pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0023141**
Facility Type	**Municipal**	APS ID	**1076348**
Major / Minor	**Minor**	Authorization ID	**1418729**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Hastings Area Sewer Authority**	Facility Name	**Hastings Municipal Authority**
Applicant Address	207-1 5th Avenue	Facility Address	133 Pine Road
	Hastings, PA 16646-0559		Hastings, PA 16646-0559
Applicant Contact	Melanie Zearfoss	Facility Contact	Chuck Ishman
Applicant Phone	(814) 247-8619	Facility Phone	814-247-8619
Client ID	334486	Site ID	261471
Ch 94 Load Status	Projected Organic Overload	Municipality	Hastings Borough
Connection Status	No Limitations	County	Cambria
Date Application Received	November 17, 2022	EPA Waived?	No
Date Application Accepted		If No, Reason	DEP Discretion

Purpose of Application: Renewal of NPDES Permit

Summary of Review

The applicant has applied for the renewal of NPDES Permit PA0023141. The previous permit was issued on June 1, 2018 and expired on May 31, 2023.

Sewage from this plant is treated with screening and grit removal, flow equalization tank, aeration tank, clarifier, aerobic digester and UV light disinfection.

The applicant is currently enrolled in and will continue to use eDMR.

The Act 14 Municipal Notification letter was provided dated August 16, 2022 and no comments were received.

Below is a summary of changes made to this permit:

- *E. Coli* monitoring was imposed
- Copper and lead limits were imposed
- $CBOD_5$ limits became more stringent
- Summer Ammonia-Nitrogen limits became more stringent
- Monitoring frequencies for several parameters have been updated to comply with DEP guidance and Table 6-3 of the Department's "Technical Guidance for the Development and Specification of Effluent Limitations"
- Mass loading limits for $CBOD_5$, Ammonia-nitrogen, and TSS have been rounded to comply with DEP guidance. They are slightly more stringent than the previous cycle.

Sludge use and disposal description and location(s): Laurel Highlands Landfill, Cambria County

Approve	Deny	Signatures	Date
X		Jordan T Coldsmith Jordan Coldsmith / Environmental Engineering Specialist	August 29, 2023
X		Mahbuba Iasmin Mahbuba Iasmin, Ph.D. / Environmental Engineering Manager	September 21, 2023

Summary of Review
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.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.6
Latitude	40º 40' 18.17"	Longitude	-78º 42' 12.56"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Brubaker Run (CWF)	Stream Code	26858
NHD Com ID	61837043	RMI	3.88
Drainage Area	4.2	Yield (cfs/mi^2)	0.05
Q_{7-10} Flow (cfs)	0.221	Q_{7-10} Basis	USGS StreamStat
Elevation (ft)	1968	Slope (ft/ft)	
Watershed No.	8-B	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, SILTATION		
Source(s) of Impairment	ACID MINE DRAINAGE, REMOVAL OF RIPARIAN VEGETATION		
TMDL Status	Final	Name	Chest Creek Sediment TMDL

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Shawville Power Plant		
PWS Waters	West Branch Susquehanna River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	65.68

Changes Since Last Permit Issuance: None

Other Comments:

Chest Creek Watershed Sediment TMDL

A TMDL for the Chest Creek Watershed was approved by the EPA on July 29, 2011 for the control of excessive siltation. In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by the EPA pursuant to 40 CFR § 130.7. The Chest Creek Watershed Sediment TMDL was prepared for sediment-impaired segments of the Chest Creek Watershed. The NPDES permit PA0023141 was originally issued in 1998 and the receiving water for Hasting WWTP is located in a sediment-impaired segment of Chest Creek, Hastings WWTP was not assigned with a wasteload allocation in the 2011 Final TMDL document. Therefore, the application of standard TBELs for TSS at Hastings WWTP is considered sufficient to ensure that the facility would not adversely impact the stream impairment.

Treatment Facility Summary

Treatment Facility Name: Hastings Municipal Authority

WQM Permit No.	Issuance Date
567S001 A-1	October 4, 1999

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Extended Air Treatment	UV	0.285

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.6	680	Projected Organic Overload	Aerobic Digestion	Drying Bed

Changes Since Last Permit Issuance: None

Other Comments: The HMA WWTP plant headworks consist of screening and grit removal. A 201,000 gallon flow equalization tank is provided to dampen flows. The tank is also used as a side line equalization storage basin.

