pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0023183**
Facility Type	**Municipal**	APS ID	**313320**
Major / Minor	**Minor**	Authorization ID	**1366505**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Mount Holly Springs Borough Authority**	Facility Name	**Mt Holly Springs STP**
Applicant Address	200 Harmon Street	Facility Address	11-13 Mill Street
	Mount Holly Springs, PA 17065-1339		Mount Holly Springs, PA 17065
Applicant Contact	Mike Gwozdecki	Facility Contact	Jim Williams
Applicant Phone	(717) 486-7601	Facility Phone	(717) 486-7460
Client ID	36054	Site ID	451938
Ch 94 Load Status	Not Overloaded	Municipality	Mount Holly Springs Borough
Connection Status	No Limitations	County	Cumberland
Date Application Received	August 20, 2021	EPA Waived?	No
Date Application Accepted	September 2, 2021	If No, Reason	Significant CB Discharge
Purpose of Application	NPDES Renewal.		

Summary of Review

Mount Holly Springs Borough Authority (Authority) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on January 27, 2017 and became effective on February 1, 2017. During the permit term, the permit was amended on September 21, 2020 to reflect a requested paper rerate from 0.6 MGD to 0.7 MGD (annual average design flow), 0.83 MGD to 0.97 MGD (hydraulic design capacity), and 1,200 lbs BOD/day to 1,660 lbs BOD/day (design organic capacity). The permit will expire on February 28, 2022.

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

Sludge use and disposal description and location(s): Sludge is processed onsite prior to being hauled off-site via a local septic hauler to a landfill (Cumberland County Landfill)

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
X		*Jinsu Kim* Jinsu Kim / Environmental Engineering Specialist	February 8, 2022
x		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	February 28, 2022
x		*Maria D. Bebenek* Maria D. Bebenek, P.E. / Program Manager	February 28, 2022

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.7
Latitude	40º 7' 22"	Longitude	-77º 11' 20"
Quad Name	Mt. Holly Springs	Quad Code	1828
Wastewater Description:	Treated Sewage		
Receiving Waters	Mountain Creek	Stream Code	63167
NHD Com ID	56408041	RMI	1.78
Drainage Area	45.9	Yield (cfs/mi^2)	0.318
Q_{7-10} Flow (cfs)	14.6	Q_{7-10} Basis	USGS gage 01571500
Elevation (ft)	540	Slope (ft/ft)	N/A
Watershed No.	7-E	Chapter 93 Class.	TSF, MF
Existing Use	None	Existing Use Qualifier	N/A
Exceptions to Use	None	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	United Water		
PWS Waters	Yellow Breeches Creek	Flow at Intake (cfs)	80.5
PWS RMI	7.42	Distance from Outfall (mi)	25

Drainage Area
A drainage area upstream of the outfall is determined to be 45.9 sq.mi., according to USGS StreamStats.

Streamflow
USGS gauging station no. 01571500 on Yellow Breeches Creek 3.1 miles above mouth also measures the hatchery flow and springs at Huntsdale resulting in a greater yield rate in the basin than actually exists. The proposed monthly hatchery discharge is 12.384 MGD during September when a monthly analysis of streamflows for Yellow Breeches Creek indicates Q7-10 flow is most likely to occur and the gage flow should be adjusted by subtracting the hatchery discharge.

Gage flow = 86.8 – 12.384*1.547 = 67.642 cfs
Q7-10 runoff rate = 67.642/ 213 = 0.318 cfs/sq.mi.
Q30-10:Q7-10 = 94/86.8 = 1.083:1
Q1-10:Q7-10 = 81.6/86.8 = 0.94:1
Q7-10 = 45.9*0.318 = 14.60 cfs @ Outfall 001

Stream Characteristics
Under 25 Pa Code §93.9o, Mountain Creek (basin, Mt. Holly Springs to Mouth) is designated as Trout Stocking and Migratory Fishes. Mountain Creek as well as Yellow Breeches Creek (main stem) are considered as both trout stocked and natural reproduction streams; however are not classified as Class A streams. No Class A Wild Trout Fishery is therefore impacted by this discharge. The discharge is located in a stream segment listed as attaining uses.

Water Quality Network (WQN) Station no. 242 located on the Mountain Creek at Pine Grove Furnace has been inactive since 1987; therefore the data from this station is most likely obsolete. Since there is no active WQN Station available in the vicinity of the discharge, default values of pH (7.0 SU for freestone (WWF & TSF)), hardness (100 mg/L), and temperature (20°C for winter & 25°C for summer) have been used in water quality analysis.

Water Supply Intake
The nearest downstream public water supply intake is United Water Company located on the Yellow Breeches Creek approximately 25 miles from the discharge. Based on the dilution and nature of discharge, the discharge is not expected to impact the water supply intake.

Treatment Facility Summary

Treatment Facility Name: Mt Holly Springs STP

WQM Permit No.	Issuance Date
2177403 11-1	March 12, 2012
2177403 A-3	September 21, 2020

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Oxidation Ditch With Solids Removal	Ultraviolet	0.7

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.97	1660	Not Overloaded	Aerobic Digestion	Land Application

Comments

The facility located at 11-13 Mill Street, Mount Holly Springs, PA 17065 currently serves the Borough of Mount Holly Springs (66.7%) and South Middleton Township (33.3%) areas. All sewer systems are 100% separated. The facility has an annual average design flow of 0.7 MGD, hydraulic design capacity of 0.97 MGD and organic design capacity of 1,660 lbs BOD/day. Under 25 Pa Code §92a.26, the facility is categorized as a minor facility discharging less than 1 MGD but greater than 0.05 MGD of treated sewage. The Water Quality Management (WQM) permit no. 2177403 was amended in 2012 to reflect the Biological Nutrient Removal (BNR) upgrade proposed to comply with PA's Chesapeake Bay Tributary Strategy. The construction completion certification form was submitted on July 3, 2014 indicating that the construction was completed on December 31, 2013. The WQM permit was then amended in 2020 for the design capacity rerate. The current treatment process, according to the application, is as follows:

Screening → Oxidation Ditch (2) → Clarifiers (2) → UV Disinfection → Outfall 001 to Mountain Creek

Aluminum Chloride Hydroxide Sulfate (DelPac2000) is added for phosphorous removal at 6.24 GPD. Aerobic digesters (2) and centrifuge are available for solids process. Sludge generated from this facility is land applied.

The facility is not required to implement an EPA-approved pretreatment program. The application shows total of 20,200 GPD (0.0202 MGD) of wastewaters contributed by industrial/commercial users to the existing sewer system. Based on the information provided in the renewal application, the following industrial users potentially contribute industrial wastewaters to the sewer system out of all users:

Business Name	Type of Business	Estimated Average Flow, in gallons
Bretzman's Garage	Automotive Service	50
Mountain Springs Car Wash	Car Wash	1,000
Vetron International	Manufacturer of Quartz Crystal devices (oscillators & filters)	3,900
	Total	4,950

Based on the definition of significant industrial user found in 40 CFR §403.3(v)(1), none of these users is considered a significant industrial user (5% of the existing hydraulic capacity is 48,500 GPD). Also, there has not been any previous documentation indicating that wastewater from any of industrial/commercial users causes any issues on the facility operation. Accordingly, the Authority will still not be required to develop a pretreatment program for the next permit term. Since the boilerplate language found in Part B of the NPDES permit specifically addresses statewide general pretreatment requirements, no additional condition is needed for this permit renewal.

A full list of current industrial/commercial users is attached to this Fact Sheet.

Compliance History

Summary of DMRs: A summary of past 12-month DMR data is presented on the next page.

Summary of Inspections:

01/04/2022: Brandon Bettinger, DEP Water Quality Specialist, conducted a routine inspection and noted that the outfall was clear. No violation was identified at the time of inspection.

02/22/2021: Brandon Bettinger conducted an administrative inspection in response to a sanitary sewer overflow occurred on 2/9/2021. A minor SSO of < 5 gallons originated from a manhole cover at the intersection of Rt. 34 and West Pine Street.

12/21/2020: Mike Benham, former DEP Water Quality Specialist, conducted an administrative inspection of the Chesapeake Bay nutrient monitoring. A number of errors were observed during the inspection.

09/22/2020: Mike Benham conducted an administrative inspection. No issues were noted at the time of inspection.

01/14/2020: Mike Benham conducted a routine inspection. No violation was noted at the time of inspection.

Other Comments: A number of permit violations identified during the permit term. See below for more details:

Violation Entered Date	Description		
11/16/2021	Other	Other Violations	
7/26/2021	Effluent Violation	Ammonia-Nitrogen	< 2.9 v. 2.5 mg/L Avg. Mon
7/21/2020	Effluent Violation	Fecal Coliform	< 272.0 v. 200 No. / 100 mL Geo Mean
7/21/2020	Effluent Violation	Fecal Coliform	4900.0 v. 1000 no. / 100 mL IMAX
5/30/2019	Late DMR Submission		
12/18/2017	Effluent Violation	Total Suspended Solids	31.6 v. 30 mg/L Avg. Mon
12/18/2017	Effluent Violation	Total Suspended Solids	65.0 v. 45 mg/L Wkly Avg.

DEP's database revealed that there is no open violation associated with this permittee or facility.

