pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0209201**
Facility Type	**Non-Municipal**	APS ID	**1038524**
Major / Minor	**Minor**	Authorization ID	**1354193**

Applicant and Facility Information

Applicant Name	**DMP Northern Tier LP**	Facility Name	**Terrace Hills MHP**
Applicant Address	1952 Waddle Road	Facility Address	Terrace Hills MHP
	State College, PA 16803-1649		Camptown, PA 18853
Applicant Contact	Carl Bankert (cvb@goh-ic.com)	Facility Contact	Carl Bankert
Applicant Phone	(814) 574-8028	Facility Phone	(814) 574-8028
Client ID	284262	Site ID	237181
Ch 94 Load Status	Not Overloaded	Municipality	Wyalusing Township
Connection Status	No Limitations	County	Bradford
Date Application Received	May 13, 2021	EPA Waived?	Yes
Date Application Accepted	May 26, 2021	If No, Reason	

Purpose of Application: Application for the renewal of the existing individual NPDES permit.

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	October 18, 2021
X		*Nicholas W. Hartranft* Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	October 18, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.01
Latitude	41º 43' 44.58"	Longitude	-76º 14' 8.26"
Quad Name	Laceyville	Quad Code	0536
Wastewater Description:	Sewage Effluent		

Receiving Waters	Wyalusing Creek (WWF)	Stream Code	29594
NHD Com ID	66400611	RMI	6.42
Drainage Area	202	Yield (cfs/mi^2)	0.076
Q_{7-10} Flow (cfs)	15.53	Q_{7-10} Basis	Gage No. 01533400
Elevation (ft)	754	Slope (ft/ft)	
Watershed No.	4-D	Chapter 93 Class.	WWF
Existing Use	WWF	Existing Use Qualifier	N/A
Exceptions to Use	None.	Exceptions to Criteria	None.
Assessment Status	Impaired.		
Cause(s) of Impairment	Mercury.		
Source(s) of Impairment	Unknown.		
TMDL Status	N/A	Name	N/A

Nearest Downstream Public Water Supply Intake	Danville Municipal Water Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1120
PWS RMI	138.06	Distance from Outfall (mi)	120

Changes Since Last Permit Issuance: The previously determined stream drainage area was verified using Stream Stats. A comparative stream analysis was previously conducted using a gage (01533400) on the Susquehanna River. A stream gage existed on Wyalusing Creek itself but was located upstream of the discharge and has not been utilized since 1979. The Q_{7-10} calculations, which are attached in Appendix A, indicate that the Q_{7-10} is 15.53 cfs.

Other Comments: None.

Treatment Facility Summary

Treatment Facility Name: Terrace Hills Mobile Home Park

WQM Permit No.	Issuance Date	Comments
0895404	10/3/1995	Construction of package treatment plant.
0895404-T1	11/24/2008	Transfer of ownership.
0895404-T2	4/15/2011	Transfer of ownership to current owner.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite	0.01
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.01	--	Not Overloaded	None	Landfill

Treatment System Components for Outfall 001:
- One (1) Influent bar screen.
- One (1) 10,000 GPD Sequencing Batch Reactor (SBR).
- One (1) Chlorinator (Liquid-formed sodium hypochlorite injection).
- One (1) 900 Gallon chlorine contact tank.
- One (1) Outfall 001.

- One (1) 2,000 Gallon aerobic digester.
- One (1) Sludge drying Beds.

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

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.

TMDL Impairment

The Department's Geographic Information System (GIS) shows that Wyalusing Creek is impaired but a TMDL does not currently exist for the stream. Wyalusing Creek is impaired for mercury and it was listed in 2006 and estimated TMDL completion date is 2019. The source of the impairment is listed as unknown. Given the regulations contained in 40 CFR §122.44(d)(1)(ii)&(iii), it can be determined that the type of effluent from this facility has no "Reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant." Therefore, the permit will not be required to contain effluent limits or monitoring for mercury.

Chesapeake Bay Requirements

Since this facility's hydraulic design capacity is 0.01 MGD, the permittee will be required to monitor and report TN and TP throughout the permit term at a frequency no less than annually in accordance with the Phase II WIP Chesapeake Bay Strategy for Phase V facilities (0.002 MGD to 0.2 MGD). Since this facility has not conducted this testing, the effluent limits will still contain the yearly monitoring requirements for nutrients. Given that this facility has been out of operation the permittee will still be required to indicate that there was no discharge on the DMRs.

