pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0112585**
Wastewater Type	**Sewage**	APS ID	**1019907**
Facility Type	**SFTF**	Authorization ID	**1320604**

NPDES PERMIT FACT SHEET
INDIVIDUAL SFTF/SRSTP

Applicant, Facility and Project Information

Applicant Name	**John B. Watkins**	Facility Name	**Wagon Wheel Apartments**
Applicant Address	181 Milan Road	Facility Address	11 Hawk Lane
	East Smithfield, PA .18817-7710		Ulster, PA 18850
Applicant Contact	John Watkins (JohnnyBwasted@yahoo.com)	Facility Contact	John Watkins
Applicant Phone	(570) 423-6344	Facility Phone	(570) 423-6344
Client ID	43824	Site ID	1395
SIC Code	6513	Municipality	Ulster Township
SIC Description	Fin, Ins & Real Est - Apartment Building Operators	County	Bradford
Date Application Received	July 16, 2020	WQM Required	N/A
Date Application Accepted	August 5, 2020	WQM App. No.	N/A

Project Description: Renewal of an existing NPDES permit for the discharge of treated sewage.

Summary of Review

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

Approve	Deny	Signatures	Date
X		*Jonathan P. Peterman* Jonathan P. Peterman / Project Manager	January 26, 2021
X		*Nicholas W. Hartranft* Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	January 27, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.002
Latitude	41° 50’ 50.91”	Longitude	76° 30’ 33.29”
Quad Name	Ulster	Quad Code	0433
Wastewater Description:	Sewage		
Receiving Waters	Unnamed Tributary to Susquehanna River (WWF)	Stream Code	30816
NHD Com ID	66397187	RMI	0.67
Drainage Area	2.15	Yield (cfs/mi^2)	0.015
Q_{7-10} Flow (cfs)	0.032	Q_{7-10} Basis	Streamgage No. 01532000
Elevation (ft)	800	Slope (ft/ft)	n/a
Watershed No.	4-B	Chapter 93 Class.	WWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	n/a		
Source(s) of Impairment	n/a		
TMDL Status	n/a	Name	n/a
Nearest Downstream Public Water Supply Intake	Danville Municipal Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1,120
PWS RMI	280.53	Distance from Outfall (mi)	143.14

Changes Since Last Permit Issuance: None.
Other Comments: None.

Treatment Facility Summary

Treatment Facility Name: Wagon Wheel Apartments

Waste Type	Degree of Treatment	Process Type	Disinfection	Design Flow (MGD)
Sewage	Tertiary	Extended Aeration With Solids Removal	Hypochlorite	0.002
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.003	---	Not Overloaded	--	Other WWTP

Treatment System Components:
The existing treatment process consists of the following:

- One (1) Cromaglass Model CA-1500-5 treatment Unit
- One (1) Dosing tank
- Two (2) Free access sand filters
- One (1) Tablet erosion chlorinator
- One (1) Chlorine contact tank
- One (1) Outfall 001

Changes Since Last Permit Issuance: None.

TMDL Impairment

The Department's Geographic Information System (GIS) shows that the Unnamed Tributary to Susquehanna River is not impaired and a TMDL does not exist for the stream segment. No TMDL has been taken into consideration during this review.

Chesapeake Bay Requirements

Facilities that are designed based on a flow of less than 2,000 GPD (1,000 GPD design flow for this facility) are not a part of Pennsylvania's Chesapeake Bay Tributary Strategy. Accordingly, it is not practicable to require the permittee to perform nutrient monitoring.

Anti-Backsliding

In accordance with 40 CFR 122.44(l)(1) and (2), this permit does not contain effluent limitations, standards, or conditions that are less stringent than the previous permit.

Existing Effluent Limitations and Monitoring Requirements

Existing Limits – Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Average Weekly	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	Weir
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/week	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.2	1/week	Grab
CBOD5	XXX	XXX	XXX	10	XXX	20	1/month	Grab
Total Suspended Solids	XXX	XXX	XXX	10	XXX	20	1/month	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/month	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/month	Grab
Ammonia-Nitrogen Jun 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	1/month	Grab
Ammonia-Nitrogen Nov 1 - May 31	XXX	XXX	XXX	9.0	XXX	18	1/month	Grab

*The proposed effluent limits for Outfall 001 were based on a design flow of 0.002 MGD.