Effluent Data

DMR Data for Outfall 001 (from January 1, 2021 to December 31, 2021)

Parameter	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21
Flow (MGD) Average Monthly	0.2821	0.3699	0.3615	0.6042	0.2798	0.2898	0.2623	0.3322	0.4404	0.4391	0.3636	0.3459
Flow (MGD) Daily Maximum	0.3948	0.7621	0.7886	2.1698	0.5620	0.5725	0.3582	0.4692	0.8232	0.9736	0.9825	0.5116
pH (S.U.) Instantaneous Minimum	6.33	8.79	6.9	7.0	7.1	7.0	7.6	6.8	6.5	6.8	6.9	6.7
pH (S.U.) Instantaneous Maximum	8.47	8.79	8.3	7.8	7.7	7.9	6.9	8.7	8.3	7.5	7.8	7.6
DO (mg/L) Daily Minimum	6.63	6.6	5.8	5.5	5.4	5.3	5.0	5.6	6.1	6.2	5.8	6.3
CBOD5 (lbs/day) Average Monthly	< 7.0	< 7.0	< 7.6	< 12.1	< 6.2	< 5.5	< 6.4	< 7.0	< 9.3	< 9.4	< 7.1	< 8.7
CBOD5 (lbs/day) Weekly Average	< 8.0	< 8.0	10.1	< 2.4	< 2.4	< 2.4	10.4	< 2.4	< 2.4	< 2.4	< 3.0	< 12.5
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.0	< 2.7	< 2.4	< 2.4	< 2.4	< 2.9	< 2.4	< 2.4	< 2.4	< 2.7	< 3.0
CBOD5 (mg/L) Weekly Average	3.0	< 2.0	3.5	< 2.4	< 2.4	< 2.4	5.0	< 2.4	< 2.4	< 2.4	< 3.0	3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	165	118	300.0	871.0	523.0	295.0	396.0	500.0	391.0	508.0	428.0	534.0
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	186	162	390.0	2619.0	961.0	333.0	528.0	593.0	434.0	551.0	488.0	893.0
BOD5 (mg/L) Raw Sewage Influent Average Monthly	119	90	111.0	119.0	174.0	140.0	168.0	183.0	118.0	142.0	162.0	194.0
TSS (lbs/day) Average Monthly	9.0	8.0	5.7	17.1	15.2	11.2	6.5	10.0	10.1	8.5	6.7	10.3
TSS (lbs/day) Raw Sewage Influent Average Monthly	108	63	167.0	463.0	352.0	74.0	270.0	338.0	252.0	403.0	224.0	808.0
TSS (lbs/day) Raw Sewage Influent Daily Maximum	192	102	200.0	1285.0	741.0	113.0	460.0	406.0	372.0	546.0	287.0	1063.0
TSS (lbs/day) Weekly Average	19.0	9.0	14.4	96.4	61.3	34.4	9.3	23.5	16.8	16.7	11.3	30.1

Parameter	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21
TSS (mg/L) Average Monthly	3.0	3.0	2.1	2.4	6.3	5.0	2.9	3.4	2.8	2.2	2.6	3.8
TSS (mg/L) Raw Sewage Influent Average Monthly	80	47	62.0	67.0	113.0	36.0	120.0	129.0	79.0	110.0	82.0	297.0
TSS (mg/L) Weekly Average	6.0	3.0	6.0	6.0	29.0	15.0	4.0	7.0	5.0	5.0	5.0	12.0
Fecal Coliform (No./100 ml) Geometric Mean	27	7.0	12.0	27.0	< 7.0	10.0	9.0	< 5.0	2.0	10.0	< 2.0	< 1.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	210	91	31.0	122.0	51.0	26.0	179.0	15.0	7.0	136.0	19.0	2.0
UV Intensity (µw/cm²) Daily Minimum	0.1	1.0	1.0	2.3	4.3	7.0	8.8	4.2	8.3	3.1	5.4	5.2
Nitrate-Nitrite (mg/L) Average Monthly	3.2	2.3	< 2.2	< 3.2	< 1.9	< 1.6	< 2.2	< 2.7	< 2.5	< 2.5	< 2.5	< 3.0
Nitrate-Nitrite (lbs) Total Monthly	285	207	< 194.0	< 493.0	< 152.0	< 4.0	< 150.0	< 247.0	< 286.0	< 295.0	< 183.0	< 264.0
Total Nitrogen (mg/L) Average Monthly	4.44	< 2.8	< 4.3	< 3.8	< 2.62	< 2.5	< 5.5	< 3.52	< 3.2	< 3.1	< 3.2	< 3.52
Total Nitrogen (lbs) Effluent Net Total Monthly	359	< 251	< 380.0	< 583.0	< 211.0	< 178.0	< 358.0	< 315.0	< 373.0	< 386.0	< 239.0	< 315.0
Total Nitrogen (lbs) Total Monthly	359	< 251	< 380.0	< 583.0	< 211.0	< 178.0	< 358.0	< 315.0	< 373.0	< 386.0	< 239.0	< 315.0
Total Nitrogen (lbs) Effluent Net Total Annual				< 5729.0								
Total Nitrogen (lbs) Total Annual				< 5729.0								
Ammonia (lbs/day) Average Monthly	< 0.3	< 0.3	< 3.7	< 0.5	< 0.3	< 0.7	< 6.1	< 0.3	< 0.4	< 1.1	< 1.0	< 0.7
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	1.3	< 0.1	< 0.1	< 0.35	< 2.9	< 0.1	< 0.1	< 0.2	< 0.4	< 0.25
Ammonia (lbs) Total Monthly	< 8.8	< 8.9	< 116.0	< 15.0	< 8.0	< 23.0	< 183.0	< 9.0	< 12.0	< 34.0	< 28.0	< 23.0
Ammonia (lbs) Total Annual				< 338.0								
TKN (mg/L) Average Monthly	< 0.85	< 1.28	< 2.1	< 0.6	< 0.71	< 0.9	< 3.25	0.78	< 0.7	< 0.69	< 0.8	< 0.57
TKN (lbs) Total Monthly	< 74	< 107	< 185.0	< 90.0	< 59.0	< 62.0	< 208.0	68.0	< 87.0	< 91.0	< 56.0	< 51.0

Parameter	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21
Total Phosphorus (lbs/day) Average Monthly	3.0	1.0	< 2.0	6.8	5.0	3.0	3.0	3.0	2.7	1.9	< 2.1	2.0
Total Phosphorus (mg/L) Average Monthly	1.0	1.0	< 0.58	1.2	1.8	1.12	1.32	1.17	0.7	0.5	0.8	0.69
Total Phosphorus (lbs) Effluent Net Total Monthly	79	36	< 55.0	203.0	141.0	80.0	87.0	100.0	80.0	58.0	60.0	< 60.0
Total Phosphorus (lbs) Total Monthly	79	36	< 55.0	203.0	141.0	80.0	87.0	100.0	80.0	58.0	60.0	60.0
Total Phosphorus (lbs) Effluent Net Total Annual				< 843.0								
Total Phosphorus (lbs) Total Annual				< 843.0								
Total Copper (lbs/day) Daily Maximum	0.01			0.02			0.2			0.03		
Total Copper (mg/L) Daily Maximum	0.006			0.009			0.008			0.01		

Existing Effluent Limits and Monitoring Requirements

The table below summarizes effluent limitations and monitoring requirements specified in the current NPDES permit renewal.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily 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	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	145	233	XXX	25.0	40.0	50	1/week	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	116	175	XXX	20.0	30.0	40	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	175	262	XXX	30.0	45.0	60	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Ultraviolet light intensity (µw/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia-Nitrogen Nov 1 - Apr 30	43.7	XXX	XXX	7.5	XXX	15	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	14.5	XXX	XXX	2.5	XXX	5	2/week	24-Hr Composite
Total Phosphorus	11	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Copper, Total	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite

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/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	10959	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	1461	XXX	XXX	XXX	XXX	1/month	Calculation

Development of Effluent Limitations and Monitoring Requirements

Outfall No. 001 **Design Flow (MGD)** .7
Latitude 40º 7' 22.00" **Longitude** -77º 11' 19.20"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The facility is subject to secondary standards found in 25 Pa. Code § 92a.47 and 40 CFR § 133.102. These standards are as follows:

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)

Comments: These standards apply, subject to water quality analysis and BPJ where applicable.

Water Quality-Based Limitations

CBOD5, NH3-N and Dissolved Oxygen (DO)
WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's technical guidance no. 391-2000-007 describes the technical methods contained in the model for conducting wasteload allocation analyses and for determining recommended limits for point source discharges. DEP recently updated this model (ver. 1.1) to include the new ammonia criteria that has been approved by US EPA as part of the 2017 Triennial Review. A multiple discharge analysis is necessary as there are a number of facilities located in the close vicinity of the discharge that have similar effluent characteristics. Accordingly, upstream dischargers, Ahlstrom (PA0008486; 0.569 MGD) and Mt. Holly Springs Specialty Paper (PA0008150; 1.5 MGD), and a downstream discharger, Land O' Lakes (PA0044911; 0.81 MGD) are included in the analysis. All of these facilities are located within 3 RMI. The model output indicates that existing limits for all above-referenced facilities are still protective of water quality. No changes are therefore recommended.

Toxics
The application reported Total Lead of < 0.001 mg/L and Total Zinc of 0.055 mg/L. These concentration levels are not of concern as they are at below the current water quality criteria. The permit contains a quarterly monitoring requirement for Total Copper. The sample results show that copper has been consistently detected above the water quality criteria. DEP has therefore decided to conduct a further analysis. DEP's TOXCONC Spreadsheet was used to determine the statistical average monthly concentration with daily coefficient of variation. These values were then entered into DEP's Toxics Management Spreadsheet (TMS). DEP utilizes this TMS to facilitate calculations necessary for completing a reasonable potential analysis and determining WQBELs for toxic pollutants. The worksheet combines the functionality of DEP's Toxics Screening Analysis worksheet and PENTOXSD. TMS shows effluent limits are needed for Total Copper.

These limits, WQBELs, are compared to actual sample results as shown below:

Average Monthly WQBEL, mg/L	Daily Max WQBEL, mg/L	Maximum Sample Results, mg/L	Minimum Sample Results, mg/L	Median Sample Results, mg/L
0.14	0.23	1.0	<0.005	0.03

A number of exceedance if Avg. Mon WQBELs become effective	A number of exceedance if Daily Max WQBELs become effective
3	2

Out of 19 sample results, the facility would have exceeded 3 times if the permit has this average monthly limit and 2 times if the permit has the daily maximum limit. At this time, it is unclear if the facility is able to achieve compliance with these limits upon issuance of the renewal. After discussions with the permittee, DEP has decided to provide one-year interim monitoring period before these limits become effective. The permittee has indicated that they will make process control changes to be in compliance during this period.

