reporting

Cap Loads will be established in permits as Net Annual TN and TP loads (lbs/yr) that apply during the period of October 1 – September 30.

Facilities with NPDES permits must use DEP's eDMR system for reporting, except small flow treatment facilities. An Annual DMR must be submitted by the end of the Truing Period, November 28. As attachments to the Annual DMR a facility must submit a completed Annual Chesapeake Bay Spreadsheet, available through DEP's Supplemental Reports website, which contains an Annual Nutrient Monitoring worksheet and an Annual Nutrient Budget worksheet. This Spreadsheet will be submitted once per Compliance Year only, and reflect all nutrient sample results (for the period October 1 – September 30), Credit transactions (including the Truing Period) and Offsets applied during the Compliance Year.

5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are implemented through DEP's guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP's evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

For a new, additional, or increased point source discharge to an HQ or EV water, the person proposing the discharge is required to utilize a nondischarge alternative that is cost-effective and environmentally sound when compared with the cost of the proposed discharge. If a nondischarge alternative is not cost-effective and environmentally sound, the person must use the best available combination of treatment, pollution prevention, and wastewater reuse technologies and assure that any discharge is nondegrading. In the case of HQ waters, DEP may find that after satisfaction of intergovernmental coordination and public participation requirements lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In addition, DEP will assure that cost-effective and reasonable best management practices for nonpoint source control in HQ and EV waters are achieved.

The subject facility's discharge will be to a non-special protection waters and the permit conditions are imposed to protect existing instream water quality and uses. Neither HQ waters or EV waters is impacted by this discharge.

5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.l.1 and 40 CFR 122.l.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter are itemized in this Section. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

The reader will find in this section:

a) a justification of recommended permit monitoring requirements and limitations for each parameter in the proposed NPDES permit;
b) a summary of changes from the existing NPDES permit to the proposed permit; and
c) a summary of the proposed NPDES effluent limits.

6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The tables are categorized by (a) Conventional Pollutants and Disinfection and (b) Nitrogen Species and Phosphorus

6.1.1 Conventional Pollutants and Disinfection

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection Officers Christian Fellowship / Heritage House, PA0261645			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be 5x/wk as a grab sample (SOP).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with the SOP and the effluent limits assigned by Chapter 95.2(1).
Dissolved Oxygen	BPJ	Monitoring:	The monitoring frequency shall be 5x/wk as a grab sample (SOP).
		Effluent Limit:	Effluent limits shall be greater than 5.0 mg/l.
		Rationale:	The monitoring frequency has been assigned in accordance with the SOP and the effluent limits assigned by best professional judgement.
CBOD	TBEL	Monitoring:	The monitoring frequency shall be 2x/month as an 8-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 25 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). WQM modeling indicates that the TBEL is more stringent than the WQBEL. Thus, the permit limit is confined to TBEL.
TSS	TBEL	Monitoring:	The monitoring frequency shall be 2x/month as an 8-hr composite sample (Table 6-3).
		Effluent Limit:	Effluent limits shall not exceed 30 mg/l as an average monthly.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(1). While there is no WQM modeling for this parameter, the permit limit for TSS is generally assigned similar effluent limits as CBOD or BOD. Since the TBEL is more stringent than TBEL, TBEL will apply.
TRC	WQBEL	Monitoring:	The monitoring frequency shall be on a 5x/wk basis as a grab sample (SOP).
		Effluent Limit:	The average monthly limit should not exceed 0.15 mg/l and/or 0.5 mg/l as an instantaneous maximum.
		Rationale: Chlorine in both combined (chloramine) and free form is extremely toxic to freshwater fish and other forms of aquatic life (Implementation Guidance Total Residual Chlorine 1). The TRC effluent limitations to be imposed on a discharger shall be the more stringent of either the WQBEL or TBEL requirements and shall be expressed in the NPDES permit as an average monthly and instantaneous maximum effluent concentration (Implementation Guidance Total Residual Chlorine 4). Based on the stream flow rate (lowest 7-day flow rate in 10 years) and the design flow rate of the subject facility calculated by the TRC Evaluation worksheet, the WQBEL is more stringent than the TBEL. The monitoring frequency has been assigned in accordance with the SOP and the effluent limits asigned by WQBEL	
Fecal Coliform	TBEL	Monitoring:	The monitoring frequency shall be 2x/month as a grab sample (Table 6-3).
		Effluent Limit:	Summer effluent limits shall not exceed 200 No./100 mL as a geometric mean. Winter effluent limits shall not exceed 2000 No./100 mL as a geometric mean.
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-3 and the effluent limits assigned by Chapter 92a.47(a)(4) and 92a.47(a)(5).
E. Coli	SOP; Chapter 92a.61	Monitoring:	The monitoring frequency shall be 1x/yr as a grab sample (SOP).
		Effluent Limit:	No effluent requirements.
		Rationale:	Consistent with the SOP- Establishing Effluent Limitations for Individual Sewage Permits (Revised March 22, 2019) and under the authority of Chapter 92a.61, the facility will be required to monitor for E.Coli.
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.0098 MGD.			
3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021			