Development of Effluent Limitations and Monitoring Frequencies

Outfall No. 001 **Design Flow (MGD)** 0.002
Latitude 41° 50' 50.91" **Longitude** 76° 30' 33.29"
Wastewater Description: Sewage

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
BOD_5	10	Average Monthly	125.3(a)(2)(i)	DEP SFTF Design Manual (Document 362-0300-002)
	20	IMAX		
Total Suspended Solids	10	Average Monthly	125.3(a)(2)(i)	DEP SFTF Design Manual (Document 362-0300-002)
	20	IMAX		
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
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)

Water Quality-Based Limitations

The Department utilizes the WQM 7.0 v1.0b and PENTOXSD v2.0d models to establish water quality-based effluent limitations. This modeling is typically not utilized for facilities that discharge less than 2,000 gpd. However, previously, the WQM 7.0 v1.0b model was used to establish Ammonia-Nitrogen limits.

WQM 7.0 for Windows, Version 1.0b, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen
The previous model was run using the latest information on Q7-10 stream flow, background water quality, average annual design flow, and other discharge characteristics. The existing technology-based effluent limit for $CBOD_5$ (10 mg/l) and the existing water quality-based effluent limit for NH3-N (3 mg/l) were used as inputs for the modeling. The DO minimum daily average criterion from §93.7 (5.0 mg/L for WWF) was used for the in-stream objective for the model. The summary of the output is as follows:

Parameter	Effluent Limit		
	30 Day Average	Maximum	Minimum
CBOD5	10	N/A	N/A
Ammonia-N	3	6	N/A
Dissolved Oxygen	N/A	N/A	3

The previous model did not recommend more stringent water-quality based effluent limitations with regards to CBOD5, ammonia-nitrogen, and dissolved oxygen. Refer to the Appendix for the WQM 7.0 inputs and results.

Comments: None.

Best Professional Judgement (BPJ) Limitations

None.
Comments: None.

Additional Considerations
None

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 the abovementioned 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) and/or BPJ.

Proposed Limits - Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date

Proposed Limits – Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Instant. Minimum	Average Monthly	Average Weekly	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	Weir
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/week	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.2	1/week	Grab
CBOD5	XXX	XXX	XXX	10	XXX	20	1/month	Grab
Total Suspended Solids	XXX	XXX	XXX	10	XXX	20	1/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/month	Grab
Ammonia-Nitrogen Jun 1 - Oct 31	XXX	XXX	XXX	3.0	XXX	6.0	1/month	Grab
Ammonia-Nitrogen Nov 1 - May 31	XXX	XXX	XXX	9.0	XXX	18	1/month	Grab

*The proposed effluent limits for Outfall 001 were based on a design flow of 0.002 MGD.

General Information
All effluent limits were then rounded down in accordance with the rounding rules established in the *Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001)*, Chapter 5 - Specifying Effluent Limitations in NPDES Permits. The existing monitoring frequencies and sample types for these parameters generally correspond with the *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001) Table 6-3 or the (SOP) New and Reissuance Small Flow Treatment Facility Individual NPDES Permit Applications and will remain.

Flow
There are no proposed changes for flow monitoring which is required by §92a.61(d)(1).

Five-Day Biochemical Oxygen Demand (BOD_5)
The limits for BOD_5 are existing technology-based effluent limits. Facilities that have been designed and built utilizing the technologies established in the *Small Flow Treatment Facilities Design Manual* (Document 362-0300-002) have been proven to continuously produce effluent with less than 10 mg/l (BOD_5) and is considered best practicable control technology currently available (BPT). The existing limits will remain.

Total Suspended Solids (TSS)
The limits for TSS are existing technology-based effluent limits. Facilities that have been designed and built utilizing the technologies established in the *Small Flow Treatment Facilities Design Manual* (Document 362-0300-002) have been proven to continuously produce effluent with less than 10 mg/l (TSS) and is considered best practicable control technology currently available (BPT). The existing limits will remain.

Fecal Coliforms
The existing fecal coliform limits correspond with what is specified in the updated 25 PA Code § 92a.47 (a)(4)&(5). No changes are proposed.

Ammonia-Nitrogen (NH3-N)
The results of the previous WQM 7.0 model show that the water quality-based limits for Ammonia-Nitrogen are protective of water quality and will remain. The Implementation Guidance also states that the winter seasonal limits shall be 3.0 times the summer limits. The existing limits will remain.

Total Residual Chlorine (TRC)
A TRC model evaluation was conducted by using the technology-based effluent limitation as input. In accordance with 25 Pa. Code 92a.48(b)(2), a BAT value of 0.5 mg/l was used. The attached TRC model indicates that the technology based effluent limit of 0.5 mg/L (Average Monthly) and 1.2 mg/L (Instantaneous Maximum) are protective of water quality and will remain.