Best Professional Judgment (BPJ) Limitations

Total Phosphorus
For Total Phosphorus (TP), the current NPDES permit requires the permittee to comply with average monthly and instantaneous maximum (IMAX) limits of 2.0 mg/L and 4.0 mg/L, respectively. These limits were previously established based upon the fact that the loading from this facility likely exceeds the minimum 0.25% contribution requirement per DEP's technical guidance no. 391-2000-018. Total Phosphorus (TP) is still a parameter of concern for all sewage treatment facilities in the Chesapeake Bay watershed. Although DEP may no longer use this strategy to develop TP effluent limitations, these limits are still necessary to protect both local receiving water and Chesapeake Bay watershed. The relaxation or removal of these limits is also prohibited by EPA's anti-backsliding regulation found in 40 CFR § 122.44(l)(1).

Dissolved Oxygen
A minimum of 5.0 mg/L for D.O. is an existing effluent limit and will remain unchanged in the draft permit as recommended by DEP's SOP. This requirement has also been assigned to other major sewage facilities in the region. 5.0 mg/L is taken directly from 25 Pa. Code § 93.7(a) (i.e., water quality criteria for TSF waters) and it is also determined to be appropriate according to water quality modeling.

Additional Considerations

Flow Monitoring
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Influent BOD & TSS Monitoring
As a result of negotiation with EPA, the existing influent monitoring reporting requirement for TSS and BOD5 will be maintained in the draft permit. This requirement has been consistently assigned to all municipal wastewater treatment facilities.

E. Coli Monitoring
DEP's SOP No. BCW-PMT-033 recommends under 25 Pa Code §92a.61 a routine monitoring for E. Coli in all new and reissued permits. Since the facility has the design flow of 0.7 MGD, a quarterly monitoring will be included in the permit.

Total Dissolved Solids (TDS)
TDS and its associated solids including Bromide, Chloride, and Sulfate have become statewide pollutants of concern. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

> *For point source discharges and upon issuance or reissuance of an individual NPDES permit:*
>
> *-Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and*

report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.

-Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 MGD or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/L.

The sample result shows that effluent contains a TDS concentration level of 304 mg/L and Bromide of <0.2 mg/L (1,4-dioxane is not required to be sampled per DEP's application). As a result, the requirement to monitor these parameters is not needed.

Chesapeake Bay TMDL
In August 2019, DEP finalized Phase 3 Chesapeake Bay Watershed Implementation Plan to provide the plans in place by 2025 to further achieve the nutrient and sediment reduction targets that would ultimately meet U.S EPA's expectations for the Chesapeake Bay TMDL. The Chesapeake Bay TMDL identifies the necessary pollution reductions from major sources of nitrogen, phosphorus and sediment across the Bay jurisdictions and sets pollution limits necessary to meet water quality standards. The Phase 3 WIP is an update to the Pennsylvania's Chesapeake Bay TMDL Strategy (2004), the Chesapeake WIP Phase I (2011) and Phase 2 WIP (2012). The more details on the TMDL are available at www.dep.pa.gov.

As part of the Phase 3 WIP process, a Supplement to the Phase 3 WIP was developed, providing an update on TMDL implementation for point sources and a discussion of adjustments to the permitting strategy as a result of implementation experience. According to this document, Mount Holly Springs STP is a Phase 3 significant discharger located within the Chesapeake Bay watershed. The following Cap Loads specified in the current Supplement to the Phase 3 WIP will be included in the draft permit:

NPDES Permit No.	Phase	Facility	Latest Permit Issuance Date	Permit Expiration Date	Cap Load Compliance Start Date	TN Cap Load (lbs/yr)	TN Offsets Included in Cap Load (lbs/yr)	TP Cap Load (lbs/yr)	TN Delivery Ratio	TP Delivery Ratio
PA0023183	3	Mt. Holly Springs Borough Authority	09/21/2020	1/31/2022	10/1/2013	10,959	-	1,461	0.961	0.436

These Cap Loads will continue to be included in the permit. No offsets have been requested/approved at this time.

Mass Loading Limitations
All effluent mass loading limits will be based on the formula: design flow x concentration limit x conversion factor of 8.34.

UV Monitoring
DEP's Standard Operating Procedure (SOP no. BPNPSM-PMT-033) recommends a routine monitoring of Ultraviolet (UV) transmittance or intensity when the facility is utilizing an UV disinfection system in lieu of chlorination. Presumably, this recommendation was implemented as part of the proper operation and maintenance requirement specified in Part B of the NPDES permit and set forth in 40 CFR §122.41(e), requesting permittees to demonstrate the effectiveness of UV disinfection system. This is a reasonable approach and has been assigned to other facilities equipped with similar technology. Accordingly, UV monitoring is recommended for this permit renewal.

Anti-Degradation Requirements
The discharge is to non-special protection waters. No High-Quality waters are impacted by this discharge. No Exceptional Value waters are impacted by this discharge. All effluent limitations and monitoring requirements have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected.

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 12 months from Permit Effective 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	Daily 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	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	125	200	XXX	25.0	40.0	50	1/week	24-Hr Composite
CBOD5 May 1 - Oct 31	100	150	XXX	20.0	30.0	40	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	150	225	XXX	30.0	45.0	60	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
UV Intensity (µw/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation

Outfall 001, Continued (from Permit Effective Date through 12 months from Permit Effective 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	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	37.5	XXX	XXX	7.5	XXX	15	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	12.5	XXX	XXX	2.5	XXX	5	2/week	24-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	10	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Copper	Report	Report Daily Max	XXX	Report	Report Daily Max	XXX	1/month	24-Hr Composite
E. Coli (no. / 100 mL)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

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: 12 months 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	Daily 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	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	125	200	XXX	25.0	40.0	50	1/week	24-Hr Composite
CBOD5 May 1 - Oct 31	100	150	XXX	20.0	30.0	40	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	150	225	XXX	30.0	45.0	60	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
UV Intensity (µw/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation

Outfall 001, Continued (from 12 months 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	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	37.5	XXX	XXX	7.5	XXX	15	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	12.5	XXX	XXX	2.5	XXX	5	2/week	24-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	10	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Copper	0.79	1.32	XXX	0.14	0.23	0.34	1/month	24-Hr Composite
E. Coli (no. / 100 mL)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

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.

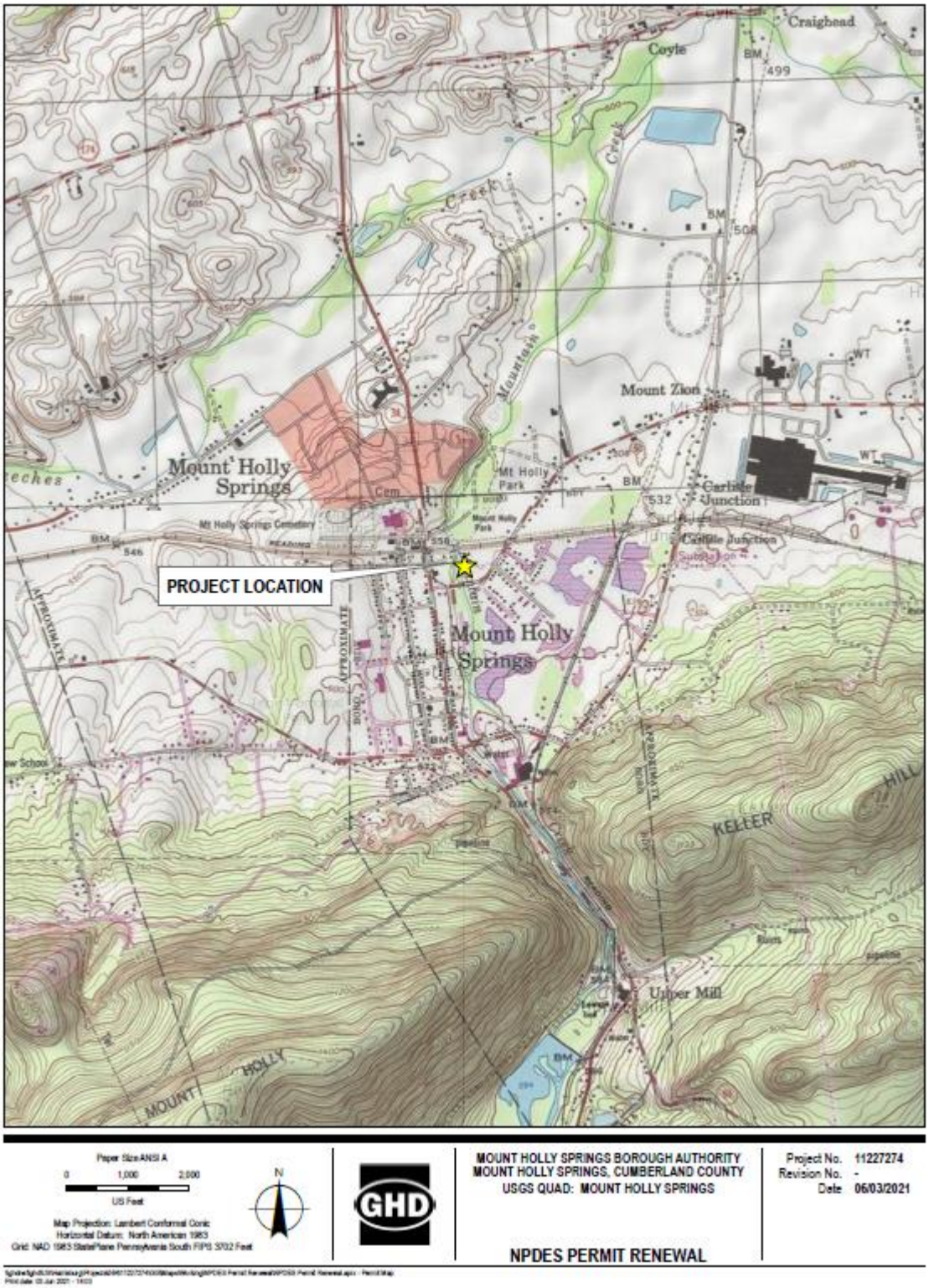
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

