pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0045993**
Facility Type	**Municipal**	APS ID	**992590**
Major / Minor	**Minor**	Authorization ID	**1272227**

Applicant and Facility Information

Applicant Name	**Ulysses Municipal Authority Potter County**	Facility Name	**Ulysses Municipal STP**
Applicant Address	522 Main Street	Facility Address	508 West Street
	Ulysses, PA 16948-9602		Ulysses, PA 16948
Applicant Contact	Kirsten Williams, Auth. Secretary	Facility Contact	Caleb Geist, Operator
Applicant Phone	(814) 848-7551	Facility Phone	(814) 848-7551
Client ID	73593	Site ID	485068
Ch 94 Load Status	Not Overloaded	Municipality	Ulysses Borough
Connection Status	No Limitations	County	Potter
Date Application Received	May 2, 2019	EPA Waived?	Yes
Date Application Accepted	May 13, 2019	If No, Reason	

Purpose of Application: Renewal of a NPDES permit for the discharge of treated sewage

Summary of Review

The Ulysses Municipal Authority wastewater treatment plant serves Ulysses Borough and a portion of Bingham Township. A map of the discharge location is attached.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
✓		Keith C. Allison / Project Manager	October 30, 2019
		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.15
Latitude	41º 54' 27.94"	Longitude	-77º 46' 21.00"
Quad Name	Ulysses, PA	Quad Code	0323
Wastewater Description:	Sewage Effluent		
Receiving Waters	Genesee River (CWF)	Stream Code	62954
NHD Com ID	84197857	RMI	2.1
Drainage Area	2.77 mi^2	Yield (cfs/mi^2)	0.0597
Q_{7-10} Flow (cfs)	0.165	Q_{7-10} Basis	USGS Gage 04221000, Genesee River @ Wellsville, NY (1957-2008)
Elevation (ft)	2010	Slope (ft/ft)	0.00631
Watershed No.	14-A	Chapter 93 Class.	CWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	Organic Enrichment/Low D.O., SILTATION		
Source(s) of Impairment	AGRICULTURE, MUNICIPAL POINT SOURCE DISCHARGES		
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	PA/NY State Line		
PWS Waters	Genesee River	Distance from Outfall (mi)	Approx. 9

Changes Since Last Permit Issuance: None. The stream flow and characteristics were determined for the previous renewal and remain adequate.

Other Comments: No downstream water supply is expected to be affected by this discharge at this time with the limitations and monitoring proposed.

As a result of the limited dilution and impairment in the Genesee River, the discharge received more stringent limitations for CBOD5, TSS, DO, and TRC in the previous renewal.

Treatment Facility Summary

Treatment Facility Name: Ulysses Municipal Authority STP

WQM Permit No.	Issuance Date	Permit Covers:
5377402	6/27/77	Sewer extension
5377403	6/27/77	Waste stabilization lagoon Treatment Plant
5388403	5/24/88	Sewer extension
5399401	Original - 1/11/00	Current Extended Aeration Treatment Plant
	A-1 - 5/22/19	Alteration of dechlorination system
5306401	12/29/06	Upgrade to Route 49 Pump Station

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite	0.15

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.15	300	Not Overloaded	Drying	

Changes Since Last Permit Issuance: The modifications under WQM Permit No. 5399401 Amendment No. 1 for modifying the dechlorination method from a sulfur dioxide feed system to sodium sulfite tablets are new. Per the received Post Construction Certification form, the installation of dechlorination was completed on July 11, 2019.

Other Comments: The treatment consists of a bar screen, equalization lagoon, two extended aeration tanks, two clarifiers, chlorination with contact tank, dechlorination, two aerobic digesters and two reed beds.

Hauled in Waste

Per the application, the permittee has not accepted any trucked-in waste in the past three years and does not anticipate receiving any over the next permit term.