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	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	1.0	XXX	2.3	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25.0	XXX	50	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30.0	XXX	60	2/month	Grab
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
Total Nitrogen	Report Annl Avg	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
Total Phosphorus	Report Annl Avg	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Grab

*The existing effluent limits for Outfall 001 were based on a design flow of 0.01 MGD.
**The facility is not in use and has not discharged since 2007.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.01
Latitude 41º 43' 52.77" **Longitude** -76º 14' 3.65"
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)

Water Quality-Based Limitations

To establish whether or not water-quality based effluent limitations (WQBELs) are required, the Department models in-stream conditions. In order to determine limitations for CBOD5, ammonia-N and dissolved oxygen, the Department utilizes the WQM 7.0 v1.0b model and in order to determine limitations for toxics, the Department utilizes the Toxics Management Spreadsheet. The Toxics Management Spreadsheet was not utilized in this review.

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. There have been no changes to the watershed or discharge characteristics, therefore the previous modeling is still valid. The existing technology-based effluent limits for $CBOD_5$ (25 mg/l) and for NH3-N (25 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	25	N/A	N/A
Ammonia-N	25	50	N/A
Dissolved Oxygen	N/A	N/A	3

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

Best Professional Judgment (BPJ) Limitations

See the Dissolved Oxygen section below.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report	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)	XXX	XXX	XXX	25.0	XXX	50	2/month	Grab
Total Suspended Solids	XXX	XXX	XXX	30.0	XXX	60	2/month	Grab
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
Total Nitrogen	Report Annl Avg	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
Total Phosphorus	Report Annl Avg	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
E. Coli	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Grab

*The proposed effluent limits for Outfall 001 were based on a design flow of 0.01 MGD.

Effluent Limit Determination for Outfall 001

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 and will remain.

Flow
Reporting of the average monthly flow is consistent with monitoring requirements for other treatment plants and will remain.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)
The results of the WQM 7.0 model show that the previously applied secondary treatment standards (25 PA Code §92a.47 (a) (1&2)) for $CBOD_5$ are protective of water quality.

Total Suspended Solids (TSS)
The previously applied technology based secondary treatment standards (25 PA Code §92a.47 (a) (1&2)) for TSS will remain as well.

pH
CFR Title 40 §133.102(c) and 25 PA Code §95.2(1) provide the basis of effluent limitations for pH.

Total Residual Chlorine (TRC)
In accordance with 25 Pa. Code 92a.48(b)(2), a best available technology (BAT) value of 0.5 mg/l was used in lieu of the existing effluent limit (1.0 mg/L) in the TRC Spreadsheet. The attached TRC model indicates that the technology based effluent limits of 0.5 mg/L (Average Monthly) and 1.6 mg/L (Instantaneous Maximum) are protective of water quality. The facility currently utilizes Liquid-formed sodium hypochlorite injection as a disinfection method. It has been proven that this method, if operated properly and maintained, can effectively and consistently meet these effluent requirements.

As stated above, 25 PA Code § 92a.48(b)(2) provides a BAT limit of 0.5 mg/L unless a site-specific study has been conducted. Given that a site-specific TRC study has not been provided for this facility, the BAT limit will be established. Given the technology used and the fact that the facility is not discharging, a 2-year compliance will not be required to comply with the decreased limits.

Fecal Coliforms
The existing fecal coliform limits with I-max limits were previously updated to correspond with what is specified in the updated 25 PA Code § 92a.47 (a)(4)&(5).

Ammonia-Nitrogen (NH3-N)
The results of the WQM 7.0 model show that the technology based effluent limits for ammonia-nitrogen are protective of water quality. Therefore, the permittee will only be required to monitor for ammonia-nitrogen

Dissolved Oxygen (DO)
25 PA Code §93.7 provides specific water quality criteria for DO and monitoring for this parameter will ensure that the facility is not creating or contributing to an in-stream excursion below these water quality standards. Additionally, the *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001) lists DO under the self-monitoring requirements for sewage discharges and monitoring of DO is consistent with other discharges of this size and type.

E. Coli
25 PA Code § 92a.61 provide the basis of monitoring requirements for E. Coli. Yearly monitoring will be required going forward.