The HMA WWTP consists of two parallel process trains. Each train consists of the following:

- A 150,800 gallon aeration tank with fine bubble diffusers
- A 88,000 gallon final clarifier
- A 83,000 gallon aerobic digester

Disinfection is provided with ultraviolet light.

Digested sludge is transferred to one of three wedge wire sludge drying beds.

Two post aeration tanks are also provided.

Compliance History

Operations Compliance Check Summary Report

Facility: Hastings WWTP

NPDES Permit No.: PA0023141

Compliance Review Period: 3/2018 – 3/2023

Inspection Summary:

INSP ID	INSPECTED DATE	INSP TYPE	AGENCY	INSPECTION RESULT DESC
3464992	12/01/2022	Chapter 94 Inspection	PA Dept of Environmental Protection	No Violations Noted
3328070	01/24/2022	Follow-up Inspection	PA Dept of Environmental Protection	No Violations Noted
2947129	10/08/2019	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted
2890713	05/17/2019	Chapter 94 Inspection	PA Dept of Environmental Protection	No Violations Noted
2856328	01/20/2019	Compliance Evaluation	PA Dept of Environmental Protection	No Violations Noted

Violation Summary:

No violations

Open Violations by Client ID:

No open violations for Client ID 334486

Enforcement Summary:

No enforcements

DMR Violation Summary:

START	END	NON-COMPLIANCE	PARAMETER	SAMPLE	PERMIT	UNITS	CODE
10/01/2020	09/30/2021	Load 2 Effluent Violation	Total Phosphorus (Total Load, lbs)	1653	1461	lbs	Total Annual
08/01/2019	08/31/2019	Concentration 1 Effluent Violation	Ammonia-Nitrogen	< 2.0955	2.0	mg/L	Average Monthly
05/01/2019	05/31/2019	Concentration 1 Effluent Violation	Ammonia-Nitrogen	< 3.262	2.0	mg/L	Average Monthly

08/01/2018	08/31/2018	Concentration 3 Effluent Violation	Fecal Coliform	3265.6	1000	No./100 ml	Instantaneous Maximum

Compliance Status:

In compliance. I believe the exceedance for Total Annual Phosphorous to be an error. I've contacted CO about it.

Completed by: John Murphy

Completed date: 3/10/2023

Compliance History

DMR Data for Outfall 001 (from July 1, 2022 to June 30, 2023)

Parameter	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22
Flow (MGD) Average Monthly	0.116	0.116	0.112	0.173	0.145	0.1888	0.135	0.121	0.109	0.133	0.114	0.11
Flow (MGD) Daily Maximum	0.174	0.209	0.181	0.41	0.245	0.624	0.275	0.19	0.220	0.255	0.315	0.258
pH (S.U.) Instantaneous Minimum	6.73	6.73	6.83	6.37	6.77	6.84	7.02	7.0	7.0	7.02	7.02	7.1
pH (S.U.) Instantaneous Maximum	7.06	6.95	7.2	6.97	7.03	7.08	7.22	7.63	7.33	7.35	7.87	7.41
DO (mg/L) Instantaneous Minimum	6.18	6.56	7.06	7.01	7.02	6.18	7.15	6.13	6.44	6.02	6.02	7.92
CBOD5 (lbs/day) Average Monthly	< 3.0	< 4.6	< 3.5	< 5.7	< 3.7	< 6.3	< 4.9	< 3.8	< 10.6	< 8.7	< 3.8	< 2.6
CBOD5 (lbs/day) Weekly Average	4.1	7.7	< 4.5	11.8	< 3.9	< 10.3	11.3	6.3	33.5	16.5	9.3	< 2.9
CBOD5 (mg/L) Average Monthly	< 3.1	< 4.3	< 3.7	< 4.4	< 3.0	< 3.3	< 3.4	< 4.0	< 11.4	< 7.1	< 3.4	< 3.0
CBOD5 (mg/L) Weekly Average	4.0	8.0	5.0	10.0	< 3.0	4.0	5.0	6.0	37.0	13.0	7.0	< 3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	156	235	177	256	237	280	200	246	151	151	218	139
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	197	390	246	501	323	546	340	528	224	208	354	163
BOD5 (mg/L) Raw Sewage Influent Average Monthly	173	240	197	172	205	140	150	264	160	138	204	167
TSS (lbs/day) Average Monthly	< 3.8	< 4.7	4.9	< 5.9	3.4	4.7	< 4.5	< 5.0	< 3.5	7.7	5.0	< 2.2