Biosolids/Sludge Disposal

The facility's digested sludge is pumped to two onsite reed beds. The facility has not recently disposed of any sludge offsite, but it anticipated that it ultimately will be either transferred to another POTW for further processing or disposed at a permitted landfill.

Compliance History

DMR Data for Outfall 001 (from October 1, 2018 to September 30, 2019)

Parameter	SEPT-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18
Flow (MGD) Average Monthly	0.0625	0.0602	0.0662	0.0775	0.0856	0.1024	0.1028	0.1116	0.0987	0.1443	0.1324	0.125
Flow (MGD) Daily Maximum	0.117	0.088	0.1159	0.163	0.1591	0.1908	0.2698	0.4214	0.2126	0.5058	0.4482	0.2568
pH (S.U.) Minimum	6.48	6.16	6.38	6.89	6.97	6.49	6.25	6.67	6.43	6.88	6.9	6.76
pH (S.U.) Maximum	7.41	7.19	7.36	7.36	7.32	7.41	7.45	7.35	7.32	7.38	7.63	7.48
DO (mg/L) Minimum	6.05	6.25	5.87	5.12	5.84	6.74	7.06	6.13	5.17	5.19	6.56	5.17
TRC (mg/L) Average Monthly	< 0.06	< 0.06	0.06	< 0.05	0.05	< 0.05	< 0.06	< 0.05	< 0.05	0.07	0.07	< 0.06
TRC (mg/L) Instantaneous Maximum	0.10	0.09	0.11	0.12	0.15	0.11	0.13	0.14	0.11	0.11	0.15	0.11
CBOD5 (lbs/day) Average Monthly	< 1	1	< 1	< 1	< 2	2	< 2	4	4	< 3	< 4	< 5
CBOD5 (lbs/day) Weekly Average	< 1	1	2	< 2	2	2	3	6	5	3	5	< 6
CBOD5 (mg/L) Average Monthly	< 2	3	< 3	< 2	< 2	3	< 3	4	3	< 3	< 4	< 3
CBOD5 (mg/L) Weekly Average	< 2	3	3	< 2	2	3	3	4	3	3	5	< 3
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	58	81	51	81	73	59	88	144	109	101	77	133
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	61	120	54	94	113	64	110	201	167	119	108	223
BOD5 (mg/L) Raw Sewage Influent Average Monthly	122	181	94.9	129.7	86	83.8	120	138	85	125	89	77
TSS (lbs/day) Average Monthly	< 2	< 2	< 2	< 3	< 3	< 3	< 3	< 5	< 6	< 4	< 4	< 8
TSS (lbs/day) Raw Sewage Influent Average Monthly	33	26	26	48	< 24	41	45	40	73	36	58	109

TSS (lbs/day) Raw Sewage Influent Daily Maximum	35	34	35	49	45	60	58	41	112	47	90	188
TSS (lbs/day) Weekly Average	< 2	< 2	< 3	< 3	< 3	< 3	< 3	< 6	< 9	6	< 5	< 11
TSS (mg/L) Average Monthly	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 5	< 5	< 5	< 5	< 5
TSS (mg/L) Raw Sewage Influent Average Monthly	69	58	51	76	< 29	59	61	46	56.5	40	58	60
TSS (mg/L) Weekly Average	4	< 4	< 4	4	< 4	< 4	< 4	6	< 5	5	< 5	< 5
Fecal Coliform (CFU/100 ml) Geometric Mean	> 187	3	78	2	10	< 23	< 1	> 49	> 110	45	> 2420	> 2420
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	> 2419.6	4.1	1950	4.1	22.6	547.5	< 1	> 2420	> 2420	1986	> 2420	> 2420
Total Nitrogen (lbs/day) Average Monthly										7		
Total Nitrogen (mg/L) Average Monthly										8.99		
Ammonia (lbs/day) Average Monthly	1.0	< 0.05	< 0.06	< 0.3	4.0	< 0.07	< 0.07	< 0.9	< 0.7	< 0.5	< 2	7.0
Ammonia (lbs/day) Weekly Average	2.0	0.06	0.07	0.6	5.0	< 0.07	< 0.09	2	< 1	< 0.6	4	10.0
Ammonia (mg/L) Average Monthly	3.0	< 0.001	< 0.01	< 0.1	5.0	< 0.01	< 0.01	< 1.0	< 1.0	< 1.00	< 2.0	4.0
Ammonia (mg/L) Weekly Average	4.0	0.001	0.01	1.0	6.0	< 0.01	< 0.01	1.0	1.0	< 1.00	4.0	4.0
Total Phosphorus (lbs/day) Average Monthly										0.6		
Total Phosphorus (mg/L) Average Monthly										0.765		