Compliance History

Summary of Inspections - The most recent Clean Water Program inspection for this facility wasa Compliance Evaluation Inspection on 2/22/21. The inspection noted that there is no anticipated opening of the facility and that the permittee will notify the Department upon startup.
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 that there were no unresolved violations.
DMRs Summary -Upon review of the DMR's, it is to be noted that the facility has not discharged over the last permit term (last discharge was recorded in 2007).

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

APPENDIX A

Q7-10 DATA

Stream Flow (Q_{7-10}) Calculation

Following process has been applied to calculate the stream flow

a. Four (4) different locations of the stream will be marked to be evaluated (See attached page):
Point 001- Location of the Outfall 001-RMI: 6.42, Drainage Area (DA): 201.543 mi^2
Point 002- Between point 001 and point 003
(where other streams intersect)-RMI: 3.49, DA: 212.08 mi^2
Point 003- Between point 002 and point 004
(where other streams intersect)-RMI: 1.58, DA: 218.475 mi^2
Point 004- Just before the entrance of the main river-RMI: 0.00, DA: 220.274 mi^2

b. Achieve Drainage Area for each point and define stream gage and low-flow Statistics for the stream (See attached page)
-In this case, Susquehanna River will be chosen to be the stream gage. Station name is Susquehanna River at Meshoppen, PA

c. Calculate Stream Flows (Q_{7-10}) by using the following equation:

(Drainage Area of the location / Drainage Area of the stream gage) * gage statistic

Where,
Drainage Area of the stream gage = 8720 mi^2
Gage statistic = 672 cfs (for Q_{7-10})

-Point 001,

(DAsite / DAgage) * gage static = (201.543 mi^2/8720 mi^2) * 672 cfs = 15.53 cfs

-Point 002,

(DAsite / DAgage) * gage static = (212.08 mi^2/8720 mi^2) * 672 cfs = 16.34 cfs

-Point 003,

(DAsite / DAgage) * gage static = (218.475 mi^2/8720 mi^2) * 672 cfs = 16.84 cfs

-Point 004

(DAsite / DAgage) * gage static = (220.274 mi^2/8720 mi^2) * 672 cfs = 16.98 cfs

Therefore, stream flow (Q_{7-10}) for this permit will be **15.53 cfs**

Low-Flow Statistics for Pennsylvania Streams

USGS science for a changing world

Low-Flow Statistics for Pennsylvania Streams

Developed by the U.S. Geological Survey for the Pennsylvania Department of Environmental Protection

Pennsylvania Low-Flow Statistics - Query Results

LOW-FLOW STATISTICS

[All flow statistics in cubic feet per second (ft^3/s)]

Mouse over or click on table headings to view definition of statistic

STREAM NAME: Susquehanna River **GAGE OR BRIDGE SITE:** gage **REFERENCE GAGE:**[1] 01533400	**COUNTY:** Wyoming **USGS QUAD:** Meshoppen **STATION NAME:** Susquehanna River at Meshoppen, PA	**LATITUDE:** 413626 **LONGITUDE:** 760302 **DRAINAGE AREA (sq. mi.):** 8720

Entire Period of Record [2]	$Q_{1,10}$	$Q_{7,10}$	$Q_{30,10}$	MEAN	MEDIAN	HARMONIC MEAN
1980-96	624	672	843	11040	7580	3670

FLOW DURATION TABLE (Probability of Exceedance)										
P5	P10	P20	P30	P40	P50	P60	P70	P80	P90	P95
46190	30110	18600	13350	10120	7580	5830	4370	2960	1760	1330

[1] Reference Gage indicates which USGS gage was used in the computation of lowflow statistics for the specified locations
[2] Period of Record for climatic year, April 1 through March 31
[3] Period of record refers to pre-regulation conditions
[4] Period of record refers to post-regulation conditions
** Statistic not computed due to insufficient data

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APPENDIX B

WQM 7.0 MODEL RESULTS

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
04D	29594	WYALUSING CREEK	**6.420**	754.00	201.54	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	0.100	0.00	15.53	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
TerraceHill MHP	PA0209201	0.0100	0.0100	0.0100	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

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
04D	29594	WYALUSING CREEK	3.490	737.00	212.08	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	0.100	0.00	16.34	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

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
04D	29594	WYALUSING CREEK	1.580	696.00	218.48	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	0.100	0.00	16.84	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