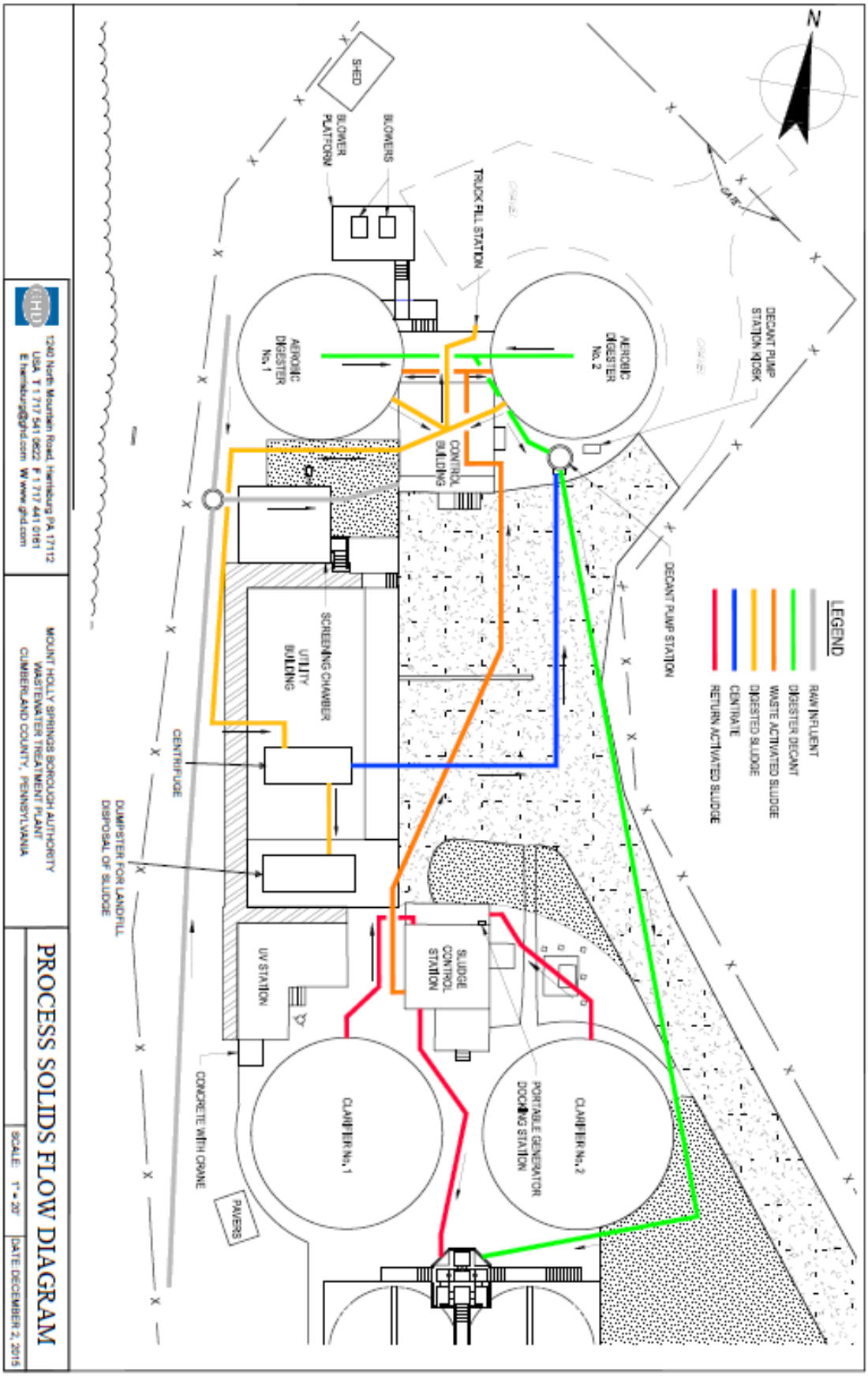
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen (lbs) Effluent Net	XXX	10959 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs) Effluent Net	XXX	1461 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

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:
☐	Other:

Attachments

1. Maps (provided in the application)

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LEGEND
RAW INFLUENT
DIGESTER DECANT
WASTE ACTIVATED SLUDGE
DIGESTED SLUDGE
CENTRATE
RETURN ACTIVATED SLUDGE
SHED
BLOWER PLATFORM
BLOWERS
TRUCK FILL STATION
AEROBIC DIGESTER No. 1
AEROBIC DIGESTER No. 2
DECANT PUMP STATION KIOSK
CONTROL BUILDING
DECANT PUMP STATION
SCREENING CHAMBER
UTILITY BUILDING
CENTRIFUGE
DUMPSTER FOR LANDFILL DISPOSAL OF SLUDGE
UV STATION
SLUDGE CONTROL STATION
CONCRETE WITH CRANE
PAVERS
CLARIFIER No. 1
PORTABLE GENERATOR DOCKING STATION
CLARIFIER No. 2
GHD
1240 North Mountain Road, Harrisburg PA 17112 USA T: 1 717 541 0822 F: 1 717 441 0161 E: harrisburg@ghd.com W: www.ghd.com
MOUNT HOLLY SPRINGS BOROUGH AUTHORITY
WASTEWATER TREATMENT PLANT
CUMBERLAND COUNTY, PENNSYLVANIA
PROCESS SOLIDS FLOW DIAGRAM
SCALE: 1" = 20'
DATE: DECEMBER 2, 2015

2. StreamStats

StreamStats Flow Statistics Report Page 1 of 2

StreamStats Version 3.0

Flow Statistics Ungaged Site Report

Date: Thurs Mar 10, 2016 11:56:44 AM GMT-5
Study Area: Pennsylvania
NAD 1983 Latitude: 40.104 (40 06 14)
NAD 1983 Longitude: -77.1805 (-77 10 50)
Drainage Area: 44.4 mi2
2001 NLCD Impervious: 0.0 percent

@ Ahlstrom

Low Flow Basin Characteristics			
100% Low Flow Region 2 (44.4 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	44.4	4.93	1280
Mean Annual Precipitation (inches)	41.0	35	50.4
Stream Density (miles per square mile)	1.20	0.51	3.1
Depth to Rock (feet)	5.0	3.32	5.65
Percent Carbonate (percent)	13.0	0	99

Mean/Base-flow Basin Characteristics			
100% Statewide Mean and Base Flow (44.4 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	44.4	2.26	1720
Mean Basin Elevation (feet)	1131.2	130	2700
Mean Annual Precipitation (inches)	41.0	33.1	50.4
Percent Carbonate (percent)	13.0	0	99
Percent Forest (percent)	86.0	5.1	100
Percent Urban (percent)	1.0	0	89

Peak Flow Basin Characteristics			
100% Peak Flow Region 3 (44.4 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	44.4	1.44	1610
Mean Basin Elevation (feet)	1131.2	457	2150
Percent Carbonate (percent)	13.0	0	99
Percent Urban (percent)	1.0	0	64
Percent Storage (percent)	2.0	0	22.6

Low Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
M7D2Y	11	ft3/s	38			

http://streamstatsags.cr.usgs.gov/v3_beta/FTreport.htm?rcode=PA&workspaceID=PA2016... 3/10/2016

M30D2Y	13.3	ft3/s	33			
M7D10Y	6.77	ft3/s	51			
M30D10Y	8.05	ft3/s	46			
M90D10Y	10.8	ft3/s	36			

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

Mean/Base-flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
QA	66.7	ft3/s	12			
QAH	19.6	ft3/s	38			
BF10YR	30.1	ft3/s	21			
BF25YR	26.8	ft3/s	21			
BF50YR	25	ft3/s	23			

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

Peak Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2	1220	ft3/s	31	3		
PK5	1980	ft3/s	28	5		
PK10	2570	ft3/s	28	7		
PK50	4030	ft3/s	31	11		
PK100	4730	ft3/s	36	11		
PK500	6590	ft3/s	43	11		

http://pubs.usgs.gov/sir/2008/5102/ (http://pubs.usgs.gov/sir/2008/5102/)
Roland_ M.A._ and Stuckey_ M.H._ 2008_ Regression equations for estimating flood flows at selected recurrence intervals for ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2008-5102_ 57p.