Compliance History

Effluent Violations for Outfall 001, from: October 1, 2018 To: September 30, 2019

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	11/30/18	Geo Mean	> 2420	CFU/100 ml	2000	CFU/100 ml
Fecal Coliform	10/31/18	Geo Mean	> 2420	CFU/100 ml	2000	CFU/100 ml
Fecal Coliform	07/31/19	IMAX	1950	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	09/31/19	IMAX	> 2419.6	CFU/100 ml	1000	CFU/100 ml
Ammonia	05/31/19	Avg Mo	4.0	lbs/day	3.8	lbs/day
Ammonia	10/31/18	Avg Mo	7.0	lbs/day	3.8	lbs/day
Ammonia	10/31/18	Wkly Avg	10.0	lbs/day	5.6	lbs/day
Ammonia	10/31/18	Avg Mo	4.0	mg/L	3.0	mg/L
Ammonia	05/31/19	Avg Mo	5.0	mg/L	3.0	mg/L
Ammonia	05/31/19	Wkly Avg	6.0	mg/L	4.5	mg/L

Compliance History	
Summary of Inspections:	The facility has been inspected at least annually over the past permit term, most recently on February 26, 2019 by Brandon Shihinski, WQS. This inspection identified no operational violations during the inspection but noted effluent violations from the September through November 2018 DMRs.

Other Comments: A WMS query found no open violations in eFACTS for Ulysses Municipal Authority

Existing Effluent Limitations and Monitoring Requirements – Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.11	XXX	0.36	1/day	Grab
CBOD5	12	18	XXX	10	15	20	2/month	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	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
Total Suspended Solids	12	18	XXX	10	15	20	2/month	8-Hr Composite
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/year	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	3.8	5.6	XXX	3.0	4.5	6.0	2/month	8-Hr Composite
Ammonia-Nitrogen Nov 1 - Apr 30	11	16	XXX	9.0	13	18	2/month	8-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/year	8-Hr Composite

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.15
Latitude 41º 54' 28.50" **Longitude** -77º 46' 20.30"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

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

Comments: The above technology limits for TRC, $CBOD_5$, and TSS are applicable but are superseded by the more stringent water quality-based and Best Professional Judgment limits.

Water Quality-Based Limitations

CBOD5, NH3-N and DO

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia nitrogen (NH_3-N) into free-flowing streams and rivers. The modeling from the previous review showing that the existing limits are adequate to protect the receiving stream is attached.

Total Residual Chlorine

The modeling results from the previous review are attached showing that the existing limits are adequate.

Toxics Management

No further “Reasonable Potential Analysis” was performed to determine additional parameters as candidates for limitations or monitoring for this minor POTW with no industrial contributors.

Nutrient Management

The permittee has performed annual monitoring over the past permit term. The average TN over the past two years was 5.48 mg/L and the average TP was 0.72 mg/L. Because the effluent nutrient levels have been adequately characterized at this time, the existing annual monitoring for both Total Nitrogen and Total Phosphorus will be removed from the draft NPDES permit.

Best Professional Judgment (BPJ) Limitations

Comments: Due to the impairment to the Genesee River for Organic Enrichment, Low DO, and Siltation as well as the limited available instream dilution, a BPJ limit of 10 mg/l for both $CBOD_5$ and TSS was included in the previous permit review and these will remain. No other BPJ limits are needed at this time beyond the water quality and technology-based limitations noted above.

Anti-Backsliding

No limitations were made less stringent in the proposed draft permit consistent with the anti-degradation requirements of the Clean Water Act and 40 CFR 122.44(l).

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.11	XXX	0.36	1/day	Grab
CBOD5	12	18	XXX	10	15	20	2/month	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TSS	12	18	XXX	10	15	20	2/month	8-Hr Composite
TSS 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 Nov 1 - Apr 30	11	16	XXX	9.0	13	18	2/month	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	3.8	5.6	XXX	3.0	4.5	6	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: The above limits and monitoring are unchanged from the existing permit with the exception of the removal of Total Nitrogen and Total Phosphorus monitoring.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	PENTOXSD for Windows Model (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Toxics Screening Analysis Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☒	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☒	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☒	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishing Effluent Limitations for Individual Sewage Permits, 9/10/13.
☐	Other:

Attachments: Discharge Location Map, TRC Modeling, WQM7.0 Modeling.

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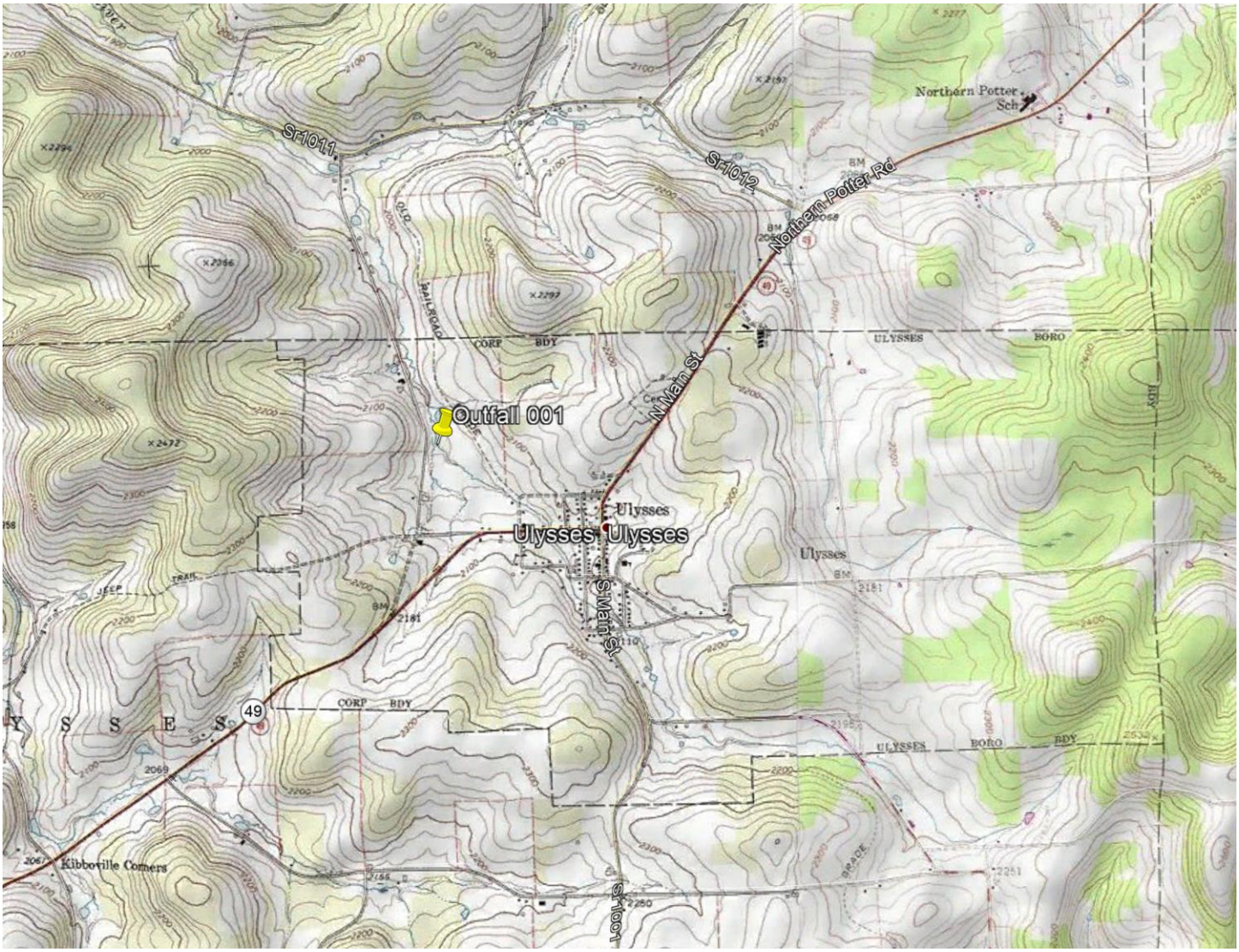