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
04D	29594	WYALUSING CREEK	0.000	679.00	220.27	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	0.100	0.00	16.98	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
04D	29594	WYALUSING 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												
6.420	15.53	0.00	15.53	.0155	0.00110	.863	67.21	77.88	0.27	0.668	25.00	7.00
3.490	16.34	0.00	16.34	.0155	0.00407	.85	63.34	74.56	0.30	0.384	25.00	7.00
1.580	16.84	0.00	16.84	.0155	0.00204	.86	67.57	78.55	0.29	0.333	25.00	7.00
Q1-10 Flow												
6.420	12.11	0.00	12.11	.0155	0.00110	NA	NA	NA	0.23	0.768	25.00	7.00
3.490	12.75	0.00	12.75	.0155	0.00407	NA	NA	NA	0.26	0.441	25.00	7.00
1.580	13.14	0.00	13.14	.0155	0.00204	NA	NA	NA	0.25	0.383	25.00	7.00
Q30-10 Flow												
6.420	18.17	0.00	18.17	.0155	0.00110	NA	NA	NA	0.29	0.612	25.00	7.00
3.490	19.12	0.00	19.12	.0155	0.00407	NA	NA	NA	0.33	0.352	25.00	7.00
1.580	19.70	0.00	19.70	.0155	0.00204	NA	NA	NA	0.32	0.305	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	0.78	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.17	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
04D	29594	WYALUSING 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
6.420	TerraceHill MHP	6.76	50	6.76	50	0	0
3.490		NA	NA	6.76	NA	NA	NA
1.580		NA	NA	6.76	NA	NA	NA

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
6.420	TerraceHill MHP	1.34	25	1.34	25	0	0
3.490		NA	NA	1.34	NA	NA	NA
1.580		NA	NA	1.34	NA	NA	NA

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)		
6.42	TerraceHill MHP	25	25	25	25	3	3	0	0
3.49		NA	NA	NA	NA	NA	NA	NA	NA
1.58		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
04D	29594	WYALUSING CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
6.420	0.010	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
67.212	0.863	77.880	0.268
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.02	0.011	0.02	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.238	2.263	Tsivoglou	5
Reach Travel Time (days)			
0.668			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.067	2.02	0.02	7.54
0.134	2.02	0.02	7.54
0.200	2.02	0.02	7.54
0.267	2.02	0.02	7.54
0.334	2.01	0.02	7.54
0.401	2.01	0.02	7.54
0.468	2.01	0.02	7.54
0.534	2.01	0.01	7.54
0.601	2.01	0.01	7.54
0.668	2.01	0.01	7.54

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.490	0.010	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
63.344	0.850	74.565	0.304
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.00	0.004	0.01	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.573	9.494	Tsivoglou	5
Reach Travel Time (days)			
0.384			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.038	2.00	0.01	7.54
0.077	2.00	0.01	7.54
0.115	2.00	0.01	7.54
0.154	2.00	0.01	7.54
0.192	2.00	0.01	7.54
0.230	2.00	0.01	7.54
0.269	2.00	0.01	7.54
0.307	2.00	0.01	7.54
0.346	2.00	0.01	7.54
0.384	2.00	0.01	7.54

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
04D	29594	WYALUSING CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.580	0.010	25.000	7.000
Reach Width (ft)	Reach Depth (ft)	Reach WDRatio	Reach Velocity (fps)
67.572	0.860	78.552	0.290
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
2.00	0.002	0.01	1.029
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
7.559	4.540	Tsivoglou	5
Reach Travel Time (days)			
0.333			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.033	2.00	0.01	7.54
0.067	2.00	0.01	7.54
0.100	2.00	0.01	7.54
0.133	2.00	0.01	7.54
0.166	2.00	0.01	7.54
0.200	2.00	0.01	7.54
0.233	2.00	0.01	7.54
0.266	2.00	0.01	7.54
0.300	2.00	0.01	7.54
0.333	2.00	0.01	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
04D	29594	WYALUSING 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)
6.420	TerraceHill MHP	PA0209201	0.010	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

APPENDIX B

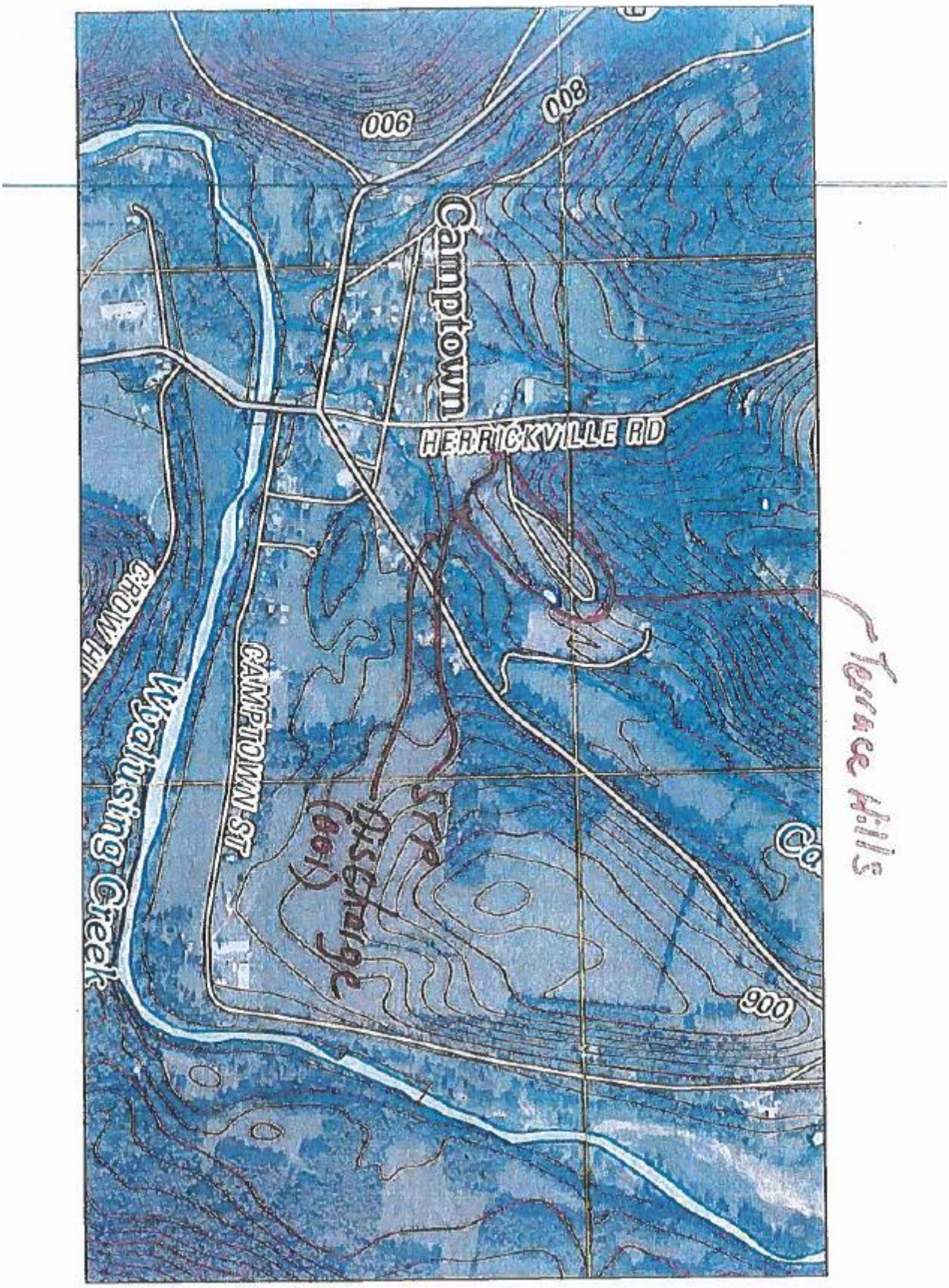
TRC ANALYSIS SPREADSHEET

1A	B	C	D	E	F	G
2	**TRC EVALUATION**			DMP - Terrace Hills MHP PA0209201		
3	Input appropriate values in B4:B8 and E4:E7					
4	15.53	= Q stream (cfs)		0.5	= CV Daily	
5	0.01	= 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 = 320.256		1.3.2.iii	WLA cfc = 312.217
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 119.335		5.1d	LTA_cfc = 181.508
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 C

FACILITY MAP AND SCHEMATIC


006
008
Camptown
HERRICKVILLE RD
CAMPTOWN ST
Wyalusing Creek
900
Terrace Hills