TSS (lbs/day) Raw Sewage Influent Average Monthly	60	65	53	64	73	82	63	46	45	50	90	56
TSS (lbs/day) Raw Sewage Influent Daily Maximum	88	97	85	114	86	116	104	55	65	91	129	86
TSS (lbs/day) Weekly Average	6.2	9.5	6.0	12.4	4.7	6.3	7.3	8.4	8.5	13.5	7.1	4.8
TSS (mg/L) Average Monthly	< 4.0	< 5.0	5.0	< 4.0	3.0	3.0	< 3.0	< 5.0	< 4.0	6.0	5.0	< 3.0
TSS (mg/L) Raw Sewage Influent Average Monthly	66	72	55	43	63	43	51	47	48	46	89	68
TSS (mg/L) Weekly Average	8.0	9.0	7.0	7.0	4.0	4.0	5.0	8.0	8.0	10.0	6.0	5.0
Fecal Coliform (No./100 ml) Geometric Mean	< 67	< 6	188	7	< 1	< 2.0	< 1	< 3	< 1	< 3	< 1	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	913.9	593.8	866.4	98.7	< 1	5.2	3.1	139.6	1	23.8	2	< 1
UV Transmittance (%) Daily Minimum	100	100	100	100	115	115	115	115.0	115	115	115	115
Nitrate-Nitrite (mg/L) Average Monthly	< 32.84	< 31.81	< 22.68	< 17.29	< 19.69	< 16.155	< 22.31	< 21.88	< 26.86	< 21.896	< 18.87	< 18.648
Nitrate-Nitrite (lbs) Total Monthly	< 943	< 1043	< 601	< 733	< 638	< 916	< 815	< 636	< 786	< 801	< 557	< 504
Total Nitrogen (mg/L) Average Monthly	< 33.34	< 32.31	< 23.82	< 17.79	< 20.27	< 16.652	< 22.81	< 22.38	< 27.36	< 22.33	< 19.42	< 19.148
Total Nitrogen (lbs) Effluent Net Total Monthly	< 958	< 1059	< 633	< 754	< 657	< 944	< 833	< 651	< 801	< 818	< 575	< 518
Total Nitrogen (lbs) Total Monthly	< 958	< 1059	< 633	< 754	< 657	< 944	< 833	< 651	< 801	< 818	< 575	< 518
Total Nitrogen (lbs) Effluent Net Total Annual										8070		
Total Nitrogen (lbs) Total Annual										8070		
Ammonia (lbs/day) Average Monthly	< 0.1	< 0.1	< 0.2	< 0.1	< 0.1	< 0.2	< 0.1	< 0.1	< 0.07	< 0.2	< 0.1	< 0.1

Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.172	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.0738	< 0.1328	< 0.145	< 0.113
Ammonia (lbs) Total Monthly	< 3	< 3	< 5.0	< 4	< 3.0	< 6.0	< 4	< 3	< 2	< 5.0	< 4.0	< 0.1
Ammonia (lbs) Total Annual										< 57		
TKN (mg/L) Average Monthly	< 0.5	< 0.5	< 1.14	< 0.5	< 0.6	< 0.6	< 0.5	< 0.5	< 0.5	< 0.4321	0.6	< 0.5
TKN (lbs) Total Monthly	< 15	< 17	< 32	< 21	< 19	< 31	< 18	< 15	< 15	< 17	< 0.6	< 14
Total Phosphorus (mg/L) Average Monthly	6.12	6.04	4.28	2.99	3.31	2.89	2.84	4.01	4.18	4.5	4.24	4.82
Total Phosphorus (lbs) Effluent Net Total Monthly	174	190	115	125	108	161	102	111	122	166	120	132
Total Phosphorus (lbs) Total Monthly	174	190	115	125	108	161	102	111	122	166	120	132
Total Phosphorus (lbs) Effluent Net Total Annual										1391		
Total Phosphorus (lbs) Total Annual										1391		
Total Copper (mg/L) Average Quarterly	0.0127			< 0.01000			0.0203			0.0131		

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .6
Latitude 40º 40' 19.00" **Longitude** -78º 42' 13.00"
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

The discharge was evaluated using WQM7.0 to determine the $CBOD_5$, ammonia nitrogen, and dissolved oxygen parameters. The model results show slightly more restrictive limits for $CBOD_5$ and for summer ammonia-nitrogen Limits. The Limits evaluated for winter ammonia-nitrogen and DO are less restrictive than limits previously imposed.