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TRC EVALUATION

Client			Date		
0.165	= Q stream (cfs)		0.5	= CV Daily	
0.15	= 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)	
	= % Factor of Safety (FOS)		0	=Decay Coefficient (K)	

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	**1.3.2.iii**	WLA afc =	0.246	**1.3.2.iii**	WLA cfc =	0.232
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	0.092	**5.1d**	LTA_cfc =	0.135
		WQBEL_afc=	**0.113**		WQBEL_cfc=	0.166

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.113	AFC
		INST MAX LIMIT (mg/l) =	0.369	

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

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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
14	62954	Trib 62954 to Genesee River	**2.100**	2010.00	2.77	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	0.060	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Ulysses M A	PA0045993	0.1500	0.0000	0.0000	0.000	25.00	6.85

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	10.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	3.00	0.00	0.00	0.70

Permit No. PA0045993

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
14	62954	Trib 62954 to Genesee River	0.000	1940.00	3.76	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	0.060	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Permit No. PA0045993

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
14	62954	Trib 62954 to Genesee River

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												
2.100	0.17	0.00	0.17	.2321	0.00631	.436	8.93	20.49	0.10	1.257	22.92	6.91
Q1-10 Flow												
2.100	0.11	0.00	0.11	.2321	0.00631	NA	NA	NA	0.09	1.376	23.43	6.89
Q30-10 Flow												
2.100	0.22	0.00	0.22	.2321	0.00631	NA	NA	NA	0.11	1.162	22.54	6.92

Permit No. PA0045993

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

Permit No. PA0045993

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
14	62954	Trib 62954 to Genesee River

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
2.100	Ulysses M A	8.07	6	8.07	6	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
2.100	Ulysses M A	1.68	3	1.68	3	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)		
2.10	Ulysses M A	10	10	3	3	5	5	0	0

Permit No. PA0045993

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
14	62954	Trib 62954 to Genesee River

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.100	0.150	22.919	6.906
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
8.930	0.436	20.487	0.102
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
6.67	0.838	1.75	0.876
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.349	23.431	Owens	6
Reach Travel Time (days)			
1.257			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.126	5.91	1.57	7.82
0.251	5.24	1.41	7.82
0.377	4.65	1.26	7.82
0.503	4.12	1.13	7.82
0.628	3.65	1.01	7.82
0.754	3.24	0.90	7.82
0.880	2.87	0.81	7.82
1.005	2.54	0.73	7.82
1.131	2.26	0.65	7.82
1.257	2.00	0.58	7.82

Permit No. PA0045993

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
14	62954	Trib 62954 to Genesee River

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)
2.100	Ulysses M A	PA0045993	0.150	CBOD5	10		
				NH3-N	3	6	
				Dissolved Oxygen			5