Other Comments: None.

Compliance History

WMS Query Summary - A WMS Query was run at *Reports - Violations & Enforcements – Open Violations for Client Report* to determine whether there are any unresolved violations associated with the client that will affect issuance of the permit (per CSL Section 609). This query revealed no unresolved violations.

File Review / DMR's – The last facility inspection was conducted by the Department on 10/22/19. No issues are noted in this report. DMR's are on file.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☐	PENTOXSD for Windows Model (see Attachment)
☒	TRC Model Spreadsheet (see Attachment **C**)
☐	Temperature Model Spreadsheet (see Attachment)
☐	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: New and Reissuance Small Flow Treatment Facility Individual NPDES Permit Applications
☒	Other: Small Flow Treatment Facilities Manual (362-0300-002)

APPENDIX A

Q_{7-10} ANALYSIS AND STREAM DATA

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01508803	West Branch Tioughnioga River at Homer, N.Y.	42.638	-76.176	71.5	N
01509000	Tioughnioga River at Cortland, N.Y.	42.603	-76.159	292	N
01510000	Otselic River at Cincinnatus, N.Y.	42.541	-75.900	147	N
01512500	Chenango River near Chenango Forks, N.Y.	42.218	-75.848	1,483	N
01515000	Susquehanna River near Waverly, N.Y.	41.985	-76.501	4,773	N
01516350	Tioga River near Mansfield, Pa.	41.797	-77.080	153	N
01516500	Corey Creek near Mainesburg, Pa.	41.791	-77.015	12.2	N
01518000	Tioga River at Tioga, Pa.	41.908	-77.129	282	Y
01518700	Tioga River at Tioga Junction, Pa.	41.953	-77.115	446	Y
01518862	Cowanesque River at Westfield, Pa.	41.923	-77.532	90.6	N
01520000	Cowanesque River near Lawrenceville, Pa.	41.997	-77.140	298	Y
01520500	Tioga River at Lindley, N.Y.	42.029	-77.132	771	Y
01521500	Canisteo River at Arkport, N.Y.	42.396	-77.711	30.6	Y
01523500	Canacadea Creek near Hornell, N.Y.	42.335	-77.683	57.9	Y
01524500	Canisteo River below Canacadea Creek at Hornell, N.Y.	42.314	-77.651	158	Y
01526500	Tioga River near Erwins, N.Y.	42.121	-77.129	1,377	Y
01527000	Cohocton River at Cohocton, N.Y.	42.500	-77.500	52.2	N
01527500	Cohocton River at Avoca, N.Y.	42.398	-77.417	152	N
01528000	Fivemile Creek near Kanona, N.Y.	42.388	-77.358	66.8	N
01529000	Mud Creek near Savona, N.Y.	42.308	-77.197	76.6	Y
01529500	Cohocton River near Campbell, N.Y.	42.253	-77.217	470	N
01529950	Chemung River at Corning, N.Y.	42.146	-77.057	2,006	Y
01530332	Chemung River at Elmira, N.Y.	42.086	-76.801	2,162	Y
01530500	Newtown Creek at Elmira, N.Y.	42.105	-76.798	77.5	Y
01531000	Chemung River at Chemung, N.Y.	42.002	-76.635	2,506	Y
01531500	Susquehanna River at Towanda, Pa.	41.765	-76.441	7,797	Y
01532000	Towanda Creek near Monroeton, Pa.	41.707	-76.485	215	N
01532850	MB Wyalusing Creek near Birchardville, Pa.	41.863	-76.007	5.67	N
01533400	Susquehanna River at Meshoppen, Pa.	41.607	-76.050	8,720	Y
01533500	North Branch Mehoopany Creek near Lovelton, Pa.	41.531	-76.156	35.2	N
01533950	SB Tunkhannock Creek near Montdale, Pa.	41.575	-75.642	12.6	N
01534000	Tunkhannock Creek near Tunkhannock, Pa.	41.558	-75.895	383	N
01534300	Lackawanna River near Forest City, Pa.	41.680	-75.472	38.8	Y
01534500	Lackawanna River at Archbald, Pa.	41.505	-75.542	108	Y
01536000	Lackawanna River at Old Forge, Pa.	41.359	-75.744	332	Y
01536500	Susquehanna River at Wilkes-Barre, Pa.	41.251	-75.881	9,960	Y
01537000	Toby Creek at Luzerne, Pa.	41.281	-75.896	32.4	Y
01537500	Solomon Creek at Wilkes-Barre, Pa.	41.228	-75.904	15.7	N
01538000	Wapwallopen Creek near Wapwallopen, Pa.	41.059	-76.094	43.8	N
01539000	Fishing Creek near Bloomsburg, Pa.	41.078	-76.431	274	N
01539500	Little Fishing Creek at Eyers Grove, Pa.	41.080	-76.511	56.5	N
01540200	Trexler Run near Ringtown, Pa.	40.853	-76.280	1.77	N
01540500	Susquehanna River at Danville, Pa.	40.958	-76.619	11,220	Y
01541000	West Branch Susquehanna River at Bower, Pa.	40.897	-78.677	315	N
01541200	West Branch Susquehanna River near Curwensville, Pa.	40.961	-78.519	367	Y