To comply with anti-backsliding regulations, the previous, more restrictive limits for winter ammonia-nitrogen and DO, will again be imposed for the facility.

Parameter	Limit (mg/l)	SBC	Model
$CBOD_5$ (Nov 1 – Apr 30)	23	Average Monthly	WQM7.0
$CBOD_5$ (May 1 – Oct 31)	17	Average Monthly	WQM7.0
Dissolved Oxygen	6.0	Minimum	WQAM63
Ammonia Nitrogen (Nov 1 – Apr 30)	2.0	Average Monthly	WQAM63
Ammonia Nitrogen (May 1 – Oct 31)	4.0	Average Monthly	WQM7.0

Based off of the current submitted DMRs, the facility is capable of meeting these new restrictive limits. Therefore, the facility will not receive a compliance schedule for these limits.

Toxics Modeling

Per DEP SOP "Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers" (SOP No. BCW-PMT-037), the Toxics Management Spreadsheet (TMS) will be run for all pollutants for which sampling data is available. All sewage facilities with a design flow of greater than or equal to 0.1 MGD are required to provide effluent samples for: pH, TRC, fecal coliform, $CBOD_5$ or BOD_5, TSS, NH_3-N, Total N, Total P, DO, temperature, TKN, NO_2-N + NO_3-N, TDS, Chloride, Bromide, Sulfate, oil and grease, and any applicable TMDL parameters. The TMS spreadsheet was run for the applicable parameters of TDS, Chloride, Bromide, Sulfate, Total Copper, Total Lead, and Total Zinc. Reasonable Potential was found for several of these parameters therefore additional WQBELs will be included in the permit. The Full TMS results can be found in Attachment D.

Parameter	Limit (mg/l)	SBC	Model
Total Copper	0.014	Average Monthly	TMS
Total Lead	0.005	Average Monthly	TMS
Total Zinc	Report	Average Monthly	TMS

The limits for Total Copper and Total Lead are new for this permit cycle. The facility was given a pre-draft permit survey and conducted 10 weeks of testing to show that they are capable of the more restrictive limits. The facility was able to meet the new limits for total lead; therefore, the new total lead limits will be effective immediately. for total copper a compliance schedule of two year will be given. Additionally, the permittee will be required to complete a TRE Workplan and a corrosion control feasibility study. These requirements are detailed under part C in the NPDES permit

Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 **(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.**

The facility is not seeking to revise the previously permitted effluent limits.

Mass Loading Limitations

Per Department SOP "Establishing Effluent Limitations for Individual Sewage Permits" (BCW-PMT-033), mass loading limits will be established for POTWs for $CBOD_5$, TSS, ammonia nitrogen. Average monthly mass loading limits will be established for $CBOD_5$, TSS, and ammonia nitrogen. Average weekly mass loading limits will be established for $CBOD_5$ and TSS. Mass loading limits will be calculated according to the formula below:

$$average\ annual\ design\ flow\ (MGD) \times concentration\ limit\ \left(\frac{mg}{L}\right) \times 8.34\ (converstion\ factor)$$
$$= mass\ loading\ limit\ \left(\frac{lbs}{day}\right)$$

Please note that the hydraulic capacity of the facility is used for the average annual design flow number for the purposes of the calculations

The following mass loading limitations were calculated:

Parameter	Average Monthly (lbs/day)	Average Weekly (lbs/day)
$CBOD_5$ (Nov 1 – Apr 30)	**115.09**	**172.63**
$CBOD_5$ (May 1 – Oct 31)	**85.06**	**127.6**
TSS	**150.12**	**225.18**
Ammonia Nitrogen (May 1 – Oct 31)	**20.01**	**-**
Ammonia Nitrogen (Nov 1 – Apr 30)	**10.0**	**-**

Influent Monitoring

Per Department SOP "New and Reissuance Sewage Individual NPDES Permit Applications" (BCW-PMT-002), POTWs with design flows greater than 2,000 GPD, influent BOD_5 and TSS monitoring will again be included in the permit. The influent monitoring will be established with the same frequency and sample type as the effluent sampling.

Chesapeake Bay

Hastings WWTP is considered a Phase 3 discharger by the Chesapeake Bay Watershed Implementation Plan and all effluent limits were to be established in the permit by October 2016. Hastings WWTP has been assigned a Cap Load for TN and TP in the Phase 3 Watershed Implementation Plan Wastewater Supplement (rev. July 29, 2022) to the Chesapeake Bay Watershed Implementation Plan. The cap load for Total Nitrogen is set at 10,959 lbs/year. The cap load for Total Phosphorus is set at 1,461 lbs/year. Cap Loads for TN and TP are implemented in NPDES permits by the establishment of Annual Net Mass Load limits. No TN Offsets were incorporated into the TN Cap loads, and therefore, no Offsets will need to be removed. To comply with the Cap Loads, annual reporting of the load for total nitrogen and total phosphorus will be imposed. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and Nitrate-Nitrite as N so monitoring for Total Kjeldahl Nitrogen and Nitrate-Nitrite as N will also be imposed. In addition, Hastings WWTP will be required to monitor and report both the concentration and the load for TN and TP. The monitoring frequency for Total Nitrogen and Total Phosphorus will be 2/week according to the Chesapeake Bay Phase 3 WIP Wastewater Supplement.

Additional Considerations

Sewage discharges will include monitoring, at a minimum, for *E. coli*, in new and reissued permits, with a monitoring frequency of 1/quarter for design flows >= 0.05 and < 1 MGD.

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Department's "Technical Guidance for the Development and Specification of Effluent Limitations".

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" (386-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Average Monthly	Weekly Average	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	115.1	172.6	23.0	34.5	XXX	46	1/week	8-Hr Composite
CBOD5 May 1 - Oct 31	85.1	127.6	17.0	25.5	XXX	34	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	Report	XXX	XXX	XXX	1/week	8-Hr Composite
TSS	150.12	225.18	30.0	45.0	XXX	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	Report	XXX	XXX	XXX	1/week	8-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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Transmittance (%)	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Recorded
Ammonia-Nitrogen Nov 1 - Apr 30	20.01	XXX	4.0	XXX	XXX	8	2/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	10.0	XXX	2.0	XXX	XXX	4	2/week	8-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
	Average Monthly	Weekly Average	Average Monthly	Weekly Average	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Total Lead	0.025	0.035 Daily Max	0.005	XXX	0.007	0.012	1/week	24-Hr Composite
Total Zinc	Report	Report Daily Max	Report	XXX	XXX	XXX	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: N/A

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" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Two Years After 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	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Copper	Report	Report	XXX	Report	Report Daily Max	XXX	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: N/A

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" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Two Years After 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		
Total Copper	0.068	102 Daily Max	XXX	0.014	20.3 Daily Max	20.3	1/week	24-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: N/A

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

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		
Nitrate-Nitrite as N	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/week	24-Hr Composite
Total Nitrogen	Report Annl Avg	Report Annl Avg	XXX	Report Annl Avg	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	XXX	10959 Total Annual	XXX	XXX	XXX	XXX	1/month	Calculation
Ammonia	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/week	24-Hr Composite
TKN	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/week	24-Hr Composite
Total Phosphorus	Report Annl Avg	Report Annl Avg	XXX	Report Annl Avg	XXX	XXX	2/week	24-Hr Composite
Net Total Phosphorus	XXX	1461 Total Annual	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: Outfall 001

Other Comments: N/A

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ATTACHMENT A:
USGS STREAMSTATS

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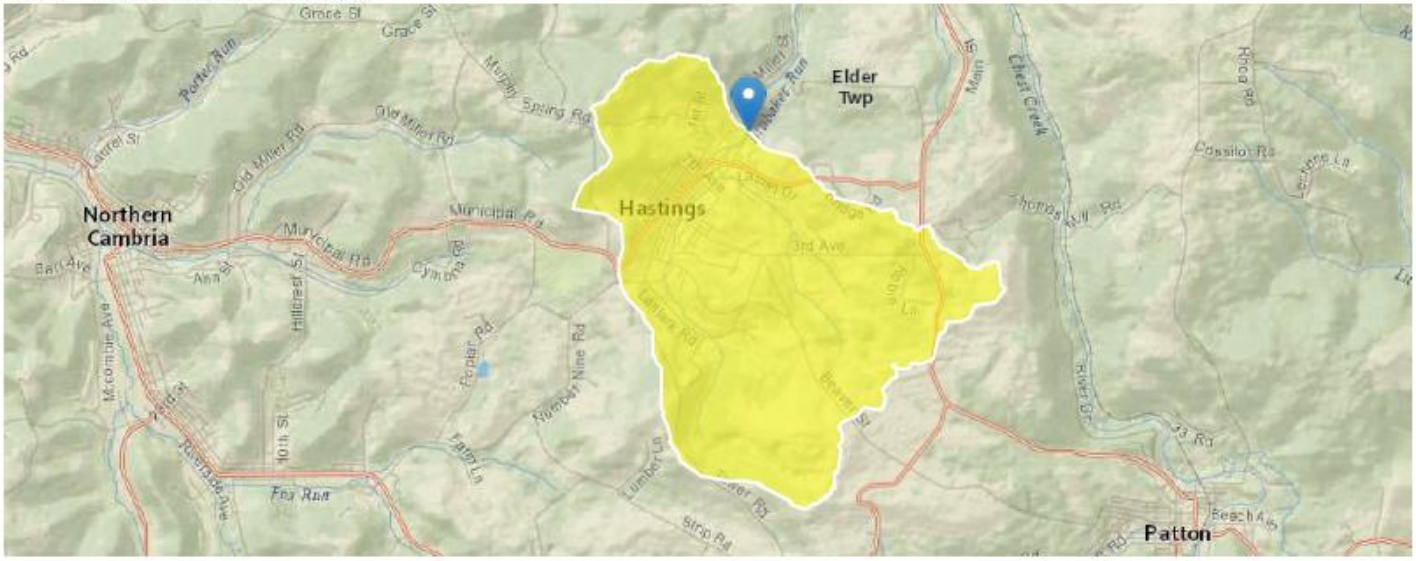
StreamStats Report

Region ID: PA
Workspace ID: PA20230223143854989000
Clicked Point (Latitude, Longitude): 40.67172, -78.70348
Time: 2023-02-23 09:39:15 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	4.2	square miles

Parameter Code	Parameter Description	Value	Unit
ELEV	Mean Basin Elevation	1968	feet
PRECIP	Mean Annual Precipitation	43	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4.2	square miles	2.33	1720
ELEV	Mean Basin Elevation	1968	feet	898	2700
PRECIP	Mean Annual Precipitation	43	inches	38.7	47.9

Low-Flow Statistics Flow Report [Low Flow Region 3]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.519	ft^3/s	43	43
30 Day 2 Year Low Flow	0.739	ft^3/s	38	38
7 Day 10 Year Low Flow	0.221	ft^3/s	54	54
30 Day 10 Year Low Flow	0.302	ft^3/s	49	49
90 Day 10 Year Low Flow	0.448	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

ATTACHMENT B:
WQM MODELING RESULTS (SUMMER)

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Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
08B	26858	BRUBAKER RUN	3.880	1968.00	4.20	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	0.100	0.22	0.00	0.000	0.000	10.0	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
Hastings WTP	PA0023141	0.6000	0.0000	0.0000	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	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	9.01	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
08B	26858	BRUBAKER RUN

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												
3.880	0.22	0.00	0.22	.9282	0.00499	.514	13.5	26.27	0.17	1.428	20.00	7.00
Q1-10 Flow												
3.880	0.14	0.00	0.14	.9282	0.00499	NA	NA	NA	0.16	1.487	20.00	7.00
Q30-10 Flow												
3.880	0.30	0.00	0.30	.9282	0.00499	NA	NA	NA	0.17	1.376	20.00	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	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
08B	26858	BRUBAKER RUN