Accessibility **FOIA** **Privacy** **Policies and Notices**
U.S. Department of the Interior | U.S. Geological Survey
URL: http://streamstatsags.cr.usgs.gov/v3_beta/FTreport.htm
Page Contact Information: StreamStats Help Streamstats Status News
Page Last Modified: 11/24/2015 14:32:58 (Web2)

USA.gov

StreamStats Version 3.0

Flow Statistics Ungaged Site Report

Date: Thurs Mar 10, 2016 11:54:21 AM GMT-5
Study Area: Pennsylvania
NAD 1983 Latitude: 40.1136 (40 06 49)
NAD 1983 Longitude: -77.1869 (-77 11 13)
Drainage Area: 45.3 mi2
2001 NLCD Impervious: 1.0 percent

@ Mt. Holly Springs Specialty Paper

Low Flow Basin Characteristics			
100% Low Flow Region 2 (45.3 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	45.3	4.93	1280
Mean Annual Precipitation (inches)	41.0	35	50.4
Stream Density (miles per square mile)	1.19	0.51	3.1
Depth to Rock (feet)	5.0	3.32	5.65
Percent Carbonate (percent)	13.0	0	99

Mean/Base-flow Basin Characteristics			
100% Statewide Mean and Base Flow (45.3 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	45.3	2.26	1720
Mean Basin Elevation (feet)	1125.1	130	2700
Mean Annual Precipitation (inches)	41.0	33.1	50.4
Percent Carbonate (percent)	13.0	0	99
Percent Forest (percent)	87.0	5.1	100
Percent Urban (percent)	1.0	0	89

Peak Flow Basin Characteristics			
100% Peak Flow Region 3 (45.3 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	45.3	1.44	1610
Mean Basin Elevation (feet)	1125.1	457	2150
Percent Carbonate (percent)	13.0	0	99
Percent Urban (percent)	1.0	0	64
Percent Storage (percent)	2.0	0	22.6

Low Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
M7D2Y	11.3	ft3/s	38			

M30D2Y	13.7	ft3/s	33			
M7D10Y	6.99	ft3/s	51			
M30D10Y	8.31	ft3/s	46			
M90D10Y	11.2	ft3/s	36			

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

Mean/Base-flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
QA	68.1	ft3/s	12			
QAH	20.2	ft3/s	38			
BF10YR	30.9	ft3/s	21			
BF25YR	27.6	ft3/s	21			
BF50YR	25.7	ft3/s	23			

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

Peak Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2	1240	ft3/s	31	3		
PK5	2020	ft3/s	28	5		
PK10	2620	ft3/s	28	7		
PK50	4110	ft3/s	31	11		
PK100	4820	ft3/s	36	11		
PK500	6710	ft3/s	43	11		

http://pubs.usgs.gov/sir/2008/5102/ (http://pubs.usgs.gov/sir/2008/5102/)
Roland_ M.A._ and Stuckey_ M.H._ 2008_ Regression equations for estimating flood flows at selected recurrence intervals for ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2008-5102_ 57p.

StreamStats Version 3.0

Flow Statistics Ungaged Site Report

Date: Thurs Mar 10, 2016 11:47:30 AM GMT-5
Study Area: Pennsylvania
NAD 1983 Latitude: 40.1228 (40 07 22)
NAD 1983 Longitude: -77.1889 (-77 11 20)
Drainage Area: 45.9 mi2
2001 NLCD Impervious: 1.0 percent

@ Mt. Holly Springs Borough STP

Low Flow Basin Characteristics			
100% Low Flow Region 2 (45.9 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	45.9	4.93	1280
Mean Annual Precipitation (inches)	41.0	35	50.4
Stream Density (miles per square mile)	1.19	0.51	3.1
Depth to Rock (feet)	5.0	3.32	5.65
Percent Carbonate (percent)	14.0	0	99

Mean/Base-flow Basin Characteristics			
100% Statewide Mean and Base Flow (45.9 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	45.9	2.26	1720
Mean Basin Elevation (feet)	1119.0	130	2700
Mean Annual Precipitation (inches)	41.0	33.1	50.4
Percent Carbonate (percent)	14.0	0	99
Percent Forest (percent)	86.0	5.1	100
Percent Urban (percent)	1.0	0	89

Peak Flow Basin Characteristics			
100% Peak Flow Region 3 (45.9 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	45.9	1.44	1610
Mean Basin Elevation (feet)	1119.0	457	2150
Percent Carbonate (percent)	14.0	0	99
Percent Urban (percent)	1.0	0	64
Percent Storage (percent)	2.0	0	22.6

Low Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
M7D2Y	11.6	ft3/s	38			

M30D2Y	14	ft3/s	33			
M7D10Y	7.21	ft3/s	51			
M30D10Y	8.55	ft3/s	46			
M90D10Y	11.5	ft3/s	36			

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

Mean/Base-flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
QA	68.9	ft3/s	12			
QAH	20.7	ft3/s	38			
BF10YR	31.4	ft3/s	21			
BF25YR	28	ft3/s	21			
BF50YR	26	ft3/s	23			

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

Peak Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2	1240	ft3/s	31	3		
PK5	2020	ft3/s	28	5		
PK10	2620	ft3/s	28	7		
PK50	4110	ft3/s	31	11		
PK100	4830	ft3/s	36	11		
PK500	6730	ft3/s	43	11		

http://pubs.usgs.gov/sir/2008/5102/ (http://pubs.usgs.gov/sir/2008/5102/)
Roland_ M.A._ and Stuckey_ M.H._ 2008_ Regression equations for estimating flood flows at selected recurrence intervals for ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2008-5102_ 57p.

StreamStats Version 3.0

Flow Statistics Ungaged Site Report

Date: Thurs Mar 10, 2016 11:50:45 AM GMT-5
Study Area: Pennsylvania
NAD 1983 Latitude: 40.1316 (40 07 54)
NAD 1983 Longitude: -77.1848 (-77 11 06)
Drainage Area: 46.2 mi2
2001 NLCD Impervious: 1.0 percent

Land O' Lakes

Low Flow Basin Characteristics			
100% Low Flow Region 2 (46.2 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	46.2	4.93	1280
Mean Annual Precipitation (inches)	41.0	35	50.4
Stream Density (miles per square mile)	1.20	0.51	3.1
Depth to Rock (feet)	5.1	3.32	5.65
Percent Carbonate (percent)	14.0	0	99

Mean/Base-flow Basin Characteristics			
100% Statewide Mean and Base Flow (46.2 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	46.2	2.26	1720
Mean Basin Elevation (feet)	1115.7	130	2700
Mean Annual Precipitation (inches)	41.0	33.1	50.4
Percent Carbonate (percent)	14.0	0	99
Percent Forest (percent)	86.0	5.1	100
Percent Urban (percent)	1.0	0	89

Peak Flow Basin Characteristics			
100% Peak Flow Region 3 (46.2 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	46.2	1.44	1610
Mean Basin Elevation (feet)	1115.7	457	2150
Percent Carbonate (percent)	14.0	0	99
Percent Urban (percent)	1.0	0	64
Percent Storage (percent)	2.0	0	22.6

Low Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
M7D2Y	12	ft3/s	38			

M30D2Y	14.4	ft3/s	33			
M7D10Y	7.66	ft3/s	51			
M30D10Y	8.97	ft3/s	46			
M90D10Y	11.9	ft3/s	36			

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

Mean/Base-flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
QA	69.3	ft3/s	12			
QAH	20.9	ft3/s	38			
BF10YR	31.6	ft3/s	21			
BF25YR	28.2	ft3/s	21			
BF50YR	26.2	ft3/s	23			

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

Peak Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2	1240	ft3/s	31	3		
PK5	2030	ft3/s	28	5		
PK10	2630	ft3/s	28	7		
PK50	4140	ft3/s	31	11		
PK100	4860	ft3/s	36	11		
PK500	6770	ft3/s	43	11		

http://pubs.usgs.gov/sir/2008/5102/ (http://pubs.usgs.gov/sir/2008/5102/)
Roland_ M.A._ and Stuckey_ M.H._ 2008_ Regression equations for estimating flood flows at selected recurrence intervals for ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2008-5102_ 57p.

StreamStats Version 3.0

Flow Statistics Ungaged Site Report

Date: Thurs Mar 10, 2016 12:00:30 PM GMT-5
Study Area: Pennsylvania
NAD 1983 Latitude: 40.1447 (40 08 41)
NAD 1983 Longitude: -77.1775 (-77 10 39)
Drainage Area: 47.7 mi2
2001 NLCD Impervious: 1.0 percent

@ Mouth of Mountain Creek

Low Flow Basin Characteristics			
100% Low Flow Region 2 (47.7 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	47.7	4.93	1280
Mean Annual Precipitation (inches)	41.0	35	50.4
Stream Density (miles per square mile)	1.19	0.51	3.1
Depth to Rock (feet)	5.1	3.32	5.65
Percent Carbonate (percent)	16.0	0	99

Mean/Base-flow Basin Characteristics			
100% Statewide Mean and Base Flow (47.7 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	47.7	2.26	1720
Mean Basin Elevation (feet)	1100.1	130	2700
Mean Annual Precipitation (inches)	41.0	33.1	50.4
Percent Carbonate (percent)	16.0	0	99
Percent Forest (percent)	84.0	5.1	100
Percent Urban (percent)	2.0	0	89

Peak Flow Basin Characteristics			
100% Peak Flow Region 3 (47.7 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	47.7	1.44	1610
Mean Basin Elevation (feet)	1100.1	457	2150
Percent Carbonate (percent)	16.0	0	99
Percent Urban (percent)	2.0	0	64
Percent Storage (percent)	2.0	0	22.6

Low Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
M7D2Y	12.9	ft3/s	38			

StreamStats Flow Statistics Report Page 2 of 2

M30D2Y	15.4	ft3/s	33			
M7D10Y	8.26	ft3/s	51			
M30D10Y	9.64	ft3/s	46			
M90D10Y	12.6	ft3/s	36			

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

Mean/Base-flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
QA	71.4	ft3/s	12			
QAH	22.5	ft3/s	38			
BF10YR	32.8	ft3/s	21			
BF25YR	29.2	ft3/s	21			
BF50YR	27.2	ft3/s	23			

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

Peak Flow Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PK2	1240	ft3/s	31	3		
PK5	2030	ft3/s	28	5		
PK10	2650	ft3/s	28	7		
PK50	4170	ft3/s	31	11		
PK100	4900	ft3/s	36	11		
PK500	6860	ft3/s	43	11		

http://pubs.usgs.gov/sir/2008/5102/ (http://pubs.usgs.gov/sir/2008/5102/)
Roland_ M.A._ and Stuckey_ M.H._ 2008_ Regression equations for estimating flood flows at selected recurrence intervals for ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2008-5102_ 57p.