Low-Flow (Q_{7-10}) Calculation

Facility: **John Watkins - Wagon Wheel Apt. WWTP**
NPDES Permit No. **PA0112585**

Gage Information		Outfall Information	
Drainage Area:	**215** mi^2	Drainage Area:	**2.15** mi^2
Q_{7-10}:	**3.22** cfs	Q_{7-10}:	**0.032** cfs
LFY:	**0.015** cfsm		

Downstream Locations

RMI:	**0**	RMI:	
Drainage Area:	**2.25** mi^2	Drainage Area:	mi^2
Q_{7-10}:	**0.034** cfs	Q_{7-10}:	cfs
RMI:		RMI:	
Drainage Area:	mi^2	Drainage Area:	mi^2
Q_{7-10}:	cfs	Q_{7-10}:	cfs
RMI:		RMI:	
Drainage Area:	mi^2	Drainage Area:	mi^2
Q_{7-10}:	cfs	Q_{7-10}:	cfs
RMI:		RMI:	
Drainage Area:	mi^2	Drainage Area:	mi^2
Q_{7-10}:	cfs	Q_{7-10}:	cfs

APPENDIX B

WQM 7.0 MODEL INPUT/OUTPUT

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
04B	30816	"TOAD HOLLOW"	**0.670**	800.00	2.15	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	0.015	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
WatkinsWWTP	PA0112585	0.0020	0.0020	0.0020	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	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

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
04B	30816	"TOAD HOLLOW"	**0.000**	740.00	2.25	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	0.015	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	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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
04B	30816	"TOAD HOLLOW"

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.670	0.03	0.00	0.03	.0031	0.01696	.298	3.92	13.17	0.03	1.355	25.00	7.00
Q1-10 Flow												
0.670	0.04	0.00	0.04	.0031	0.01696	NA	NA	NA	0.03	1.202	25.00	7.00
Q30-10 Flow												
0.670	0.05	0.00	0.05	.0031	0.01696	NA	NA	NA	0.04	1.064	25.00	7.00

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	1.26	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.59	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
04B	30816	"TOAD HOLLOW"

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.670	WatkinsWWTP	6.76	6	6.76	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
0.670	WatkinsWWTP	1.34	3	1.34	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)		
0.67	WatkinsWWTP	10	10	3	3	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
04B	30816	"TOAD HOLLOW"

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.670	0.002	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
3.925	0.298	13.173	0.030
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.70	0.176	0.26	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.784	22.011	Owens	5

Reach Travel Time (days)
1.355

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.135	2.62	0.23	7.54
0.271	2.54	0.20	7.54
0.406	2.47	0.17	7.54
0.542	2.39	0.15	7.54
0.677	2.32	0.13	7.54
0.813	2.26	0.11	7.54
0.948	2.19	0.10	7.54
1.084	2.12	0.09	7.54
1.219	2.06	0.07	7.54
1.355	2.00	0.07	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
04B	30816	"TOAD HOLLOW"

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.670	WatkinsWWTP	PA0112585	0.002	CBOD5	10		
				NH3-N	3	6	
				Dissolved Oxygen			3

APPENDIX C

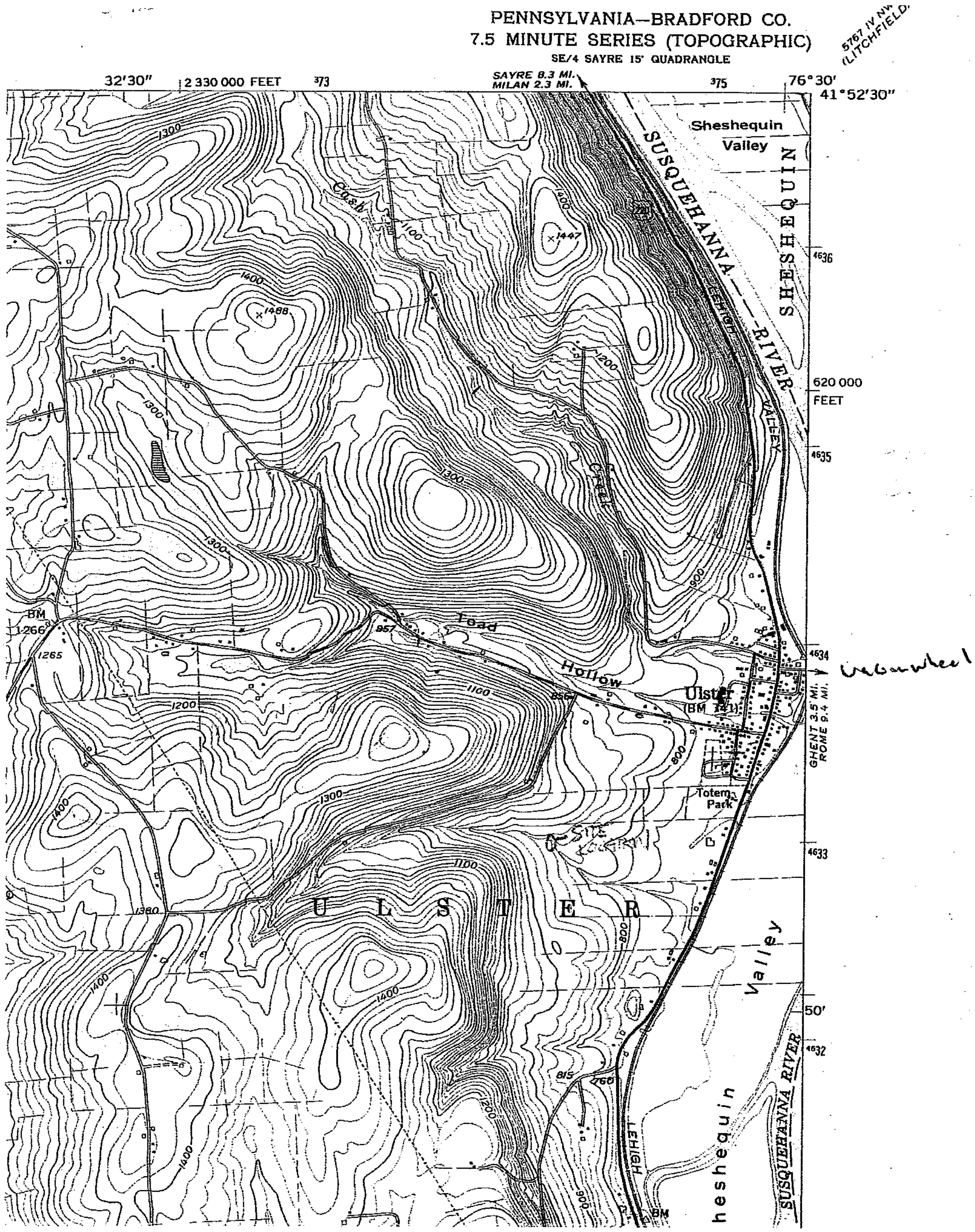
TRC ANALYSIS SPREADSHEET

	B	C	D	E	F	G
1A						
2	**TRC EVALUATION**	Wagon Wheel Appartments PA0112585				
3	Input appropriate values in B4:B8 and E4:E7					
4	0.032	= Q stream (cfs)		0.5	= CV Daily	
5	0.002	= 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 = 3.318		1.3.2.iii	WLA cfc = 3.228
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 1.236		5.1d	LTA_cfc = 1.876
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) = 0.500		BAT/BPJ	
18			INST MAX LIMIT (mg/l) = 1.635			

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

APPENDIX D

FACILITY MAP


PENNSYLVANIA—BRADFORD CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SE/4 SAYRE 15' QUADRANGLE
5767 IV NW (LITCHFIELD)
32'30"
2 330 000 FEET
SAYRE 8.3 MI.
MILAN 2.3 MI.
76°30'
41°52'30"
Sheshequin Valley
SUSQUEHANNA RIVER
SHESHEQUIN
VALLEY
620 000 FEET
Ulster
Toad Hollow
Totem Park
U L S T E R
Valley
Sheshequin
SUSQUEHANNA RIVER
LEHIGH
GHENT 3.5 MI.
ROME 9.4 MI.
50'
Wagonwheel