6.1.2 Nitrogen Species and Phosphorus

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus

Officers Christian Fellowship / Heritage House, PA0261645

Parameter	Permit Limitation Required by[1]:	Recommendation	
Ammonia-Nitrogen	WQBEL	Monitoring:	The monitoring frequency shall be 2x/mo as an 8-hr composite sample
		Effluent Limit:	During the months of May 1 to October 31, the effluent limit shall not exceed 3.5 mg/l. During the months of November 1 to April 30, the effluent shall not exceed 10.5 mg/l.
		Rationale:	Water quality modeling recommends limits.
Nitrate-Nitrite as N	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/mo as an 8-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/mo.
Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/mo as a calculation
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/mo.
TKN	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/mo as an 8-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/mo.
Total Phosphorus	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/mo as an 8-hr composite sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/mo.
Net Total Nitrogen	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as a calculation
		Effluent Limit:	The effluent limit shall not exceed 380 lbs/yr
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr.
Net Total Phosphorus	Chesapeake Bay TMDL	Monitoring:	The monitoring frequency shall be 1x/yr as a calculation
		Effluent Limit:	The effluent limit shall not exceed 0 lbs/yr
		Rationale:	Due to the Chesapeake Bay Implementation Plan, the facility is required to be monitored on a frequency at least 1x/yr.
Notes:			

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.0098 MGD.

3 Table 6-3 (Self Monitoring Requirements for Sewage Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.3.1 Implementation of Regulation- Chapter 92a.61

Chapter 92a.61 provides provisions to DEP to monitor for pollutants that may have an impact on the quality of waters of the Commonwealth. Based upon DEP policy directives issued on March 22, 2021 and in conjunction with EPA's 2017 Triennial Review, monitoring for E. Coli shall be required.

6.2 Summary of Changes From Existing Permit to Proposed Permit

Previous Fact Sheets questionably used stream gauge data from either a similar stream or a gauge station located a long distance from the subject facility. This review utilized the web based StreamStats program. The Q710 estimated was 0.0149 is ft^3/s and the low flow yield was 0.0086 $ft^3/s/mi^2$. The flow rates impact effluent permit limits for ammonia-nitrogen and TRC. For the stream/tributary, a default value of 25 C and a pH of 7 were used.

A summary of the last 12 months of DMR for those parameters is in the table. Data for ammonia swings from <0.1 mg/l to 27.9 mg/l. DEP questions if data entry errors were made by the facility. The proposed NPDES will reduce ammonia nitrogen to 3.5 mg/l in the summer and 10.5 mg/l during the winter. From the DMR data, it is not clear if the facility would be able to achieve the reduced effluent limit.

TRC shall be reduced to 0.15 mg/l as an average monthly and 0.5 mg/l as an instantaneous maximum. Based upon the last 12 months of DMR data, the facility would not meet the proposed permit limit.

The NPDES permit will include a compliance schedule so the facility may make necessary upgrades to achieve the new effluent permit limits.

Parameter	22-Apr	22-Mar	22-Feb	22-Jan	21-Dec	21-Nov	21-Oct	21-Sep	21-Aug	21-Jul	21-Jun	21-May
Ammonia (mg/L) Average Monthly	5.909	27.935	19.71	< 6.37	< 5.365	< 0.346	8.306	< 2.183	< 0.1	< 0.478	2.174	< 0.281
TRC (mg/L) Average Monthly	0.25	0.48	0.44	0.32	0.31	0.3	0.36	0.41	0.37	0.45	0.31	0.4

A summary of how the proposed NPDES permit differs from the existing NPDES permit is summarized in the table.

Changes in Permit Monitoring or Effluent Quality

Parameter	Existing Permit	Draft Permit
Ammonia-Nitrogen	No effluent limits	During the months of May 1 to October 31, the effluent limit shall not exceed 3.5 mg/l. During the months of November 1 to April 30, the effluent shall not exceed 10.5 mg/l.
TRC	Effluent limits shall not exceed 0.5 mg/l and 1.6 mg/l as an instantaneous maximum	Effluent limits shall not exceed 0.15 mg/l and 0.5 mg/l as an instantaneous maximum
pH (S.U.), Dissolved Oxygen, TRC	Monitoring is required daily	Consistent with updates to the SOP, montoring shall be required 5x/wk.
E. Coli	No monitoring or effluent limit	Due to the EPA Triennial review, monitoring shall be required 1x/yr
CBOD influent and TSS influent	Monitoring is required 2x/month	Monitoring has been eliminated

6.3.1 Summary of Proposed NPDES Effluent Limits

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.

The proposed NPDES effluent limitations are summarized in the table below.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 39° 57' 48.00" , **Longitude** 78° 36' 30.00" , **River Mile Index** 1.7 , **Stream Code** 15121

Receiving Waters: Sulphur Springs Creek (WWF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

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	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	5/week	Grab
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	5/week	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.15	XXX	0.5	5/week	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	Report	Report	XXX	25.0	40.0	XXX	2/month	8-Hr Composite
Total Suspended Solids	Report	Report	XXX	30.0	45.0	XXX	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	Report Daily Max	XXX	1/year	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	Report	XXX	XXX	10.5	XXX	XXX	2/month	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	Report	XXX	XXX	3.5	XXX	XXX	2/month	8-Hr Composite

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 001 , **Latitude** 39° 57' 48.00" , **Longitude** 78° 36' 30.00" , **River Mile Index** 1.7 , **Stream Code** 15121

Receiving Waters: Sulphur Springs Creek (WWF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

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/month	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Net Total Nitrogen	Report	380.0	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	0.0	XXX	XXX	XXX	XXX	1/month	Calculation

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

Footnotes:
(1) See Part C for Chesapeake Bay Requirements.
(2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events required.

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- Chlorine Minimization
- Hauled-in Waste Restrictions
- Chesapeake Bay Nutrient Definitions
- Solids Management for Non-Lagoon Treatment Systems

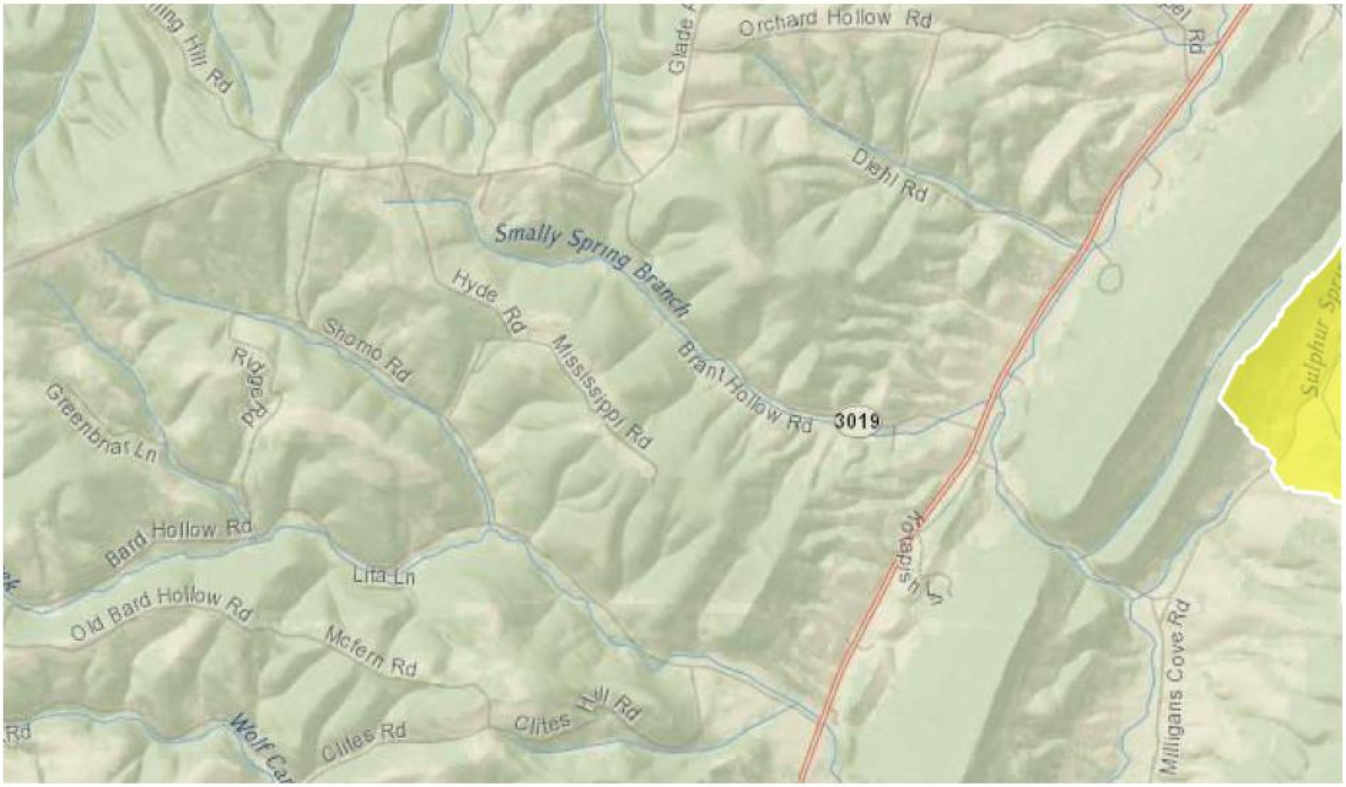
Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: New and Reissuance Sewage Individual NPDES Permit Applications, rev 2/3/2022
☐	Other:

Attachment A

Stream Stats/Gauge Data

StreamStats Report

Region ID: PA
Workspace ID: PA20220705151402361000
Clicked Point (Latitude, Longitude): 39.96331, -78.60862
Time: 2022-07-05 11:14:23 -0400



Officers Christian Fellowship / Heritage House PA0261645 Modeling Point #1 July 2022

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	0	percent
DRNAREA	Area that drains to a point on a stream	1.72	square miles
PRECIP	Mean Annual Precipitation	39	inches
ROCKDEP	Depth to rock	3.7	feet

Parameter Code	Parameter Description	Value	Unit
STRDEN	Stream Density -- total length of streams divided by drainage area	3.19	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.72	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	39	inches	35	50.4
STRDEN	Stream Density	3.19	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	3.7	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

Low-Flow Statistics Disclaimers [Low Flow Region 2]

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

Low-Flow Statistics Flow Report [Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0494	ft^3/s
30 Day 2 Year Low Flow	0.0789	ft^3/s
7 Day 10 Year Low Flow	0.0149	ft^3/s
30 Day 10 Year Low Flow	0.0246	ft^3/s
90 Day 10 Year Low Flow	0.049	ft^3/s

Low-Flow Statistics Citations

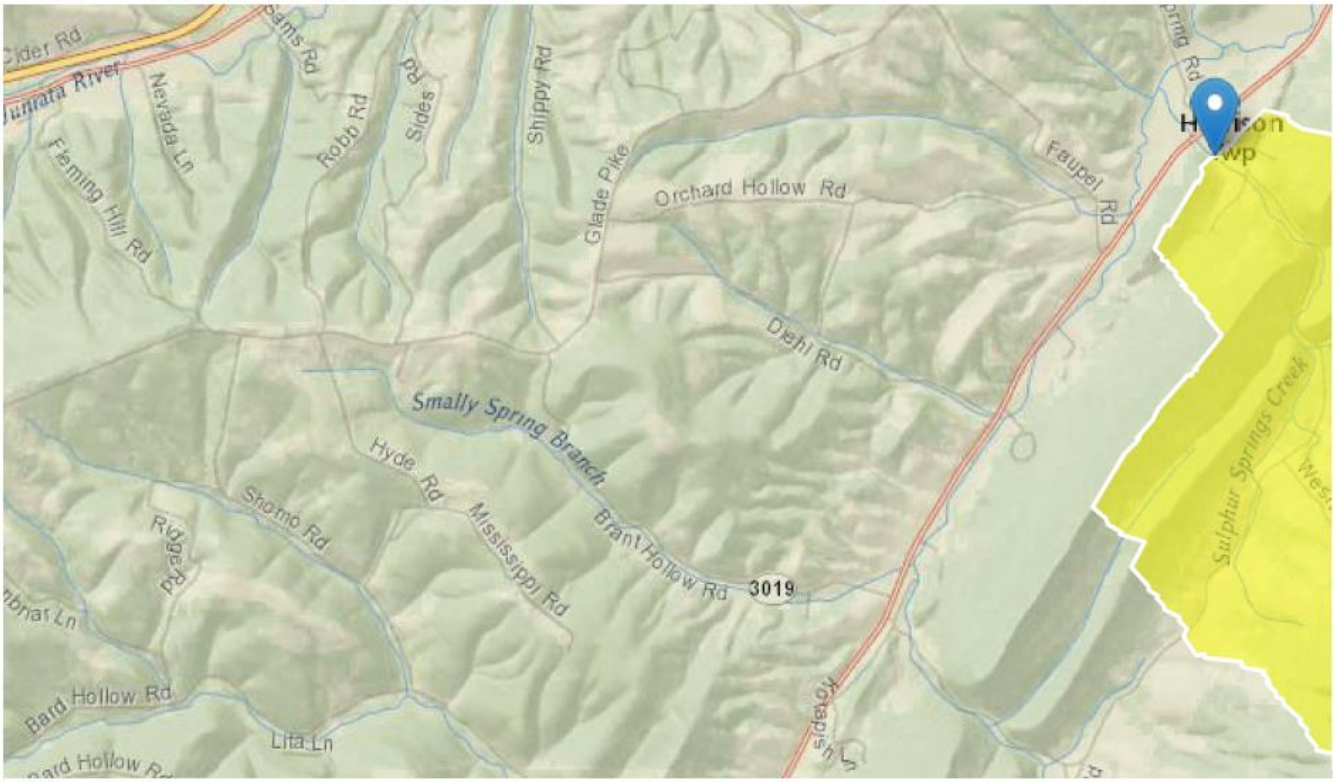
Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-

5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

Application Version: 4.10.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

StreamStats Report

Region ID: PA
Workspace ID: PA20220705151725292000
Clicked Point (Latitude, Longitude): 39.97673, -78.61750
Time: 2022-07-05 11:17:47 -0400



Officers Christian Fellowship / Heritage House PA0261645 Modeling Point #2 July 2022

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	1.78	percent
DRNAREA	Area that drains to a point on a stream	5.28	square miles
PRECIP	Mean Annual Precipitation	39	inches
ROCKDEP	Depth to rock	4	feet

Parameter Code	Parameter Description	Value	Unit
STRDEN	Stream Density -- total length of streams divided by drainage area	3.12	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	5.28	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	39	inches	35	50.4
STRDEN	Stream Density	3.12	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4	feet	3.32	5.65
CARBON	Percent Carbonate	1.78	percent	0	99

Low-Flow Statistics Disclaimers [Low Flow Region 2]

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

Low-Flow Statistics Flow Report [Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.206	ft^3/s
30 Day 2 Year Low Flow	0.31	ft^3/s
7 Day 10 Year Low Flow	0.0737	ft^3/s
30 Day 10 Year Low Flow	0.113	ft^3/s
90 Day 10 Year Low Flow	0.205	ft^3/s

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/)

Application Version: 4.10.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Attachment B

WQM 7.0 Modeling Output Values

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
11C	15121	SULPHUR SPRINGS CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
1.700	Heritage House	PA0261645	0.010	CBOD5	25		
				NH3-N	3.64	7.28	
				Dissolved Oxygen			5

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
11C	15121	SULPHUR SPRINGS CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.700	Heritage House	9.72	15.79	9.72	15.79	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
1.700	Heritage House	1.42	3.64	1.42	3.64	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)		
1.70	Heritage House	25	25	3.64	3.64	5	5	0	0

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
11C	15121	SULPHUR SPRINGS CREEK	**1.700**	411.00	1.72	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	0.009	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Heritage House	PA0261645	0.0098	0.0098	0.0098	0.000	20.00	8.00

Parameter Data

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

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
11C	15121	SULPHUR SPRINGS CREEK	0.440	372.00	5.28	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	0.009	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		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 D.O.Simulation

SWP Basin	Stream Code	Stream Name
11C	15121	SULPHUR SPRINGS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.700	0.010	22.469	7.264
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.889	0.291	13.375	0.026
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
13.64	0.590	1.84	0.847
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.602	19.857	Owens	5
Reach Travel Time (days)			
2.906			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.291	11.26	1.44	7.88
0.581	9.29	1.13	7.88
0.872	7.67	0.88	7.88
1.163	6.33	0.69	7.88
1.453	5.22	0.54	7.88
1.744	4.31	0.42	7.88
2.034	3.56	0.33	7.88
2.325	2.94	0.26	7.88
2.616	2.42	0.20	7.88
2.906	2.00	0.16	7.88

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
11C	15121	SULPHUR SPRINGS CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
1.700	0.01	0.00	0.01	.0152	0.00586	.291	3.89	13.37	0.03	2.906	22.47	7.26
Q1-10 Flow												
1.700	0.01	0.00	0.01	.0152	0.00586	NA	NA	NA	0.02	3.243	21.92	7.35
Q30-10 Flow												
1.700	0.02	0.00	0.02	.0152	0.00586	NA	NA	NA	0.03	2.513	23.05	7.19

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☐
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.6	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

TRC Evaluation

Officer Christian Fellowship / Heritage House July 2022
PA0261645

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	0.0149	= Q stream (cfs)		0.5	= CV Daily	
5	0.0098	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)		0	=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 0.333		1.3.2.iii	WLA cfc = 0.317
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 0.124		5.1d	LTA_cfc = 0.184
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.153		AFC	
18			INST MAX LIMIT (mg/l) = 0.499			

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)**