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Page Last Modified: 11/24/2015 14:32:58 (Web2)

USA.gov

3. WQM 7.0 ver. 1.1

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
07E	63167	MOUNTAIN CREEK	3.180	585.00	44.40	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	0.313	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
Ahlstrom	PA0008486	0.5690	0.5690	0.5690	0.000	26.00	7.30

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	18.00	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
07E	63167	MOUNTAIN CREEK	**2.140**	547.00	45.60	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	0.313	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
Specialty Paper	PA0008150	1.5000	1.5000	1.5000	0.000	23.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	23.90	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
07E	63167	MOUNTAIN CREEK	**1.780**	540.00	46.00	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	0.313	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
Mt. Holly	PA0023183	0.7000	0.7000	0.7000	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	20.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	2.50	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
07E	63167	MOUNTAIN CREEK	**0.750**	514.30	46.20	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	0.313	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
Land O'Lakes	PA00449110	0.8100	0.8100	0.8100	0.000	20.00	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	5.00	8.24	0.00	0.00
NH3-N	1.50	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
07E	63167	MOUNTAIN CREEK	**0.000**	490.50	47.60	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	0.313	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	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 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.94	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.083	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

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WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07E	63167	MOUNTAIN 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												
3.180	13.90	0.00	13.90	.8802	0.00692	.768	45.48	59.26	0.42	0.150	20.36	7.01
2.140	14.27	0.00	14.27	3.2007	0.00368	.779	51.12	65.61	0.44	0.050	20.70	7.01
1.780	14.40	0.00	14.40	4.2836	0.00473	.785	51.31	65.4	0.46	0.136	20.66	7.01
0.750	14.46	0.00	14.46	5.5367	0.00601	.792	51.37	64.83	0.49	0.093	20.61	7.01
Q1-10 Flow												
3.180	13.06	0.00	13.06	.8802	0.00692	NA	NA	NA	0.41	0.155	20.38	7.01
2.140	13.42	0.00	13.42	3.2007	0.00368	NA	NA	NA	0.43	0.052	20.74	7.01
1.780	13.53	0.00	13.53	4.2836	0.00473	NA	NA	NA	0.45	0.139	20.69	7.01
0.750	13.59	0.00	13.59	5.5367	0.00601	NA	NA	NA	0.48	0.096	20.64	7.01
Q30-10 Flow												
3.180	15.05	0.00	15.05	.8802	0.00692	NA	NA	NA	0.44	0.144	20.33	7.01
2.140	15.46	0.00	15.46	3.2007	0.00368	NA	NA	NA	0.46	0.048	20.66	7.01
1.780	15.59	0.00	15.59	4.2836	0.00473	NA	NA	NA	0.48	0.131	20.62	7.01
0.750	15.66	0.00	15.66	5.5367	0.00601	NA	NA	NA	0.51	0.090	20.58	7.01

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07E	63167	MOUNTAIN CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.180	0.569	20.357	7.013
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
45.480	0.768	59.256	0.423
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.95	0.506	0.95	0.720
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.050	20.162	Tsivoglou	5
Reach Travel Time (days)			
0.150			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.015	2.93	0.94	8.19
0.030	2.91	0.93	8.19
0.045	2.89	0.92	8.19
0.060	2.86	0.91	8.19
0.075	2.84	0.90	8.19
0.090	2.82	0.89	8.19
0.105	2.80	0.88	8.19
0.120	2.78	0.87	8.19
0.135	2.75	0.86	8.19
0.150	2.73	0.85	8.19

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.140	2.069	20.701	7.011
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
51.123	0.779	65.614	0.439
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
5.53	1.045	1.92	0.739
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.766	11.209	Tsivoglou	5
Reach Travel Time (days)			
0.050			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.005	5.50	1.91	7.76
0.010	5.47	1.91	7.76
0.015	5.44	1.90	7.75
0.020	5.41	1.89	7.75
0.025	5.38	1.89	7.75
0.030	5.35	1.88	7.74
0.035	5.32	1.87	7.74
0.040	5.29	1.86	7.74
0.045	5.27	1.86	7.74
0.050	5.24	1.85	7.74

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07E	63167	MOUNTAIN 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
3.180	Ahlstrom	16.04	50	16.04	50	0	0
2.140	Specialty Paper	16.16	50	15.61	50	0	0
1.780	Mt. Holly	16.76	5	15.68	5	0	0
0.750	Land O'Lakes	16.76	3	15.75	3	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
3.180	Ahlstrom	1.84	25	1.84	15.99	2	36
2.140	Specialty Paper	1.84	14.1	1.8	9.02	2	36
1.780	Mt. Holly	1.89	2.5	1.81	2.5	0	0
0.750	Land O'Lakes	1.89	1.5	1.81	1.5	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)		
3.18	Ahlstrom	18	18	15.99	15.99	5	5	0	0
2.14	Specialty Paper	23.9	23.9	9.02	9.02	5	5	0	0
1.78	Mt. Holly	20	20	2.5	2.5	5	5	0	0
0.75	Land O'Lakes	10	10	1.5	1.5	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07E	63167	MOUNTAIN 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)
3.180	Ahlstrom	PA0008486	0.569	CBOD5	18		
				NH3-N	15.99	31.98	
				Dissolved Oxygen			5

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)
2.140	Specialty Paper	PA0008150	1.500	CBOD5	23.9		
				NH3-N	9.02	18.04	
				Dissolved Oxygen			5

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)
1.780	Mt. Holly	PA0023183	0.700	CBOD5	20		
				NH3-N	2.5	5	
				Dissolved Oxygen			5

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)
0.750	Land O'Lakes	PA00449110	0.810	CBOD5	10		
				NH3-N	1.5	3	
				Dissolved Oxygen			5

4. TOXCONC for Total Copper

	Facility:		Mount Holly Springs Borough Authority			
	NPDES #:		PA0023183			
	Outfall No:		001			
	n (Samples/Month):		4			
	Reviewer/Permit Engineer:		Jinsu Kim			
Parameter Name	Total Copper					
Units	mg/L					
Detection Limit						
Sample Date	***When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)***					
04/01/2017	0.8					
07/01/2017	0.04					
10/01/2017	0.06					
01/01/2018	0.02					
04/01/2018	< 0.005					
07/01/2018	< 1.0					
10/01/2018	0.03					
01/01/2019	0.07					
04/01/2019	0.05					
07/01/2019	0.03					
10/01/2019	< 0.01					
01/01/2020	0.03					
04/01/2020	1					
07/01/2020	0.02					
10/01/2020	0.02					
01/01/2021	0.03					
04/01/2021	0.2					
07/01/2021	0.02					
10/01/2021	0.01					

DATA INPUT SHEET | DOCUMENTATION | OUTPUT SHEE ...

		Reviewer/Permit Engineer:	Jinsu Kim
Facility:	Mount Holly Springs Borough Authority		
NPDES #:	PA0023183		
Outfall No:	001		
n (Samples/Month):	4		

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Total Copper (mg/L)	Delta-Lognormal	2.3704086	0.5369563

	Facility:	Mount Holly Springs Borough Authority			
	NPDES #:	PA0023183			
	Outfall No:	001			
	n (Samples/Month):	4			
Parameter Name	Total Copper				
Number of Samples	19				
Samples Nondetected	3				
LOGNORMAL					
Log MEAN	NA				
Log VAR.					
(LTA) [E(x)]					
Variance [V(x)]					
CV (raw)					
CV (n)					
Monthly Avg. (99%, n-day)					
DELTA-LOGNORMAL					
Delta-Log MEAN	-2.9874596				
Delta-Log VAR.	1.7180694				
(LTA) [E(x)]	0.1002313				
Variance [V(x)]	0.0564486				
CV (raw)	2.3704086				
Delta-Log VAR. (n)	0.8768073				
A, Table E-2, TSD	1.4047093				
B, Table E-2, TSD	0.0000000				
C, Table E-2, TSD	0.0000000				
Delta-Log MEAN (n)	-2.7380571				
phi (Φ)	0.9881250				
Z*	2.2600000				
Monthly Avg. (99%, n-day)	0.5369563				
NORMAL					
MEAN	NA				
VAR.					
(LTA) [E(x)]					
Variance [V(x)]					
CV (raw)					
CV (n)					
Monthly Avg. (99%, n-day)					

OUTPUT SHEET | SUMMARY STATISTICS | DETAILED CALCULATIONS | Z VALUES

Parameter Name	Total Copper
y(i)	
	-0.2231436
	-3.2188758
	-2.8134107
	-3.9120230
	-3.5065579
	-2.6592600
	-2.9957323
	-3.5065579
	-3.5065579
	0.0000000
	-3.9120230
	-3.9120230
	-3.5065579
	-1.6094379
	-3.9120230
	-4.6051702

5. Toxics Management Spreadsheet

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Mount Holly Springs Borough WWTP** NPDES Permit No.: **PA0023183** Outfall No.: **001**

Evaluation Type: **Custom / Additives** Wastewater Description: **Sewage**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.7	100	7						

				0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Total Copper	mg/L		0.5369563			2.3704						

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Mount Holly Springs Borough WWTP, NPDES Permit No. PA0023183, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Mountain Creek**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	063167	1.78	540	46			Yes
End of Reach 1	063167	0.75	514.3	46.2			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	1.78	0.318										100	7		
End of Reach 1	0.75	0.318													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	1.78														
End of Reach 1	0.75														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Mount Holly Springs Borough WWTP, NPDES Permit No. PA0023183, Outfall 001