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
3.880	Hastings WTP	16.76	19.31	16.76	19.31	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
3.880	Hastings WTP	1.89	2.5	1.89	2.5	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)		
3.88	Hastings WTP	17.62	17.62	2.5	2.5	6	6	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
08B	26858	BRUBAKER RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.880	0.600	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
13.502	0.514	26.270	0.166
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
14.62	0.995	2.02	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.579	7.855	Tsivoglou	6
Reach Travel Time (days)			
1.428			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.143	12.68	1.83	6.07
0.286	11.00	1.65	6.19
0.428	9.54	1.49	6.47
0.571	8.28	1.35	6.77
0.714	7.18	1.22	7.05
0.857	6.23	1.11	7.31
1.000	5.41	1.00	7.54
1.143	4.69	0.91	7.73
1.285	4.07	0.82	7.91
1.428	3.53	0.74	8.06

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
08B	26858	BRUBAKER RUN

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)
3.880	Hastings WTP	PA0023141	0.600	CBOD5	17.62		
				NH3-N	2.5	5	
				Dissolved Oxygen			6

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ATTACHMENT C:
WQM MODELING RESULTS (WINTER)

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Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
08B	26858	BRUBAKER RUN	**3.880**	1968.00	4.20	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	0.200	0.22	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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
Hastings WTP	PA0023141	0.6000	0.0000	0.0000	0.000	15.00	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	4.00	12.51	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
08B	26858	BRUBAKER RUN

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												
3.880	0.22	0.00	0.22	.9282	0.00499	.514	13.5	26.27	0.17	1.428	13.08	7.00
Q1-10 Flow												
3.880	0.14	0.00	0.14	.9282	0.00499	NA	NA	NA	0.16	1.487	13.68	7.00
Q30-10 Flow												
3.880	0.30	0.00	0.30	.9282	0.00499	NA	NA	NA	0.17	1.376	12.55	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	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
08B	26858	BRUBAKER RUN

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
3.880	Hastings WTP	24.1	27.78	24.1	27.78	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
3.880	Hastings WTP	3.05	4.04	3.05	4.04	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)		
3.88	Hastings WTP	23.13	23.13	4.04	4.04	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
08B	26858	BRUBAKER RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.880	0.600	13.077	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
13.502	0.514	26.270	0.166
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
19.07	1.327	3.26	0.411
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.444	6.665	Tsivoglou	6
Reach Travel Time (days)			
1.428			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.143	16.61	3.08	6.05
0.286	14.47	2.90	6.23
0.428	12.61	2.73	6.60
0.571	10.98	2.58	6.99
0.714	9.57	2.43	7.37
0.857	8.34	2.29	7.72
1.000	7.26	2.16	8.03
1.143	6.33	2.04	8.30
1.285	5.51	1.92	8.54
1.428	4.80	1.81	8.76

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
08B	26858	BRUBAKER RUN

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)
3.880	Hastings WTP	PA0023141	0.600	CBOD5	23.13		
				NH3-N	4.04	8.08	
				Dissolved Oxygen			5

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ATTACHMENT D:
TMS RESULTS

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Hastings WTP** NPDES Permit No.: **PA0023141** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** 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
0.6	100	6.35						

					0 if left blank		0.6 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
Group 1	Total Dissolved Solids (PWS)	mg/L		952									
	Chloride (PWS)	mg/L		265									
	Bromide	mg/L	<	0.072									
	Sulfate (PWS)	mg/L		166									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	mg/L		0.066									
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	mg/L		0.0203									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	mg/L		0.06									
	Total Lead	mg/L	<	0.008									
	Total Manganese	mg/L		0.006									
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	mg/L		0.0283									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Hastings WTP, NPDES Permit No. PA0023141, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **Brubaker Run**

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	026858	3.88	1968	4.2			Yes
End of Reach 1	026858	0.01	1866	12.8			Yes

Q_{7-10}

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	3.88	0.1										100	7		
End of Reach 1	0.01	0.1													

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	3.88														
End of Reach 1	0.01														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Hastings WTP, NPDES Permit No. PA0023141, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

Hydrodynamics

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
3.88	0.42		0.42	0.928	0.005	0.526	14.155	26.914	0.181	1.306	0.989
0.01	1.28		1.28								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
3.88	3.48		3.48	0.928	0.005	0.886	14.155	15.979	0.352	0.673	2.906
0.01	9.219		9.22								

Wasteload Allocations

AFC CCT (min): 0.989 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 6.47

Pollutants	Stream Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,089	
Total Copper	0	0		0	13.439	14.0	20.3	Chem Translator of 0.96 applied
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.581	81.6	119	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	117.180	120	174	Chem Translator of 0.978 applied

CFC CCT (min): 0.989 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 6.47

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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	8.956	9.33	13.6	Chem Translator of 0.96 applied
Total Iron	0	0		0	1,500	1,500	2,179	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	4.62	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	118.139	120	174	Chem Translator of 0.986 applied

THH CCT (min): 0.989 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 Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,452	
Total Zinc	0	0		0	N/A	N/A	N/A	

CRL CCT (min): 2.906 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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	

Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

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	0.068	102	0.014	20.3	20.3	mg/L	0.014	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Lead	0.023	0.036	0.005	0.007	0.012	mg/L	0.005	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	mg/L	0.12	AFC	Discharge Conc > 10% WQBEL (no 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
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	0.75	mg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	2.18	mg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	1.45	mg/L	Discharge Conc ≤ 10% WQBEL

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ATTACHMENT E:
PREDRAFT SURVEY RESULTS

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Cu
Pb

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PRE-DRAFT PERMIT SURVEY FOR TOXIC POLLUTANTS

Permittee Name: **Hastings Area Sewer Authority** Permit No.: **PA0023141**

Pollutant(s) identified by DEP that may require WQBELs: Copper (Total), Lead (Total)

Is the permittee aware of the source(s) of the pollutant(s)? ☐ Yes ☑ No ☐ Suspected

If Yes or Suspected, describe the known or suspected source(s) of pollutant(s) in the effluent.

Has the permittee completed any studies in the past to control or treat the pollutant(s)? ☐ Yes ☑ No

If Yes, describe prior studies and results:

Does the permittee believe it can achieve the proposed WQBELs now? ☑ Yes ☐ No ☐ Uncertain

If No, describe the activities, upgrades or process changes that would be necessary to achieve the WQBELs, if known.

Estimated date by which the permittee could achieve the proposed WQBELs: _____ ☑ Uncertain

Will the permittee conduct additional sampling for the pollutant(s) to supplement the application? ☑ Yes ☐ No

Check the appropriate box(es) below to indicate site-specific data that have been collected by the permittee in the past. If any of these data have not been submitted to DEP, please attach to this survey.

☐	Discharge pollutant concentration coefficient(s) of variability	Year(s) Studied:
☐	Discharge and background Total Hardness concentrations (metals)	Year(s) Studied:
☐	Background / ambient pollutant concentrations	Year(s) Studied:
☐	Chemical translator(s) (metals)	Year(s) Studied:
☐	Slope and width of receiving waters	Year(s) Studied:
☐	Velocity of receiving waters at design conditions	Year(s) Studied:
☐	Acute and/or chronic partial mix factors (mixing at design conditions)	Year(s) Studied:
☐	Volatilization rates (highly volatile organics)	Year(s) Studied:
☐	Site-specific criteria (e.g., Water Effect Ratio or related study)	Year(s) Studied:

Please submit this survey to the DEP regional office that is reviewing the permit application within 30 days of receipt.

	Hasting Area Sewer Authority PWSID #PA0023141						
	Sample Date	Copper (ug/L)	Copper (mg/L)		Lead (ug/L)	Q	Lead (mg/L)
1.	4/20/2023	10.5	0.0105		0.361		0.000361
2.	4/27/2023	3.0	0.0030		0.082		0.000082
3.	5/4/2023	12.7	0.0127		0.280		0.000280
4.	5/11/2023	13.0	0.0130		0.232		0.000232
5.	5/18/2023	17.1	0.0171		0.323		0.000323
6.	5/25/2023	15.4	0.0154		0.840		0.000840
7.	6/1/2023	18.4	0.0184		1.430		0.001430
8.	6/8/2023	14.4	0.0144		0.169		0.000169
9.	6/15/2023	15.3	0.0153		0.236		0.000236
10.	6/22/2023	14.9	0.0149		0.205		0.000205
	Average	13.5	0.0135		0.4158		0.0004158

Note: Lab Reporting Limit (RL) for Copper (Cu) = 0.0001 mg/L
and Lead (Pb) = 0.0025 mg/L.
Sample: Effluent UV Channel
Project Manager: Mike McCluskey
Study Duration: 1 sample/week x 10 weeks
Sampler: Jared Hay (InnoH2O Solutions)