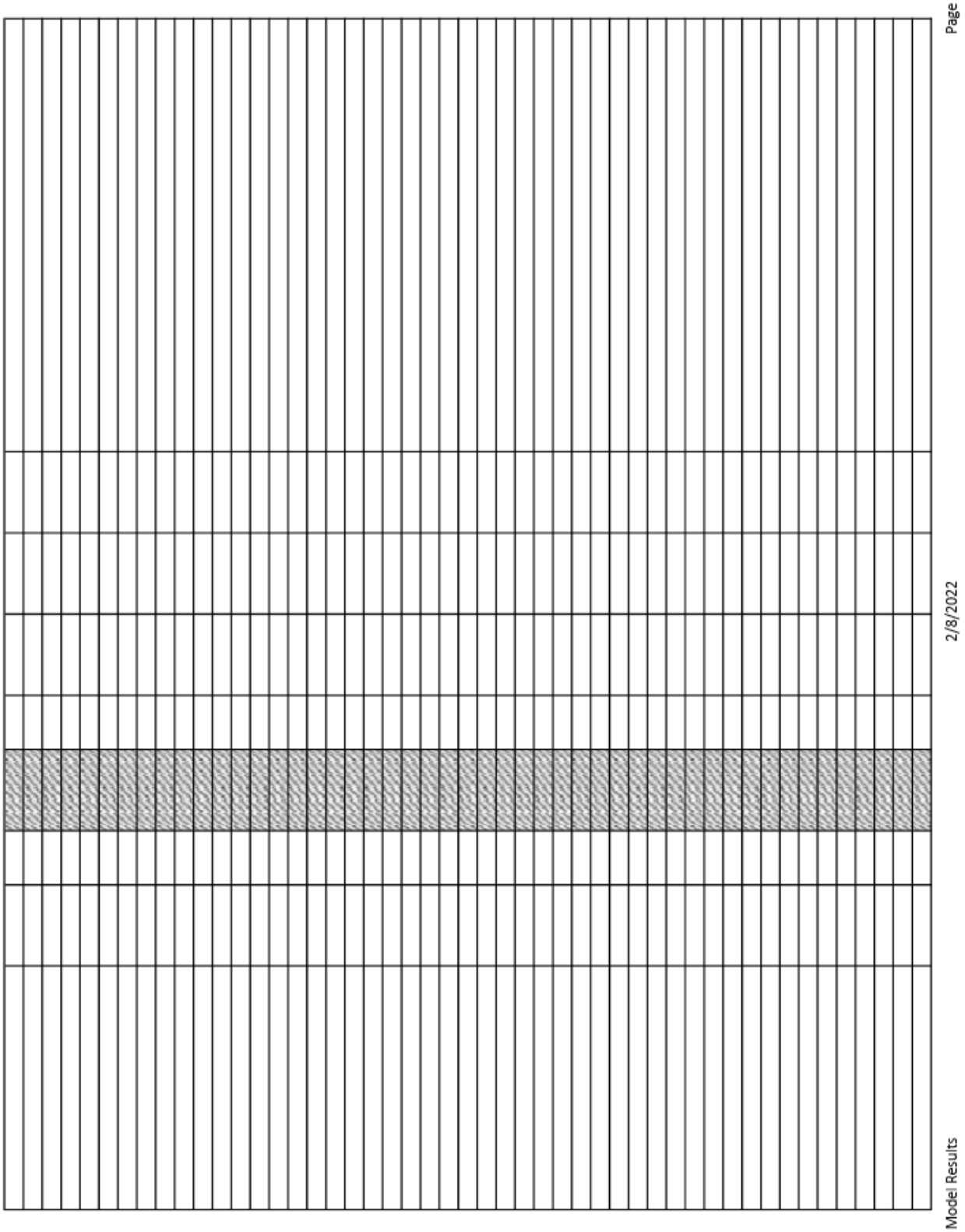
Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All ( ) Inputs ( ) Results ( ) Limits

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 15 PMF: 0.500 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

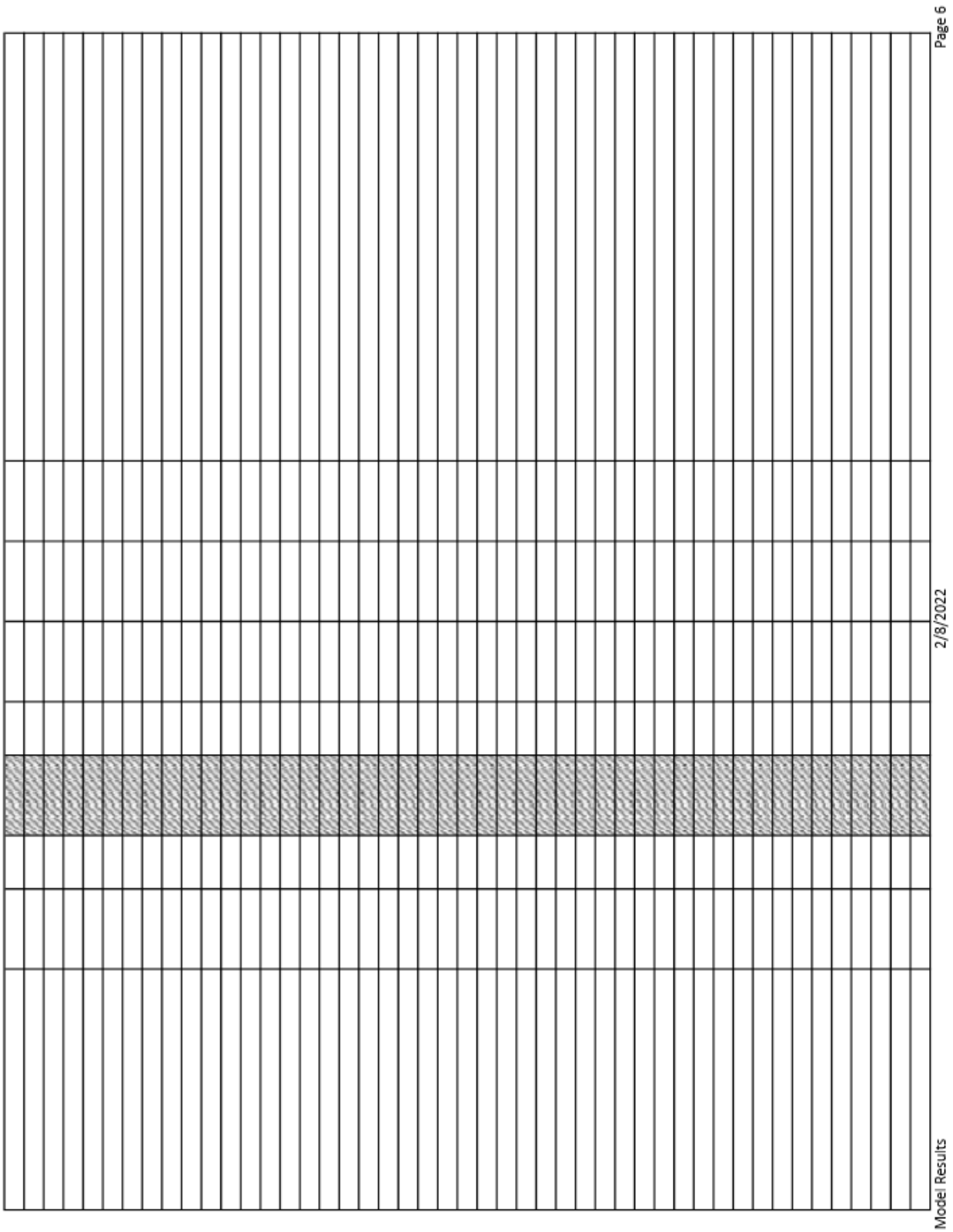
Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	13.439	14.0	109	Chem Translator of 0.96 applied


Page 4
2/8/2022
Model Results

☑ CFC CCT (min): 59.934 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	8.956	9.33	135	Chem Translator of 0.96 applied

Model Results 2/8/2022 Page 5

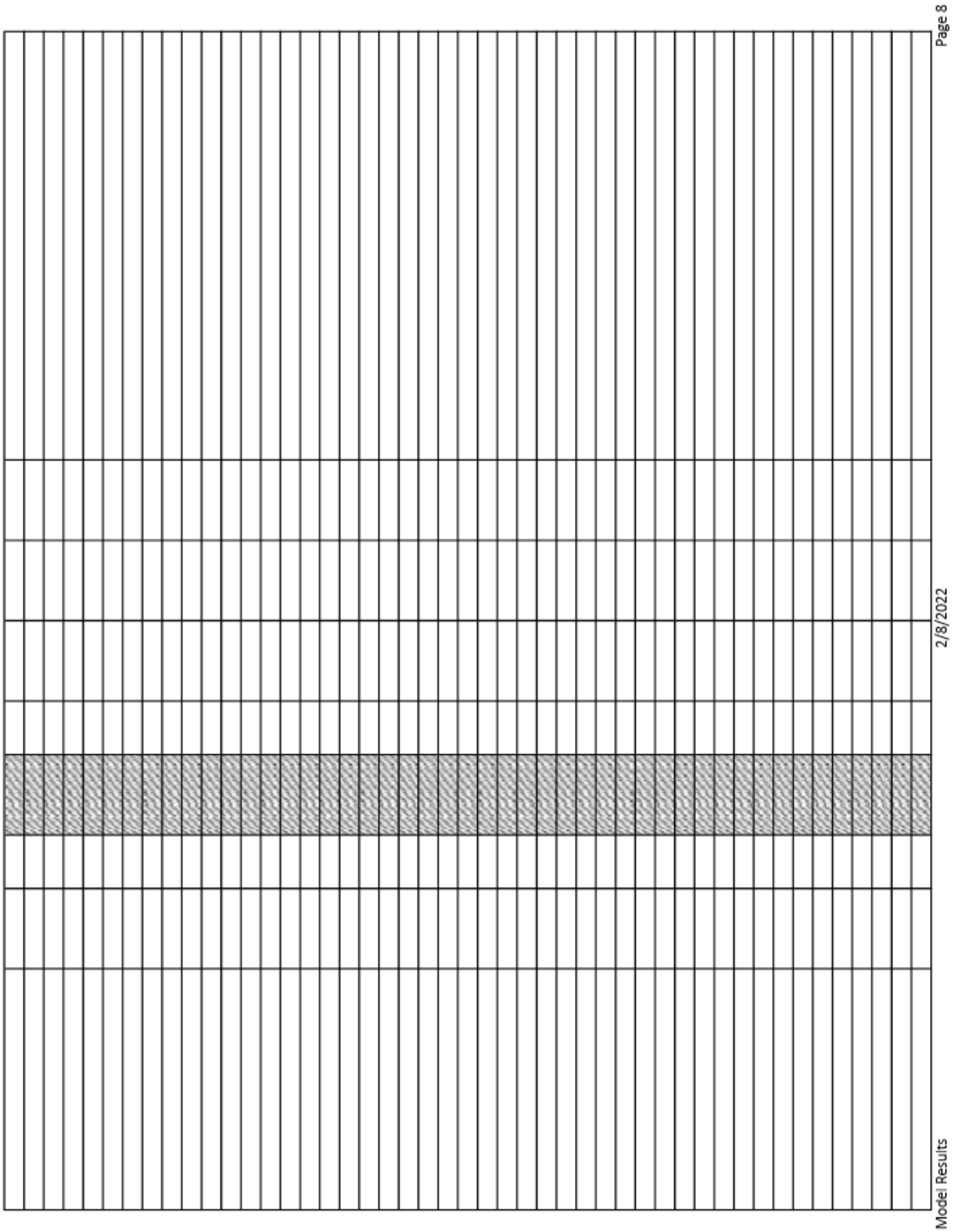

Page 6
2/8/2022
Model Results

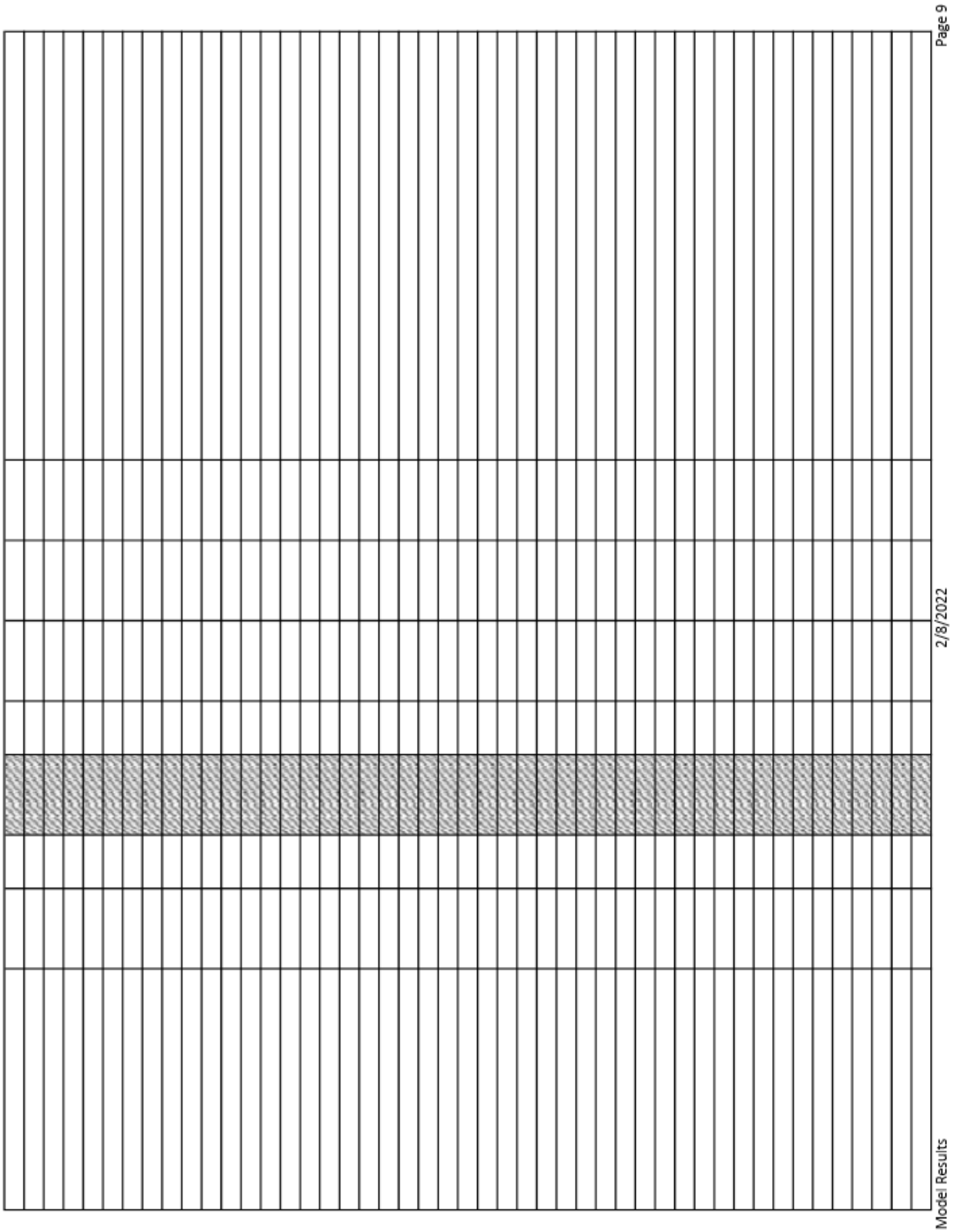
☑ *THH*

CCT (min): 59.934 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	N/A	N/A	N/A	

Model Results 2/8/2022 Page 7

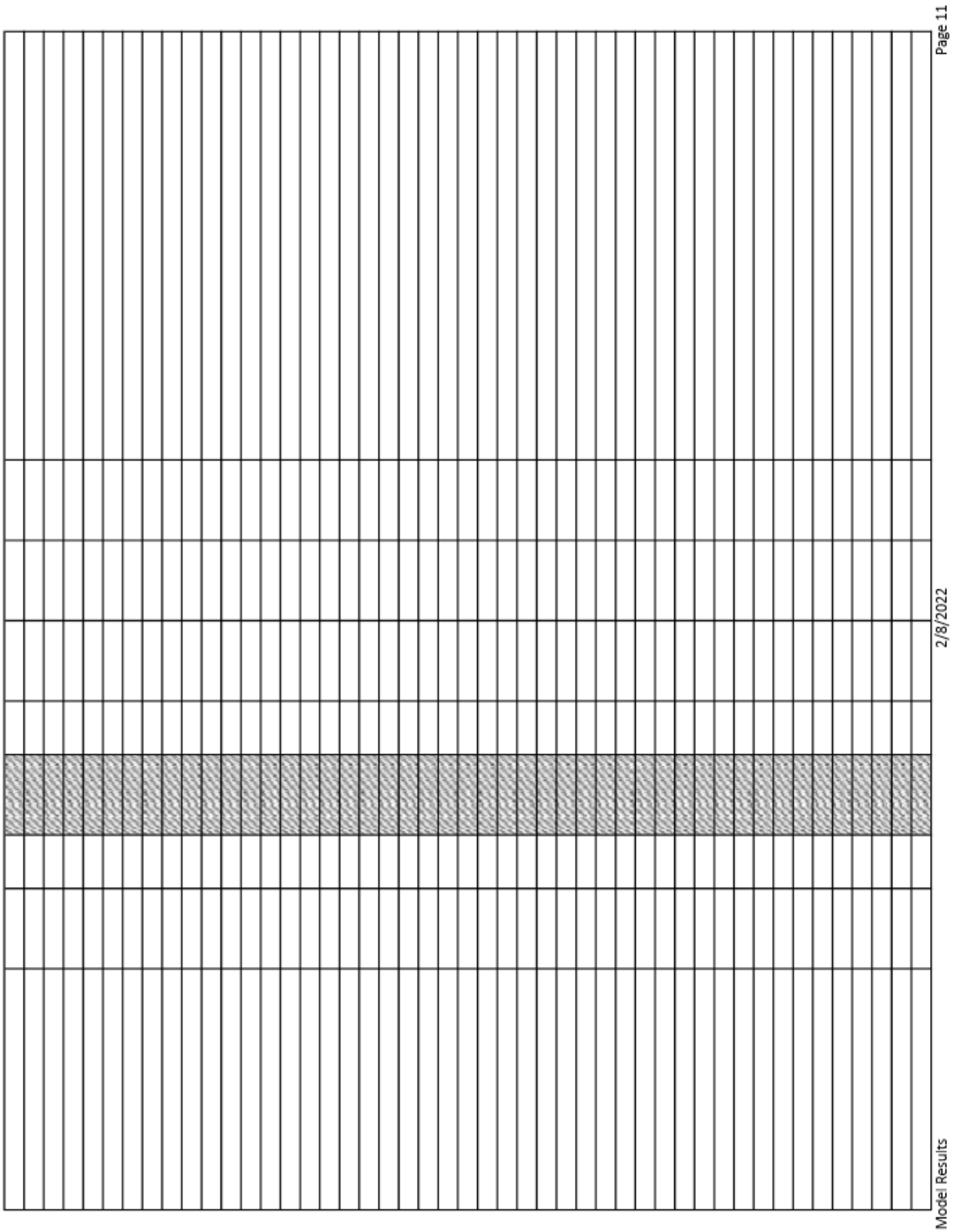

Page 8
2/8/2022
Model Results


Page 9
2/8/2022
Model Results

☑ CRL CCT (min): 23.238 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Copper	0	0		0	N/A	N/A	N/A	

Model Results 2/8/2022 Page 10


Page 11
2/8/2022
Model Results

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Copper	0.79	1.32	0.14	0.23	0.34	mg/L	0.14	CFC	Discharge Conc ≥ 50% WQBEL (RP)

☑ ***Other Pollutants without Limits or Monitoring***

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments