pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0006297**
Facility Type	**Industrial**	APS ID	**636222**
Major / Minor	**Minor**	Authorization ID	**710579**

NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Applicant and Facility Information

Applicant Name	**Menasha Packaging Company, LLC**	Facility Name	**Yukon Plant**
Applicant Address	567 Waltz Mill Road	Facility Address	Yukon Plant
	Ruffs Dale, PA 15679-1217		Yukon, PA 15698
Applicant Contact	Ryan Stiffey	Facility Contact	Ryan Stiffey
Applicant Phone	(724) 722-4280	Facility Phone	(724) 722-4280
Client ID	7823	Site ID	240060
SIC Code	2653 – Corrugated and Solid Fiber Boxes 2675 – Die-Cut Paper, Paperboard and Cardboard	Municipality	Sewickley Township
SIC Description	Manufacturing - Corrugated and Solid Fiber Boxes	County	Westmoreland
Date Application Received	May 7, 2007	EPA Waived?	Yes
Date Application Accepted	January 11, 2008	If No, Reason	

Purpose of Application: Renewal of NPDES Industrial Waste Permit without ELG.

Summary of Review

History:

The Department received an NPDES permit renewal application from Menasha Packaging Company LLC on May 7, 2007 for the Menasha Packaging Company Yukon Plant Sewage Treatment Plant. A revised renewal application dated December 28, 2007 was submitted to the Department. The revised application contained the following: Industrial Dischargers Checklist; Topographic Map showing facility outfalls; outfall locational information summary table; Module 1 with treatment plant schematic and PPC Plan; Module 2; Module 3; Module 4; and Module 14. On January 30, 2008, the Department determined that the renewal application was Administratively Complete. The Department issued a technically deficient notice to the company on April 9, 2008. The deficiencies identified in the notice were: failure to analyze all required parameters, failure to analyze separately, each influent to the treatment plant rather than once combined, failure to update the flow diagram, failure to provide secondary containment for the oil storage area, and failure to review of the PPC Plan. The Department received Modules 12 and 13 on July 22, 2008 from Menasha Packaging Company.

In July of 2019, the Department spoke with Ryan Stiffey to get confirmation that current facility activities are consistent with the NPDES renewal application and revised submissions. Mr. Stiffey also informed the Department that the facility has an agreement with New Stanton STP to discharge the residual wastes and sewage wastes generated at the facility. New Stanton STP is in the process of extending the sewer system to Menasha Packaging. This sewer line extension requires PENNDOT approval to drill under I70. If this transition

Approve	Deny	Signatures	Date
X		Curtis Holes, P.E. / Environmental Engineering	July 11, 2022
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	July 12, 2022

Summary of Review

n from on-site treatment and discharge to discharging to the New Stanton STP is completed, the facility could qualify for coverage under the NPDES General Permit. At that time, an NPDES General Permit PAG-03 NOI would need to be submitted to evaluate the new conditions at the facility.

Review:

Menasha Packaging Company, LLC produces corrugated packaging from purchased fiber stock. The manufacturing process incorporates the following as part of the everyday process: corrugating, cutting, slitting, printing, and gluing. Manufacturing operations at this plant are classified under two (2) SIC Codes 2653 – Corrugates and Solid Fiber Boxes and 2675 – Die-Cut Paper and Paperboard and Cardboard.

Water quality management permit 6575412, most recently amended on October 20, 2000, authorized the installation and operation of the treatment system at Menasha Packaging Company, LLC. Residual wastewater (internal monitoring point Outfall 101) and sewage generated at the facility is directed to the treatment plant and then ultimately discharged via Outfall 001 to Sewickley Creek (WWF). Outfalls 002, 003, 004, 005, 006 and 007 are uncontaminated stormwater outfalls, which all discharge to Sewickley Creek.

The client has no open violations.

Residual waste disposal must meet solid waste regulations.

Part C language in the draft permit provides controls on floating solids, chemical additives, residual solids, Stormwater Discharges, Fecal Coliform, and Total Residual Chlorine.

It is recommended that a draft permit be published for public comment in response to this application.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0079
Latitude	40º 12' 29"	Longitude	-79º 40' 08"
Quad Name	Smithton	Quad Code	1708
Wastewater Description:	Treated Sanitary wastewater, process wastewater and boiler blowdown.		
Receiving Waters	Sewickley Creek	Stream Code	37556
NHD Com ID	69913457	RMI	12.84
Drainage Area	110 miles^2	Yield (cfs/mi^2)	0.0241
Q_{7-10} Flow (cfs)	2.65	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	900	Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use	None	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Siltation, pH		
Source(s) of Impairment	Abandoned Mine Drainage, Habitat Modification		
TMDL Status	Final December 31, 2008	Name	Stauffer Run
Nearest Downstream Public Water Supply Intake	McKeesport Municipal Water Authority		
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.33	Distance from Outfall (mi)	>40

Changes Since Last Permit Issuance: **None**

Other Comments: **None**

Figure 1: Outfall 001 Drainage Basin

Menasha Packaging Facility Stormwater Outfalls:

Outfall 002 Lat. 40° 12′ 30″ Long. -79° 40′ 09″ RMI 12.74 Stream Sewickley Creek
Source and Characteristics: Paved plant area, outdoor storage area and building roof drains.

Outfall 003 Lat. 40° 12′ 28″ Long. -79° 40′ 16″ RMI 12.60 Stream Sewickley Creek
Source and Characteristics: Paved plant area and building roof drains.

Outfall 004 Lat. 40° 12′ 29″ Long. -79° 40′ 23″ RMI 12.53 Stream Sewickley Creek
Source and Characteristics: Building roof drains.

Outfall 005 Lat. 40° 12′ 32″ Long. -79° 40′ 24″ RMI 12.48 Stream Sewickley Creek
Source and Characteristics: Building roof drains.

Outfall 006 Lat. 40° 12′ 36″ Long. -79° 40′ 24″ RMI 12.45 Stream Sewickley Creek
Source and Characteristics: Building roof drains.

Outfall 007 Lat. 40° 12′ 37″ Long. -79° 40′ 24″ RMI 12.41 Stream Sewickley Creek
Source and Characteristics: Paved plant area, outdoor storage area and building roof drains.

Outfall 101 Lat. _____ Long. _____ RMI 12.74 Stream Sewickley Creek
Source and Characteristics: Internal Monitoring Point for process wastewaters prior to the equalization tank.

Compliance History

DMR Data for Outfall 001 (from September 1, 2018 to August 31, 2019)

Parameter	Limit	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18
Flow (MGD) Average Monthly	Report	0.0014	0.0082	0.0055	0.0060	0.007	0.0046	0.0015	0.0011	0.0073	0.0053	0.0084	0.0014
Flow (MGD) Daily Maximum	Report	0.0014	0.0098	0.0062	0.0068	0.0083	0.0084	0.0023	0.0011	0.0074	0.0074	0.0084	0.0014
pH (S.U.) Minimum	6.0	6.8	6.9	6.8	6.3	7.0	7.2	7.0	5.6	7.0	6.6	6.6	6.0
pH (S.U.) Maximum	9.0	7.5	7.9	7.9	7.4	7.8	7.6	7.7	7.7	7.7	7.5	7.4	7.9
TRC (mg/L) Average Monthly	1.4	0.99	0.88	0.98	0.66	0.96	0.33	0.66	0.57	0.62	0.83	0.83	1.04
TRC (mg/L) I-Max	3.3	1.81	1.82	2.16	1.43	1.87	1.49	1.64	2.20	2.20	1.94	1.73	2.20
CBOD5 (mg/L) Average Monthly	25.0	3	5	9	6	23	**118**	24	**41**	**67**	11	3	5
CBOD5 (mg/L) I-Max	50.0	3	6	12	6	32	**199**	25	**63**	**74**	18	4	5
TSS (mg/L) Average Monthly	30.0	5	4	6	13	35	**107**	25	6	**174**	25	21	15
TSS (mg/L) I-Max	60.0	7	4	9	22	42	**186**	31	6	**212**	46	32	19
Oil and Grease (mg/L) Average Monthly	15.0	5.00	5.00	6.25	5.00	5.00	**111.70**	**24.30**	5.00	**33.15**	8.85	5.00	6.85
Oil and Grease (mg/L) I-Max	30.0	5.00	5.00	7.50	5.00	5.00	**218.00**	**43.60**	5.00	**34.90**	12.70	5.00	8.70
Fecal Coliform (CFU/100 ml) Geometric Mean	200 2000	56	1	1	2	2	86	751	76	**3617**	944	1	2
Fecal Coliform (CFU/100 ml) I-Max	1000 (Oct-Apr)	1011	1	1	2								2

Compliance History

Effluent Violations for Outfall 001, from: October 1, 2018 To: August 31, 2019

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
pH	01/31/19	Min	5.6	S.U.	6.0	S.U.
CBOD5	03/31/19	Avg Mo	118	mg/L	25	mg/L
CBOD5	01/31/19	Avg Mo	41	mg/L	25	mg/L
CBOD5	12/31/18	Avg Mo	67	mg/L	25	mg/L
CBOD5	03/31/19	IMAX	199	mg/L	50	mg/L
CBOD5	01/31/19	IMAX	63	mg/L	50	mg/L
CBOD5	12/31/18	IMAX	74	mg/L	50	mg/L
TSS	03/31/19	Avg Mo	107	mg/L	30	mg/L
TSS	12/31/18	Avg Mo	174	mg/L	30	mg/L
TSS	04/30/19	Avg Mo	35	mg/L	30	mg/L
TSS	03/31/19	IMAX	186	mg/L	60	mg/L
TSS	12/31/18	IMAX	212	mg/L	60	mg/L
Oil and Grease	03/31/19	Avg Mo	111.70	mg/L	15	mg/L
Oil and Grease	02/28/19	Avg Mo	24.30	mg/L	15	mg/L
Oil and Grease	12/31/18	Avg Mo	33.15	mg/L	15	mg/L
Oil and Grease	02/28/19	IMAX	43.60	mg/L	30	mg/L
Oil and Grease	12/31/18	IMAX	34.90	mg/L	30	mg/L
Oil and Grease	03/31/19	IMAX	218.00	mg/L	30	mg/L
Fecal Coliform	12/31/18	Geo Mean	3617	CFU/100 ml	2000	CFU/100 ml
Fecal Coliform	08/31/19	IMAX	1011	CFU/100 ml	1000	CFU/100 ml

Summary of Inspections: The last inspection conducted by the Department was on January 22, 2016 by Katlyn Boone and no violations were noted.

Other Comments: None

Development of Effluent Limitations

Outfall No. 101 **Design Flow (MGD)** 0.00535
Latitude **Longitude**
Wastewater Description: Boiler blowdown and wash and corrugator starch water.

Technology-Based Limitations

Internal monitoring point Outfall 101 is the location to monitor the industrial wastewaters (boiler blowdown along with wash and corrugator starch water discharged from the ALAR system (rotary vacuum drum filter). From the ALAR system the industrial wastewaters combine with the sanitary wastewater in the equalization tank then proceed through the wastewater treatment plant and ultimately discharged via Outfall 001 to Sewickley Creek. Thermal Limits developed for internal monitoring location Outfall 101 will be applied at Outfall 001.

Outfall 101's is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471. The industrial wastewater from manufacturing water-based ink or from corrugated packaging and printing facilities typically contain color (pigments or dyes), heavy metals and suspended solids. The industrial users of flexographic ink (water-based ink) may also generate wastewater containing trace oils, and/or adhesives such as polyvinyl acetates (PVA) glue or starch. Effluent limits specified at this outfall are based on the application of BAT. The industrial wastewater is pretreated by the ALAR treatment system prior to entering the equalization tank where it is combined with raw sewage prior to going through the sewage treatment system.

The ALAR treatment system is an auto-vac rotary drum precoat filter, which is a proven technology associated contaminants (water-based ink, heavy metals, TSS, FOG and BOD) present in the industrial wastewater.

Regulatory Effluent Standards and Monitoring Requirements

The pH effluent range for all Industrial waste process and non-process discharges pursuant of 25 Pa. Code § 95.2 is 6.0 – 9.0 S.U.

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1).

Pursuant to 25 PA Code Chapter 95.2 effluent standards for industrial wastes may not contain more than 15.0 mg/L average monthly and 30.0 mg/L daily maximum oil and grease.

The NPDES General Permit PAG-05 identifies the BAT standard limit for total suspended solids (TSS) as 30.0 mg/L Average Monthly and 60.0 mg/L Daily Maximum.

Total Dissolved Solids (TDS)

Integral to the implementation of 25 Pa. Code § 95.10 is the principle that existing, authorized mass loadings of TDS are exempt from any treatment requirements under these provisions. Existing mass loadings of TDS up to and including the maximum daily discharge loading for any existing discharge, provided that the loading was authorized prior to August 21, 2010 are exempt. Discharge loadings of TDS authorized by the Department are typically exempt from the treatment requirements of Chapter 95.10 until the net TDS loading is increased, an existing discharge proposes a hydraulic expansion or a change in the waste stream. If there are existing mass or production-based TDS effluent limits, then these are used as the basis for the existing mass loading. The facility is not new or expanding waste loading of TDS, therefore, the facility is exempt from 25 Pa. Code § 95.10 treatment requirements.

Water Quality-Based Limitations

Since the industrial wastewater and sanitary wastewater have different parameters of concern, the water quality evaluation will be conducted on Outfall 101 to determine the parameters of concern for the industrial wastewater. Water Quality-Based Limits developed for internal monitoring point Outfall 101 will be evaluated at Outfall 001. The ALAR treatment system is a pretreatment system to the wastewater treatment plant, which permitted to treat both the industrial and sanitary wastewaters generated at the facility.

Toxics Management Analysis

The Department's Toxics Management Spreadsheet (TMS) was utilized to facilitate calculations necessary for completing a reasonable potential analysis and determine Water Quality-Based Effluent Limitations (WQBELs) for discharges containing toxic pollutant concentrations. TMS combines the functionality of two (2) of the Department's analysis tools, Toxics Screening Analysis Spreadsheet and PENTOXSD water quality model.

DEP's procedures for evaluating reasonable potential are as follows:

1. For IW discharges, the design flow to use in modeling is the average flow during production or operation and may be taken form the permit application.

2. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants, as reported in the permit application or on DMRs, are modeled by the TMS to determine the parameters of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion].

    - Establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL. Use the average monthly and maximum daily limits for the permit as recommended by TMS. Establish an IMAX limit at 2.5 times the average monthly limit.

    - For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.

    - For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Discharges from Outfall 101 are evaluated based on concentrations reported on the application are used as inputs into the TMS. A summary of TMS Inputs is contained in Table 1 below.

Table 1: TMS Inputs

Parameter	Value
Discharge Inputs	
Facility	Yukon Plant
Evaluation Type	Industrial
NPDES Permit No.	PA0006297
Wastewater Description	Boiler blowdown and wash and corrugator starch water
Outfall ID	101
Design Flow (MGD)	0.00535
Hardness ($^{mg}/_{L}$)	100
pH (S.U.)	7,0
Partial Mix Factors	Unknown – Calculated by TMS
Complete Mix Times	
Q_{7-10} (min)	
Q_h (min)	
Stream Inputs	
Receiving Surface Water	Sewickley Creek
Number of Reaches to Model	1
Stream Code	37556
RMI	12.84 / 12.0*
Elevation (ft)	910 / 905*
Drainage Area (mi^2)	110 / 115*
Slope (ft/ft)	
PWS Withdrawal (MGD)	N/A
Apply Fish Criteria	Yes
Low Flow Yield (cfs/mi^2)	0.024
Flows	
Stream (cfs)	2.65 / 2.8*****
Tributary (cfs)	N/A
Width (ft)	65 / 65*****
Stream Hardness ($^{mg}/_{L}$)	100
Stream pH (S.U.)	7

***** Denotes discharge location/downstream location values.

TMS Model does not recommend WQBELs. Analysis Report from the TMS run is included in Attachment A.

Thermal WQBELs for Heated Discharges (Non-Contact Cooling Water)

Thermal WQBELs are evaluated using the Department's program called "Thermal Discharge Limit Calculation Spreadsheet" created with Microsoft Excel for Windows. The program calculates temperature WLAs through the application of a heat transfer equation, which takes two forms in the program depending on the source of the facility's cooling water. In Case 1, intake water to a facility is from the receiving stream. In Case 2, intake water is from a source other than the receiving stream (e.g., municipal water supply). The determination of which case applies to a given discharge is determined by the input data which include the receiving stream flow rate (Q_{7-10} or the minimum regulated flow for large rivers), the stream intake flow rate, external source intake flow rates, consumptive flow rates and site-specific ambient stream temperatures. Case 1 limits are generally expressed as heat rejection rates while Case 2 limits are usually expressed as temperatures.

Since the temperature criteria from 25 Pa. Code Chapter 93.7(a) are expressed on monthly and semi-monthly bases for three different aquatic life-uses—cold water fishes, warm water fishes and trout stocking—the program generates monthly and semi-monthly limits for each use. The Department selects the output that corresponds to the aquatic life-use of the receiving stream and consequently which limits apply to the discharge. Temperature WLAs are bounded by an upper limit of 110°F (as discussed in Technology-Based Limitations) for the safety of sampling personnel and anyone who may come into contact with the heated discharge where it enters the receiving water. If no WLAs below 110°F are calculated, an instantaneous maximum limit of 110°F is recommended by the program.

The Department's *Implementation Guidance for Temperature Criteria* directs permit writers to assume instantaneous complete mixing of the discharge with the receiving stream when calculating thermal effluent limits unless adverse factors exist. One such factor listed in the guidance is that the "discharge is to a receiving water that is very wide, resulting in restricted dispersion of the plume, and horizontal stratification of the plume." Since wastewaters from Outfall 101 will be discharged to Sewickley Creek, the dispersion of the discharge plume is assumed to be instantaneous.

Discharges from Outfall 101 are classified under Case 2 because the facility's water is obtained from the local municipal supply. The flow rates used for modeling are 0.0008 MGD, which is the monthly average flow of the facility's heated effluent sources (NCCW) and 2.65 cfs, which is Sewickley Creek's Q_{7-10} from StreamStats. The results of the thermal analysis, included in Attachment B, indicate that WQBELs for temperature are not required for Outfall 101, therefore, the technology-based limitation of 110°F is recommended. Outfall 101 ultimately discharges via Outfall 001, and the thermal limitation of 110 °F will be imposed at Outfall 001.

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.

Parameters of Concern for Outfall 101

The facility's industrial wastewater is pretreated by the ALAR treatment system prior to entering the wastewater treatment plant. The internal monitoring point Outfall 101 is the effluent discharge of the ALAR treatment system prior to comingling with the facility's sanitary wastewater. Outfall 101 historically did not have monitoring requirements imposed. Monitoring requirements are being imposed to ensure the proper operation of the ALAR treatment system and to assist in determining the source of any effluent limitation exceedances at Outfall 001.

Parameters of concern applicable at Outfall 101 are the more stringent of TBELs, regulatory effluent standards, previously permitted effluent limits and the monitoring requirements are summarized in Table 2.

Table 2: Parameters of Concern for Outfall 101

Parameter	Mass (pounds)		Concentration ($^{mg}/_{L}$)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
Total Suspended Solids	—	—	30.0	—	60.0	40 CFR § 125.3
Oil and Grease	—	—	15.0	—	30.0	25 Pa. Code § 95.2
pH (S.U.)	Within the range of 6.0 to 9.0					25 Pa. Code § 95.2

If the parameters of concern are required to be imposed at Outfall 101, the monitoring requirements are based on the previous permits monitoring requirements for the facility are displayed in Table 3 below.

Table 3: Monitoring Requirements for Outfall 101

Parameter	Sample Type	Minimum Sample Frequency
Flow (MGD)	Meter	Daily
Total Suspended Solids	Grab	2/Month
Oil and Grease	Grab	2/Month
pH (S.U.)	Grab	2/Month

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0079
Latitude 40º 12' 29" **Longitude** -79º 40' 08"
Wastewater Description: Treated wastewaters (Sanitary, boiler blowdown, and wash and corrugator starch water).

Technology-Based Limitations

The Menasha Packaging Company – Yukon Plant is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471.

The wastewater treatment plant discharge location is Outfall 001 to Sewickley Creek. The wastewater treatment plant receives sanitary wastewater (0.00455 MGD), boiler blowdown (0.0008 MGD), and wash and corrugator starch water (0.00255 MGD) for a total average monthly flowrate of 0.0079 MGD and ultimately discharges via Outfall 001 to the Sewickley Creek. The technology-based limitation evaluation for internal monitoring location Outfall 101 will be applied at Outfall 001.

Table 4 below contains the summary of Best Professional Judgement (BPJ) standards for individual sewage permit (>2,000 gallons per day).

Table 4: BPJ Standards for Individual Sewage Permit

Parameter	Minimum	Average Monthly	IMAX	Basis
Flow (MGD)	XXX	Report	Report Max Daily	§§ 92a.27, 92a.61
$CBOD_5$ ($^{mg}/_{L}$)	XXX	25.0	50.0	§ 92a.47
TSS ($^{mg}/_{L}$)	XXX	30.0	60.0	§ 92a.47
TRC ($^{mg}/_{L}$)	XXX	0.5	1.6	§§ 92a.47-48
NH_3-N ($^{mg}/_{L}$)	XXX	25.0	50.0	BPJ
DO ($^{mg}/_{L}$)	4.0	XXX	XXX	BPJ
pH (S.U.)	6.0	XXX	9.0	§ 92a.47, §95.2
Total N ($^{mg}/_{L}$)	XXX	Report	XXX	§ 92a.61
Total P ($^{mg}/_{L}$)	XXX	Report	XXX	§ 92a.61
Fecal Coliform May – Sept (No./100 ml)	XXX	200 Geo Mean	1,000	§ 92a.47
Fecal Coliform Oct-April (No./ml)	XXX	2,000 Geo Mean	10,000	§ 92a.47
E. Coli	XXX	XXX	Report	§ 92a.61

A minimum DO limit of 4.0 $^{mg}/_{L}$ per Pa Code Chapter 93 and BPJ. The WQM 7.0 Modeling confirmed the BPJ limitation of DO.

Sewage discharges with design flows > 2,000 GPD are required to monitor for Total Nitrogen and Total Phosphorus in new and reissued permits. Monitor and Report requirements for Total Nitrogen and Total Phosphorus with a once per year sampling frequency is imposed.

Sewage discharges with design flows >= 0.05 and < 1 MGD are required to monitor for E. Coli IMAX with a once per quarter sampling frequency is imposed.

Water Quality-Based Limitations

Toxics Management Analysis

The Department's Toxics Management Spreadsheet (TMS) was utilized to facilitate calculations necessary for completing a reasonable potential analysis and determine Water Quality-Based Effluent Limitations (WQBELs) for discharges containing toxic pollutant concentrations. TMS combines the functionality of two (2) of the Department's analysis tools, Toxics Screening Analysis Spreadsheet and PENTOXSD water quality model.

DEP's procedures for evaluating reasonable potential are as follows:

2. For IW discharges, the design flow to use in modeling is the average flow during production or operation and may be taken form the permit application.

3. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants, as reported in the permit application or on DMRs, are modeled by the TMS to determine the parameters of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion].

   - Establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL. Use the average monthly and maximum daily limits for the permit as recommended by TMS. Establish an IMAX limit at 2.5 times the average monthly limit.

   - For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.

   - For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Discharges from Outfall 001 are evaluated based on concentrations reported on the application are used as inputs into the TMS. A summary of TMS Inputs is contained in Table 5 below.

Table 5: TMS Inputs

Parameter	Value
Discharge Inputs	
Facility	Yukon Plant
Evaluation Type	Industrial
NPDES Permit No.	PA0006297
Wastewater Description	Treated wastewater, boiler blowdown and wash and corrugator starch water
Outfall ID	001
Design Flow (MGD)	0.0079
Hardness ($^{mg}/_{L}$)	100
pH (S.U.)	7,0
Partial Mix Factors	Unknown – Calculated by TMS
Complete Mix Times	
Q_{7-10} (min)	
Q_h (min)	
Stream Inputs	
Receiving Surface Water	Sewickley Creek
Number of Reaches to Model	1
Stream Code	37556
RMI	12.84 / 12.0*
Elevation (ft)	910 / 905*
Drainage Area (mi^2)	110 / 115*
Slope (ft/ft)	
PWS Withdrawal (MGD)	N/A
Apply Fish Criteria	Yes
Low Flow Yield (cfs/mi^2)	0.024
Flows	
Stream (cfs)	2.65 / 2.8*****
Tributary (cfs)	N/A
Width (ft)	65 / 65*****
Stream Hardness ($^{mg}/_{L}$)	100
Stream pH (S.U.)	7

***** Denotes discharge location/downstream location values.

TMS Model does not recommend WQBELs. Analysis Report from the TMS run is included in Attachment A.

WQM 7.0 Model

WQM 7.0 for Windows determines wasteload allocations and effluent limitations for dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia nitrogen (NH_3-N) for single and multiple point source discharge scenarios. To accomplish this, the model simulates two basic processes (NH_3-N and DO modules). In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the DO module, the model simulates the mixing and consumption of DO in the stream due to the

degradation of $DBOD_5$ and NH_3-N, and compares calculated instream DO concentrations to DO water quality criteria. WQM 7.0 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

In addition to flow and load mixing, WQM 7.0 models deoxygenation, reaeration, and nitrification in calculating instream NH_3-N, $CBOD_5$, and DO concentrations. Temperature effects in these processes are considered and two (2) models (Summary and Winter) are run. These models are setup to reflect the varying stream and discharge temperatures.

Discharges from Outfall 101 are evaluated based on the initial default values (Discharge Temperature, $CBOD_5$, DO, NH_3-N, and Stream Temperature). The WQM 7.0 model is run with the discharge and receiving stream characteristics shown in Table 6.

Table 6: WQM 7.0 Inputs

		Basin/Stream Characteristics	
Parameter	**Value**	**Parameter**	**Value**
River Mile Index	12.84	Area (mi^2)	110
Discharge Flow (MGD)	0.0079	Q_{7-10} (cfs)	2.65
Discharge Temp.		Low-flow yield (cfs/mi^2)	0.1
Summer (°C)	20.0	Elevation (ft)	910
Winter (°C)	15.0	Slope	0.0000
$CBOD_5$ ($^{mg}/_{L}$)	25.0	Stream Temp. (WWF)	
DO ($^{mg}/_{L}$)	4.0	Summer Temp. (°C)	25.0
NH_3-N ($^{mg}/_{L}$)	25.0	Winter Temp. (°C)	5.0

WQM 7.0 modeling recommends effluent limits as summarized below in Table 7. Analysis Report from the WQM 7.0 model runs are included in Attachment C.

Table 7: WQM 7.0 Effluent Limitations

Parameter	Average Monthly	IMAX
CBOD5 ($^{mg}/_{L}$)	25.0	50.0
DO ($^{mg}/_{L}$)	4.0 (minimum)	XXX
NH_3-N ($^{mg}/_{L}$)	25.0	50.0

* IMAX is calculated by multiplying the Average Monthly limit generated by WQM 7.0 by 4.

Total Residual Chlorine

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and discharge chlorine demands for the receiving stream, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/L from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is then proposed. The results of the modeling, included in Attachment D, indicate that BAT/BPJ are required for TRC.

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.

Effluent Limitations and Monitoring Requirements for Outfall 001

Effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Table 7. The applicable limits and monitoring requirements provided below are based on those in Tables 2, 3, 4 and 6 of this Fact Sheet.

Table 7. Effluent limits and monitoring requirements for Outfall 001

Parameter	Mass (pounds)		Concentration ($^{mg}/_{L}$)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.27, 92a.61(d)(1)
Total Residual Chlorine	—	—	0.5	—	1.6	25 Pa. Code § 92a.48(b)
Total Suspended Solids	—	—	30.0	—	60.0	40 CFR § 125.3, 25 Pa. Code § 92a.47
$CBOD_5$	—	—	25.0	—	50.0	25 Pa. Code § 92a.47
NH_3-N	—	—	25.0	—	50.0	BPJ
Dissolved Oxygen	—	—	4.0 (minimum)	—	—	25 Pa. Code § 92a.61
Total N	—	—	Report	—	—	25 Pa. Code § 92a.61
Total P	—	—	Report	—	—	40 CFR § 122.144
Fecal Coliform May-Sept (No./100 ml)	—	—	200 Geo Mean	—	1,000	25 Pa. Code § 92a.47
Fecal Coliform Oct-April (No./100 ml)	—	—	2,000 Geo Mean	—	10,000	25 Pa. Code § 92a.47
pH (S.U.)	Within the range of 6.0 to 9.0					25 Pa. Code § 95.2, § 92a.47
Temperature (°F)	—	—	—	—	110.0	25 Pa. Code § 93.7
E. Coli	—	—	—	—	Report	25 Pa. Code § 92a.61
Oil and Grease	—	—	15.0	—	30.0	25 Pa. Code § 95.2

Monitoring Frequency for Outfall 001

Monitoring requirements are based on Table 6-3 Self-Monitoring Requirements for Sewage Discharges from the Technical Guidance Document 362-0400-001 and previous permits monitoring requirements for the facility are displayed in Table 8 below.

Table 8. Monitoring Requirements for Outfall 001

Parameter	Sample Type	Minimum Sample Frequency
Flow (MGD)	Meter	2/Month
TRC	Grab	1/Day
TSS	Grab	2/Month
$CBOD_5$	Grab	2/Month
NH_3-N	Grab	2/Month
DO	Grab	1/Day
Total N	Grab	2/Month
Total P	Grab	2/Month
Fecal Coliform	Grab	2/Month
pH	Grab	1/Day
Temperature	I-S	2/Month
E. Coli	Grab	1/Quarter
Oil and Grease	Grab	2/Month

STORMWATER Outfalls 002 - 007

The Department's policy for stormwater discharges is to either (1) require that the stormwater is uncontaminated, (2) impose "Monitor and Report", to establish effluent goals and require the permittee to submit a Stormwater Pollution Prevention Plan (SWPPP), or (3) impose effluent limits. In all cases, a storm water special condition is placed in the permit in Part C.

Stormwater effluent data reported in the application are compared to stream criteria, EPS's Multi-Sector General Permit "benchmark values", ELGs and other references while considering site specific conditions such as stream flow and location to determine if actual discharge concentrations of various pollutants in stormwater warrant further controls. If there is insufficient data available, or if pollutant levels are excessive, monitoring for specific pollutants and/or a SWPPP are required in the permit. Otherwise, the storm water outfalls are simply listed as discharge points. In either case, a special condition is added to the permit to include some of the key components of the Department's General Permit (PAG-03) for Discharges of Stormwater Associated with Industrial Activities.

Review of the stormwater data contained in the renewal application was below benchmark values. With the typical monitoring results below benchmark value no monitoring requirements will be applied to the stormwater outfalls, they will be listed in Part C of the permit as non-polluting stormwater discharge points.

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

Attachment A – TMS Model Summary

Attachment B – Thermal Discharge Model Summary

Attachment C – WQM7.0 Model Summary

Attachment D – TRC Model Summary

Attachment E – USGS StreamStats

Attachment F – Updated Sample Data Summary

Attachment G – Water Flow and Sewage Treatment Summary

Attachment H – Facility Site Plan

Attachment A – TMS Model Summary

Outfall 101

Outfall 001

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Yukon Plant** NPDES Permit No.: **PA0006297** Outfall No.: **101**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Boiler blowdown, and wash and corrugator**

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
0.00535	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
Group 1	Total Dissolved Solids (PWS)	mg/L		1210									
	Chloride (PWS)	mg/L											
	Bromide	mg/L											
	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	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	µg/L											
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L											
	Total Manganese	µg/L											
	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	µg/L											
	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

Yukon Plant, NPDES Permit No. PA0006297, Outfall 101

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Sewickley Creek**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037556	12.84	910	110			Yes
End of Reach 1	037556	12	905	115			Yes

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

Location	RMI	LFY (cfs/mi^2)*	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	12.84	0.1				65	5					100	7		
End of Reach 1	12	0.1													

Q_h

Location	RMI	LFY (cfs/mi^2)	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	12.84					65	5								
End of Reach 1	12														

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Toxics Management Spreadsheet
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Model Results

Yukon Plant, NPDES Permit No. PA0006297, Outfall 101

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.987 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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): 15.403 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 Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): 15.403 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	

☑ ***CRL*** CCT (min): 5.013 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	

☑ ***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

☑ ***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

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Yukon Plant** NPDES Permit No.: **PA0006297** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Treated wastewaters (Sanitary, boiler blow**

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
0.0079	304	7.23						

					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	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		1110									
	Chloride (PWS)	mg/L		219									
	Bromide	mg/L		2.82									
	Sulfate (PWS)	mg/L		198									
	Fluoride (PWS)	mg/L		0.274									
Group 2	Total Aluminum	µg/L		379									
	Total Antimony	µg/L		1.4									
	Total Arsenic	µg/L		1									
	Total Barium	µg/L		57									
	Total Beryllium	µg/L	<	0.3									
	Total Boron	µg/L		6460									
	Total Cadmium	µg/L		0.1									
	Total Chromium (III)	µg/L	<	0.4									
	Hexavalent Chromium	µg/L		13.5									
	Total Cobalt	µg/L		2									
	Total Copper	µg/L		12									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		75									
	Dissolved Iron	µg/L		84									
	Total Iron	µg/L		746									
	Total Lead	µg/L		0.8									
	Total Manganese	µg/L		301									
	Total Mercury	µg/L	<	0.04									
	Total Nickel	µg/L		24									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L		0.6									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	0.4									
	Total Zinc	µg/L		36									
	Total Molybdenum	µg/L		702									
	Acrolein	µg/L	<	2.5									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	5									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	1										
	Chlorobenzene	µg/L		0.5										
	Chlorodibromomethane	µg/L	<	0.5										
	Chloroethane	µg/L	<	1										
	2-Chloroethyl Vinyl Ether	µg/L	<	5										
	Chloroform	µg/L	<	0.5										
	Dichlorobromomethane	µg/L	<											
	1,1-Dichloroethane	µg/L	<	0.5										
	1,2-Dichloroethane	µg/L	<	0.5										
	1,1-Dichloroethylene	µg/L	<	0.5										
	1,2-Dichloropropane	µg/L	<	0.5										
	1,3-Dichloropropylene	µg/L	<	1										
	1,4-Dioxane	µg/L	<											
	Ethylbenzene	µg/L	<	0.5										
	Methyl Bromide	µg/L	<											
	Methyl Chloride	µg/L	<	1										
	Methylene Chloride	µg/L	<											
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5										
	Tetrachloroethylene	µg/L	<	0.5										
	Toluene	µg/L	<	0.5										
	1,2-trans-Dichloroethylene	µg/L	<											
	1,1,1-Trichloroethane	µg/L	<	0.5										
	1,1,2-Trichloroethane	µg/L	<	0.5										
	Trichloroethylene	µg/L	<	0.5										
	Vinyl Chloride	µg/L	<	0.5										
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	<	1.5										
	Acenaphthylene	µg/L	<	1.5										
	Anthracene	µg/L	<	1.5										
	Benzidine	µg/L	<	4										
	Benzo(a)Anthracene	µg/L	<	1.5										
	Benzo(a)Pyrene	µg/L	<	1.5										
	3,4-Benzofluoranthene	µg/L	<	1.5										
	Benzo(ghi)Perylene	µg/L	<	1.5										
	Benzo(k)Fluoranthene	µg/L	<	1.5										
	Bis(2-Chloroethoxy)Methane	µg/L	<	3										
	Bis(2-Chloroethyl)Ether	µg/L	<	3										
	Bis(2-Chloroisopropyl)Ether	µg/L	<	3										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	3										
	4-Bromophenyl Phenyl Ether	µg/L	<	3										
	Butyl Benzyl Phthalate	µg/L	<	3										
	2-Chloronaphthalene	µg/L	<	3										
	4-Chlorophenyl Phenyl Ether	µg/L	<	3										
	Chrysene	µg/L	<	1.5										
	Dibenzo(a,h)Anthrancene	µg/L	<	1.5										
	1,2-Dichlorobenzene	µg/L	<	1.5										
	1,3-Dichlorobenzene	µg/L	<											
	1,4-Dichlorobenzene	µg/L	<											
	3,3-Dichlorobenzidine	µg/L	<	3										
	Diethyl Phthalate	µg/L	<	3										
	Dimethyl Phthalate	µg/L	<	3										
	Di-n-Butyl Phthalate	µg/L	<											
	2,4-Dinitrotoluene	µg/L	<	3										

	2,6-Dinitrotoluene	µg/L	<	3										
	Di-n-Octyl Phthalate	µg/L	<	3										
	1,2-Diphenylhydrazine	µg/L	<	3										
	Fluoranthene	µg/L	<	1.5										
	Fluorene	µg/L	<	1.5										
	Hexachlorobenzene	µg/L	<	3										
	Hexachlorobutadiene	µg/L	<	3										
	Hexachlorocyclopentadiene	µg/L	<	3										
	Hexachloroethane	µg/L	<	3										
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.5										
	Isophorone	µg/L	<	3										
	Naphthalene	µg/L	<	1.5										
	Nitrobenzene	µg/L	<	3										
	n-Nitrosodimethylamine	µg/L	<	3										
	n-Nitrosodi-n-Propylamine	µg/L	<	3										
	n-Nitrosodiphenylamine	µg/L	<	3										
	Phenanthrene	µg/L	<	1.5										
	Pyrene	µg/L	<	1.5										
	1,2,4-Trichlorobenzene	µg/L	<	3										
Group 6	Aldrin	µg/L	<	0.02										
	alpha-BHC	µg/L	<											
	beta-BHC	µg/L	<	0.02										
	gamma-BHC	µg/L	<	0.02										
	delta BHC	µg/L	<	0.02										
	Chlordane	µg/L	<	0.2										
	4,4-DDT	µg/L	<	0.02										
	4,4-DDE	µg/L	<	0.02										
	4,4-DDD	µg/L	<	0.02										
	Dieldrin	µg/L	<	0.02										
	alpha-Endosulfan	µg/L	<	0.02										
	beta-Endosulfan	µg/L	<											
	Endosulfan Sulfate	µg/L	<	0.02										
	Endrin	µg/L	<	0.02										
	Endrin Aldehyde	µg/L	<											
	Heptachlor	µg/L	<	0.02										
	Heptachlor Epoxide	µg/L	<	0.02										
	PCB-1016	µg/L	<	0.05										
	PCB-1221	µg/L	<	0.05										
	PCB-1232	µg/L	<	0.05										
	PCB-1242	µg/L	<	0.05										
	PCB-1248	µg/L	<	0.05										
	PCB-1254	µg/L	<	0.05										
	PCB-1260	µg/L	<	0.05										
	PCBs, Total	µg/L	<	0.5										
	Toxaphene	µg/L	<	0.05										
	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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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Yukon Plant, NPDES Permit No. PA0006297, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Sewickley Creek**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037556	12.84	910	110			Yes
End of Reach 1	037556	12	905	115			Yes

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

Location	RMI	LFY (cfs/mi^2)*	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	12.84	0.1				65	5					100	7		
End of Reach 1	12	0.1													

Q_h

Location	RMI	LFY (cfs/mi^2)	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	12.84														
End of Reach 1	12														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Yukon Plant, NPDES Permit No. PA0006297, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ *AFC* CCT (min): 15 PMF: 0.987 Analysis Hardness (mg/l): 100.23 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 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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	667,141	
Total Antimony	0	0		0	1,100	1,100	978,473	
Total Arsenic	0	0		0	340	340	302,437	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	18,679,941	
Total Boron	0	0		0	8,100	8,100	7,205,120	
Total Cadmium	0	0		0	2.018	2.14	1,902	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	570.833	1,806	1,606,862	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	14,493	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	84,504	
Total Copper	0	0		0	13.468	14.0	12,479	Chem Translator of 0.96 applied
Dissolved Iron	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	64.743	81.9	72,837	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	1,465	Chem Translator of 0.85 applied
Total Nickel	0	0		0	469.144	470	418,150	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.229	3.8	3,380	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	57,819	
Total Zinc	0	0		0	117.408	120	106,786	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	2,669	

Acrylonitrile	0	0		0	650	650	578,189	
Benzene	0	0		0	640	640	569,293	
Bromoform	0	0		0	1,800	1,800	1,601,138	
Carbon Tetrachloride	0	0		0	2,800	2,800	2,490,659	
Chlorobenzene	0	0		0	1,200	1,200	1,067,425	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	16,011,378	
Chloroform	0	0		0	1,900	1,900	1,690,090	
1,2-Dichloroethane	0	0		0	15,000	15,000	13,342,815	
1,1-Dichloroethylene	0	0		0	7,500	7,500	6,671,408	
1,2-Dichloropropane	0	0		0	11,000	11,000	9,784,731	
1,3-Dichloropropylene	0	0		0	310	310	275,752	
Ethylbenzene	0	0		0	2,900	2,900	2,579,611	
Methyl Chloride	0	0		0	28,000	28,000	24,906,588	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	889,521	
Tetrachloroethylene	0	0		0	700	700	622,665	
Toluene	0	0		0	1,700	1,700	1,512,186	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	2,668,563	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	3,024,371	
Trichloroethylene	0	0		0	2,300	2,300	2,045,898	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	83	83.0	73,830	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	266,856	
Benzo(a)Anthracene	0	0		0	0.5	0.5	445	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	26,685,630	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	4,002,845	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	240,171	
Butyl Benzyl Phthalate	0	0		0	140	140	124,533	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	729,407	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	3,558,084	
Dimethyl Phthalate	0	0		0	2,500	2,500	2,223,803	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	1,423,234	
2,6-Dinitrotoluene	0	0		0	990	990	880,626	
1,2-Diphenylhydrazine	0	0		0	15	15.0	13,343	
Fluoranthene	0	0		0	200	200	177,904	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	8,895	
Hexachlorocyclopentadiene	0	0		0	5	5.0	4,448	

Hexachloroethane	0	0		0	60	60.0	53,371	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	8,895,210	
Naphthalene	0	0		0	140	140	124,533	
Nitrobenzene	0	0		0	4,000	4,000	3,558,084	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	15,121,857	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	266,856	
Phenanthrene	0	0		0	5	5.0	4,448	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	115,638	
Aldrin	0	0		0	3	3.0	2,669	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.95	0.95	845	
Chlordane	0	0		0	2.4	2.4	2,135	
4,4-DDT	0	0		0	1.1	1.1	978	
4,4-DDE	0	0		0	1.1	1.1	978	
4,4-DDD	0	0		0	1.1	1.1	978	
Dieldrin	0	0		0	0.24	0.24	213	
alpha-Endosulfan	0	0		0	0.22	0.22	196	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.086	0.086	76.5	
Heptachlor	0	0		0	0.52	0.52	463	
Heptachlor Epoxide	0	0		0	0.5	0.5	445	
PCBs, Total	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	0.73	0.73	649	

☑ *CFC* CCT (min): 15.392 PMF: 1 Analysis Hardness (mg/l): 100.23 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 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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	198,235	
Total Arsenic	0	0		0	150	150	135,160	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	3,694,378	
Total Boron	0	0		0	1,600	1,600	1,441,709	
Total Cadmium	0	0		0	0.246	0.27	244	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.252	86.3	77,798	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	9,367	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	17,120	
Total Copper	0	0		0	8.973	9.35	8,422	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,351,602	WQC = 30 day average; PMF = 1

Total Lead	0	0		0	2.523	3.19	2,875	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	816	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.106	52.3	47,092	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	4,496	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	11,714	
Total Zinc	0	0		0	118.366	120	108,170	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	2,703	
Acrylonitrile	0	0		0	130	130	117,139	
Benzene	0	0		0	130	130	117,139	
Bromoform	0	0		0	370	370	333,395	
Carbon Tetrachloride	0	0		0	560	560	504,598	
Chlorobenzene	0	0		0	240	240	216,256	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	3,153,738	
Chloroform	0	0		0	390	390	351,416	
1,2-Dichloroethane	0	0		0	3,100	3,100	2,793,311	
1,1-Dichloroethylene	0	0		0	1,500	1,500	1,351,602	
1,2-Dichloropropane	0	0		0	2,200	2,200	1,982,349	
1,3-Dichloropropylene	0	0		0	61	61.0	54,965	
Ethylbenzene	0	0		0	580	580	522,619	
Methyl Chloride	0	0		0	5,500	5,500	4,955,874	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	189,224	
Tetrachloroethylene	0	0		0	140	140	126,150	
Toluene	0	0		0	330	330	297,352	
1,1,1-Trichloroethane	0	0		0	610	610	549,651	
1,1,2-Trichloroethane	0	0		0	680	680	612,726	
Trichloroethylene	0	0		0	450	450	405,481	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	17	17.0	15,318	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	53,163	
Benzo(a)Anthracene	0	0		0	0.1	0.1	90.1	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	5,406,407	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	819,972	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	48,658	
Butyl Benzyl Phthalate	0	0		0	35	35.0	31,537	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	

Dibenzo(a,h)Anthrancene	0	0	0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0	0	160	160	144,171	
3,3-Dichlorobenzidine	0	0	0	N/A	N/A	N/A	
Diethyl Phthalate	0	0	0	800	800	720,854	
Dimethyl Phthalate	0	0	0	500	500	450,534	
2,4-Dinitrotoluene	0	0	0	320	320	288,342	
2,6-Dinitrotoluene	0	0	0	200	200	180,214	
1,2-Diphenylhydrazine	0	0	0	3	3.0	2,703	
Fluoranthene	0	0	0	40	40.0	36,043	
Fluorene	0	0	0	N/A	N/A	N/A	
Hexachlorobenzene	0	0	0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0	0	2	2.0	1,802	
Hexachlorocyclopentadiene	0	0	0	1	1.0	901	
Hexachloroethane	0	0	0	12	12.0	10,813	
Indeno(1,2,3-cd)Pyrene	0	0	0	N/A	N/A	N/A	
Isophorone	0	0	0	2,100	2,100	1,892,243	
Naphthalene	0	0	0	43	43.0	38,746	
Nitrobenzene	0	0	0	810	810	729,865	
n-Nitrosodimethylamine	0	0	0	3,400	3,400	3,063,631	
n-Nitrosodi-n-Propylamine	0	0	0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0	0	59	59.0	53,163	
Phenanthrene	0	0	0	1	1.0	901	
Pyrene	0	0	0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0	0	26	26.0	23,428	
Aldrin	0	0	0	0.1	0.1	90.1	
beta-BHC	0	0	0	N/A	N/A	N/A	
gamma-BHC	0	0	0	N/A	N/A	N/A	
Chlordane	0	0	0	0.0043	0.004	3.87	
4,4-DDT	0	0	0	0.001	0.001	0.9	
4,4-DDE	0	0	0	0.001	0.001	0.9	
4,4-DDD	0	0	0	0.001	0.001	0.9	
Dieldrin	0	0	0	0.056	0.056	50.5	
alpha-Endosulfan	0	0	0	0.056	0.056	50.5	
Endosulfan Sulfate	0	0	0	N/A	N/A	N/A	
Endrin	0	0	0	0.036	0.036	32.4	
Heptachlor	0	0	0	0.0038	0.004	3.42	
Heptachlor Epoxide	0	0	0	0.0038	0.004	3.42	
PCBs, Total	0	0	0	0.014	0.014	12.6	
Toxaphene	0	0	0	0.0002	0.0002	0.18	

☑ ***THH*** CCT (min): 15.392 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	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	5,046	
Total Arsenic	0	0		0	10	10.0	9,011	
Total Barium	0	0		0	2,400	2,400	2,162,563	
Total Boron	0	0		0	3,100	3,100	2,793,311	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	270,320	
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	901,068	
Total Mercury	0	0		0	0.050	0.05	45.1	
Total Nickel	0	0		0	610	610	549,651	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	216	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	2,703	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	90,107	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	29,735	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	61,273	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	51,361	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	9,010,679	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	

Vinyl Chloride	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	63,075	
Anthracene	0	0		0	300	300	270,320	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	180,214	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	90.1	
2-Chloronaphthalene	0	0		0	800	800	720,854	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	901,068	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	540,641	
Dimethyl Phthalate	0	0		0	2,000	2,000	1,802,136	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	18,021	
Fluorene	0	0		0	50	50.0	45,053	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	3,604	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	30,636	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	9,011	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	18,021	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	63.1	
Aldrin	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	4.2	4.2	3,784	
Chlordane	0	0		0	N/A	N/A	N/A	
4,4-DDT	0	0		0	N/A	N/A	N/A	
4,4-DDE	0	0		0	N/A	N/A	N/A	

4,4-DDD	0	0		0	N/A	N/A	N/A	
Dieldrin	0	0		0	N/A	N/A	N/A	
alpha-Endosulfan	0	0		0	20	20.0	18,021	
Endosulfan Sulfate	0	0		0	20	20.0	18,021	
Endrin	0	0		0	0.03	0.03	27.0	
Heptachlor	0	0		0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A	
PCBs, Total	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	N/A	N/A	N/A	

☑ *CRL* CCT (min): 5.013 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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	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 Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	297	
Benzene	0	0		0	0.58	0.58	2,868	
Bromoform	0	0		0	7	7.0	34,613	
Carbon Tetrachloride	0	0		0	0.4	0.4	1,978	
Chlorobenzene	0	0		0	N/A	N/A	N/A	

Chlorodibromomethane	0	0		0	0.8	0.8	3,956	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	28,185	
1,2-Dichloroethane	0	0		0	9.9	9.9	48,952	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	4,450	
1,3-Dichloropropylene	0	0		0	0.27	0.27	1,335	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	989	
Tetrachloroethylene	0	0		0	10	10.0	49,447	
Toluene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	2,720	
Trichloroethylene	0	0		0	0.6	0.6	2,967	
Vinyl Chloride	0	0		0	0.02	0.02	98.9	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.49	
Benzo(a)Anthracene	0	0		0	0.001	0.001	4.94	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.49	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	4.94	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	49.4	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	148	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	1,582	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	593	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.49	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	247	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	247	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	247	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	148	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.4	
Hexachlorobutadiene	0	0		0	0.01	0.01	49.4	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	494	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	4.94	

Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	3.46	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	24.7	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	16,317	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	
Aldrin	0	0		0	0.0000008	8.00E-07	0.004	
beta-BHC	0	0		0	0.008	0.008	39.6	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0003	0.0003	1.48	
4,4-DDT	0	0		0	0.00003	0.00003	0.15	
4,4-DDE	0	0		0	0.00002	0.00002	0.099	
4,4-DDD	0	0		0	0.0001	0.0001	0.49	
Dieldrin	0	0		0	0.000001	0.000001	0.005	
alpha-Endosulfan	0	0		0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.000006	0.000006	0.03	
Heptachlor Epoxide	0	0		0	0.00003	0.00003	0.15	
PCBs, Total	0	0		0	0.000064	0.00006	0.32	
Toxaphene	0	0		0	0.0007	0.0007	3.46	

☑ ***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

☑ ***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
Fluoride (PWS)	N/A	N/A	PWS Not Applicable

Total Aluminum	427,610	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	5,046	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	9,011	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	2,162,563	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	1,441,709	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	244	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	77,798	µg/L	Discharge Conc < TQL
Hexavalent Chromium	9,290	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	17,120	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	7,999	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	270,320	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	1,351,602	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	2,875	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	901,068	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	45.1	µg/L	Discharge Conc < TQL
Total Nickel	47,092	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	4,496	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	2,166	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	216	µg/L	Discharge Conc < TQL
Total Zinc	68,446	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	1,710	µg/L	Discharge Conc ≤ 25% WQBEL
Acrylonitrile	297	µg/L	Discharge Conc < TQL
Benzene	2,868	µg/L	Discharge Conc < TQL
Bromoform	34,613	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	1,978	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	90,107	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	3,956	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	3,153,738	µg/L	Discharge Conc < TQL
Chloroform	28,185	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	48,952	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	29,735	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	4,450	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	1,335	µg/L	Discharge Conc ≤ 25% WQBEL
Ethylbenzene	61,273	µg/L	Discharge Conc < TQL
Methyl Chloride	4,955,874	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	989	µg/L	Discharge Conc < TQL
Tetrachloroethylene	49,447	µg/L	Discharge Conc < TQL
Toluene	51,361	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	549,651	µg/L	Discharge Conc < TQL

1,1,2-Trichloroethane	2,720	µg/L	Discharge Conc < TQL
Trichloroethylene	2,967	µg/L	Discharge Conc < TQL
Vinyl Chloride	98.9	µg/L	Discharge Conc < TQL
Acenaphthene	15,318	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	270,320	µg/L	Discharge Conc < TQL
Benzidine	0.49	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	4.94	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.49	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	4.94	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	49.4	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	148	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	180,214	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	1,582	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	48,658	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	90.1	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	720,854	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	593	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.49	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	144,171	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	247	µg/L	Discharge Conc < TQL
Diethyl Phthalate	540,641	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	450,534	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	247	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	247	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	148	µg/L	Discharge Conc < TQL
Fluoranthene	18,021	µg/L	Discharge Conc < TQL
Fluorene	45,053	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.4	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	49.4	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorocyclopentadiene	901	µg/L	Discharge Conc < TQL
Hexachloroethane	494	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	4.94	µg/L	Discharge Conc < TQL
Isophorone	30,636	µg/L	Discharge Conc < TQL
Naphthalene	38,746	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	9,011	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	3.46	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	24.7	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	16,317	µg/L	Discharge Conc < TQL
Phenanthrene	901	µg/L	Discharge Conc < TQL
Pyrene	18,021	µg/L	Discharge Conc < TQL

1,2,4-Trichlorobenzene	63.1	µg/L	Discharge Conc ≤ 25% WQBEL
Aldrin	0.004	µg/L	Discharge Conc < TQL
beta-BHC	39.6	µg/L	Discharge Conc < TQL
gamma-BHC	542	µg/L	Discharge Conc < TQL
delta BHC	N/A	N/A	No WQS
Chlordane	1.48	µg/L	Discharge Conc < TQL
4,4-DDT	0.15	µg/L	Discharge Conc < TQL
4,4-DDE	0.099	µg/L	Discharge Conc < TQL
4,4-DDD	0.49	µg/L	Discharge Conc < TQL
Dieldrin	0.005	µg/L	Discharge Conc < TQL
alpha-Endosulfan	50.5	µg/L	Discharge Conc < TQL
Endosulfan Sulfate	18,021	µg/L	Discharge Conc < TQL
Endrin	27.0	µg/L	Discharge Conc < TQL
Heptachlor	0.03	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.15	µg/L	Discharge Conc < TQL
PCB-1016	N/A	N/A	No WQS
PCB-1221	N/A	N/A	No WQS
PCB-1232	N/A	N/A	No WQS
PCB-1242	N/A	N/A	No WQS
PCB-1248	N/A	N/A	No WQS
PCB-1254	N/A	N/A	No WQS
PCB-1260	N/A	N/A	No WQS
PCBs, Total	0.32	µg/L	Discharge Conc < TQL
Toxaphene	0.18	µg/L	Discharge Conc < TQL

Attachment B – Thermal Discharge Model

Thermal Discharge Recommended Permit Limits

Warm Water Fishes (WWF) Stream

Facility: **Menasha Packaging**
Permit Number: PA0006297
Stream: Sewickly Creek

	WWF Ambient Stream Temperature (ºF) (Default)	Ambient Stream Temperature (ºF) (Site-specific data)	Target Maximum Stream Temp.[1] (ºF)	**WWF** Daily WLA[2] (Million BTUs/day)	**WWF** Daily WLA[3] (ºF)	at Discharge Flow (MGD)	**PMF**
Jan 1-31	35	0	40	N/A -- Case 2	110.0	0.0008	0.50
Feb 1-29	35	0	40	N/A -- Case 2	110.0	0.0008	0.50
Mar 1-31	40	0	46	N/A -- Case 2	110.0	0.0008	0.50
Apr 1-15	47	0	52	N/A -- Case 2	110.0	0.0008	0.50
Apr 16-30	53	0	58	N/A -- Case 2	110.0	0.0008	0.50
May 1-15	58	0	64	N/A -- Case 2	110.0	0.0008	0.50
May 16-31	62	0	72	N/A -- Case 2	110.0	0.0008	0.50
Jun 1-15	67	0	80	N/A -- Case 2	110.0	0.0008	0.50
Jun 16-30	71	0	84	N/A -- Case 2	110.0	0.0008	0.50
Jul 1-31	75	0	87	N/A -- Case 2	110.0	0.0008	0.50
Aug 1-15	74	0	87	N/A -- Case 2	110.0	0.0008	0.50
Aug 16-31	74	0	87	N/A -- Case 2	110.0	0.0008	0.50
Sep 1-15	71	0	84	N/A -- Case 2	110.0	0.0008	0.50
Sep 16-30	65	0	78	N/A -- Case 2	110.0	0.0008	0.50
Oct 1-15	60	0	72	N/A -- Case 2	110.0	0.0008	0.50
Oct 16-31	54	0	66	N/A -- Case 2	110.0	0.0008	0.50
Nov 1-15	48	0	58	N/A -- Case 2	110.0	0.0008	0.50
Nov 16-30	42	0	50	N/A -- Case 2	110.0	0.0008	0.50
Dec 1-31	37	0	42	N/A -- Case 2	110.0	0.0008	0.50

[1] This is the maximum of the WWF WQ criterion or the ambient temperature. The ambient temperature may be either the design (median) temperature for WWF, or the ambient stream temperature based on site-specific data entered by the user. A minimum of 1ºF above ambient stream temperature is allocated.

[2] The WLA expressed in Million BTUs/day is valid for Case 1 scenarios, and disabled for Case 2 scenarios.

[3] The WLA expressed in ºF is valid only if the limit is tied to a daily discharge flow limit (may be used for Case 1 or Case 2). WLAs greater than 110ºF are displayed as 110ºF.

Flow Data for Thermal Discharge Analysis

Facility: Menasha Packaging
Permit Number: PA0006297
Stream Name: Sewickly Creek
Analyst/Engineer: Curt Holes
Stream Q7-10 (cfs): 2.65

	Facility Flows				Stream Flows			
	Intake (Stream) (MGD)	Intake (External) (MGD)	Consumptive Loss (MGD)	Discharge Flow (MGD)	PMF	Upstream Stream Flow (cfs)	Adjusted Stream Flow (cfs)	Downstream Stream Flow (cfs)
Jan 1-31	0	0.0008	0	0.0008	0.50	8.19	4.09	4.10
Feb 1-29	0	0.0008	0	0.0008	0.50	9.28	4.64	4.64
Mar 1-31	0	0.0008	0	0.0008	0.50	17.23	8.61	8.61
Apr 1-15	0	0.0008	0	0.0008	0.50	23.74	11.87	11.87
Apr 16-30	0	0.0008	0	0.0008	0.50	23.74	11.87	11.87
May 1-15	0	0.0008	0	0.0008	0.50	13.46	6.73	6.73
May 16-31	0	0.0008	0	0.0008	0.50	13.46	6.73	6.73
Jun 1-15	0	0.0008	0	0.0008	0.50	7.84	3.92	3.92
Jun 16-30	0	0.0008	0	0.0008	0.50	7.84	3.92	3.92
Jul 1-31	0	0.0008	0	0.0008	0.50	3.60	1.80	1.80
Aug 1-15	0	0.0008	0	0.0008	0.50	3.68	1.84	1.84
Aug 16-31	0	0.0008	0	0.0008	0.50	3.68	1.84	1.84
Sep 1-15	0	0.0008	0	0.0008	0.50	2.86	1.43	1.43
Sep 16-30	0	0.0008	0	0.0008	0.50	2.86	1.43	1.43
Oct 1-15	0	0.0008	0	0.0008	0.50	3.39	1.70	1.70
Oct 16-31	0	0.0008	0	0.0008	0.50	3.39	1.70	1.70
Nov 1-15	0	0.0008	0	0.0008	0.50	4.80	2.40	2.40
Nov 16-30	0	0.0008	0	0.0008	0.50	4.80	2.40	2.40
Dec 1-31	0	0.0008	0	0.0008	0.50	7.95	3.98	3.98

Please forward all comments to Tom Starosta at 717-787-4317, tstarosta@state.pa.us.
Version 2.0 -- 07/01/2005 Reference: Implementation Guidance for Temperature Criteria, DEP-ID: 391-2000-017
NOTE: The user can only edit fields that are blue.
NOTE: MGD x 1.547 = cfs.

Attachment C – WQM7.0 Model Summary

Winter

Summer

Winter

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
19D	37556	SEWICKLEY CREEK	**12.840**	910.00	110.00	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	0.200	0.00	2.65	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
Beaver Run WTP	PA0006297	0.0000	0.0079	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
19D	37556	SEWICKLEY 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												
12.840	2.65	0.00	2.65	.0122	0.00113	.691	33.72	48.79	0.11	0.449	5.05	7.00
Q1-10 Flow												
12.840	1.70	0.00	1.70	.0122	0.00113	NA	NA	NA	0.09	0.576	5.07	7.00
Q30-10 Flow												
12.840	3.60	0.00	3.60	.0122	0.00113	NA	NA	NA	0.14	0.379	5.03	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		

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WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY 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
12.840	Beaver Run WTP	24.1	50	24.1	50	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
12.840	Beaver Run WTP	4.36	25	4.36	25	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)		
12.84	Beaver Run WTP	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
12.840	0.008	5.046	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
33.720	0.691	48.786	0.114
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.11	0.070	0.11	0.221
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
12.471	0.858	Tsivoglou	6
Reach Travel Time (days)			
0.449			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.045	2.10	0.11	11.44
0.090	2.10	0.11	11.44
0.135	2.10	0.11	11.44
0.180	2.09	0.11	11.44
0.225	2.09	0.11	11.44
0.270	2.09	0.11	11.44
0.315	2.08	0.11	11.44
0.360	2.08	0.11	11.44
0.404	2.08	0.10	11.44
0.449	2.07	0.10	11.44

Summer

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
19D	37556	SEWICKLEY CREEK	**12.840**	910.00	110.00	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	0.200	0.00	2.65	0.000	0.000	10.0	0.00	0.00	25.00	7.00	25.00	7.00
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
Beaver Run WTP	PA0006297	0.0000	0.0079	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	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY 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												
12.840	2.65	0.00	2.65	.0122	0.00113	.691	33.72	48.79	0.11	0.449	24.98	7.00
Q1-10 Flow												
12.840	1.70	0.00	1.70	.0122	0.00113	NA	NA	NA	0.09	0.576	24.96	7.00
Q30-10 Flow												
12.840	3.60	0.00	3.60	.0122	0.00113	NA	NA	NA	0.14	0.379	24.98	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		

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WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY 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
12.840	Beaver Run WTP	11.11	50	11.11	50	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
12.840	Beaver Run WTP	1.37	25	1.37	25	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)		
12.84	Beaver Run WTP	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
12.840	0.008	24.977	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
33.720	0.691	48.786	0.114
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.11	0.056	0.11	1.027
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.221	1.377	Tsivoglou	6
Reach Travel Time (days)			
0.449			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.045	2.10	0.11	7.54
0.090	2.09	0.10	7.54
0.135	2.09	0.10	7.54
0.180	2.08	0.10	7.54
0.225	2.07	0.09	7.54
0.270	2.07	0.09	7.54
0.315	2.06	0.08	7.54
0.360	2.05	0.08	7.54
0.404	2.05	0.08	7.54
0.449	2.04	0.07	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY 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)
12.840	Beaver Run WTP	PA0006297	0.000	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

Attachment D – TRC Model Summary

TRC EVALUATION

2.65	= Q stream (cfs)	0.5	= CV Daily
0.0079	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.705	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 48.784	1.3.2.iii	WLA cfc = 67.447
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 18.178	5.1d	LTA_cfc = 39.210

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.170	

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

Attachment E – USGS StreamStats

StreamStats Report - Menasha Packaging Outfall 001

Region ID:	PA
Workspace ID:	PA20191015133040865000
Clicked Point (Latitude, Longitude):	40.20813, -79.66826
Time:	2019-10-15 09:30:58 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	110	square miles
ELEV	Mean Basin Elevation	1156.3	feet
CARBON	Percentage of area of carbonate rock	0	percent
PRECIP	Mean Annual Precipitation	41	inches
FOREST	Percentage of area covered by forest	41	percent
URBAN	Percentage of basin with urban development	17	percent

Low-Flow Statistics Parameters

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	110	square miles	2.26	1400
ELEV	Mean Basin Elevation	1156.3	feet	1050	2580

Low-Flow Statistics Flow Report

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	5.76	ft^3/s	43	43
30 Day 2 Year Low Flow	8.91	ft^3/s	38	38
7 Day 10 Year Low Flow	2.65	ft^3/s	66	66
30 Day 10 Year Low Flow	3.97	ft^3/s	54	54
90 Day 10 Year Low Flow	6.41	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/)

Bankfull Statistics Parameters[Statewide Bankfull Noncarbonate 2018 5066]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	110	square miles	2.62	207
CARBON	Percent Carbonate	0	percent		

Bankfull Statistics Flow Report[Statewide Bankfull Noncarbonate 2018 5066]

PII: Prediction Interval-Lower, Piu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE
Bankfull Area	516	ft^2	64
Bankfull Streamflow	2600	ft^3/s	74
Bankfull Width	124	ft	59
Bankfull Depth	4.11	ft	56

Bankfull Statistics Citations

Clune, J.W., Chaplin, J.J., and White, K.E.,2018, Comparison of regression relations of bankfull discharge and channel geometry for the glaciated and nonglaciated settings of Pennsylvania and southern New York: U.S. Geological Survey Scientific Investigations Report 2018 –5066, 20 p. (https://doi.org/10.3133/sir20185066)

Annual Flow Statistics Parameters[Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	110	square miles	2.26	1720
ELEV	Mean Basin Elevation	1156.3	feet	130	2700
PRECIP	Mean Annual Precipitation	41	inches	33.1	50.4
FOREST	Percent Forest	41	percent	5.1	100
URBAN	Percent Urban	17	percent	0	89
CARBON	Percent Carbonate	0	percent	0	99

Annual Flow Statistics Flow Report[Statewide Mean and Base Flow]

PII: Prediction Interval-Lower, Piu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
Mean Annual Flow	158	ft^3/s	12	12
Harmonic Mean Streamflow	37.1	ft^3/s	38	38

Annual 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/)

Base Flow Statistics Parameters[Statewide Mean and Base Flow]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	110	square miles	2.26	1720
PRECIP	Mean Annual Precipitation	41	inches	33.1	50.4
CARBON	Percent Carbonate	0	percent	0	99
FOREST	Percent Forest	41	percent	5.1	100
URBAN	Percent Urban	17	percent	0	89

Base Flow Statistics Flow Report[Statewide Mean and Base Flow]

PII: Prediction Interval-Lower, Piu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
Base Flow 10 Year Recurrence Interval	49	ft^3/s	21	21
Base Flow 25 Year Recurrence Interval	43	ft^3/s	21	21

Statistic	Value	Unit	SE	SEp
Base Flow 50 Year Recurrence Interval	39.6	ft^3/s	23	23

Base 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/)

Peak Flow Statistics Parameters[Peak Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	110	square miles	0.92	1720

Peak Flow Statistics Flow Report[Peak Flow Region 4]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp	Equiv. Yrs.
2 Year Peak Flood	3530	ft^3/s	28	28	4
5 Year Peak Flood	5660	ft^3/s	26	26	7
10 Year Peak Flood	7340	ft^3/s	28	28	10
50 Year Peak Flood	11900	ft^3/s	33	33	13
100 Year Peak Flood	14200	ft^3/s	38	38	13
500 Year Peak Flood	20700	ft^3/s	49	49	12

Peak Flow Statistics Citations

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. (http://pubs.usgs.gov/sir/2008/5102/)

Application Version: 4.3.8

Attachment F – Updated Sample Data Summary

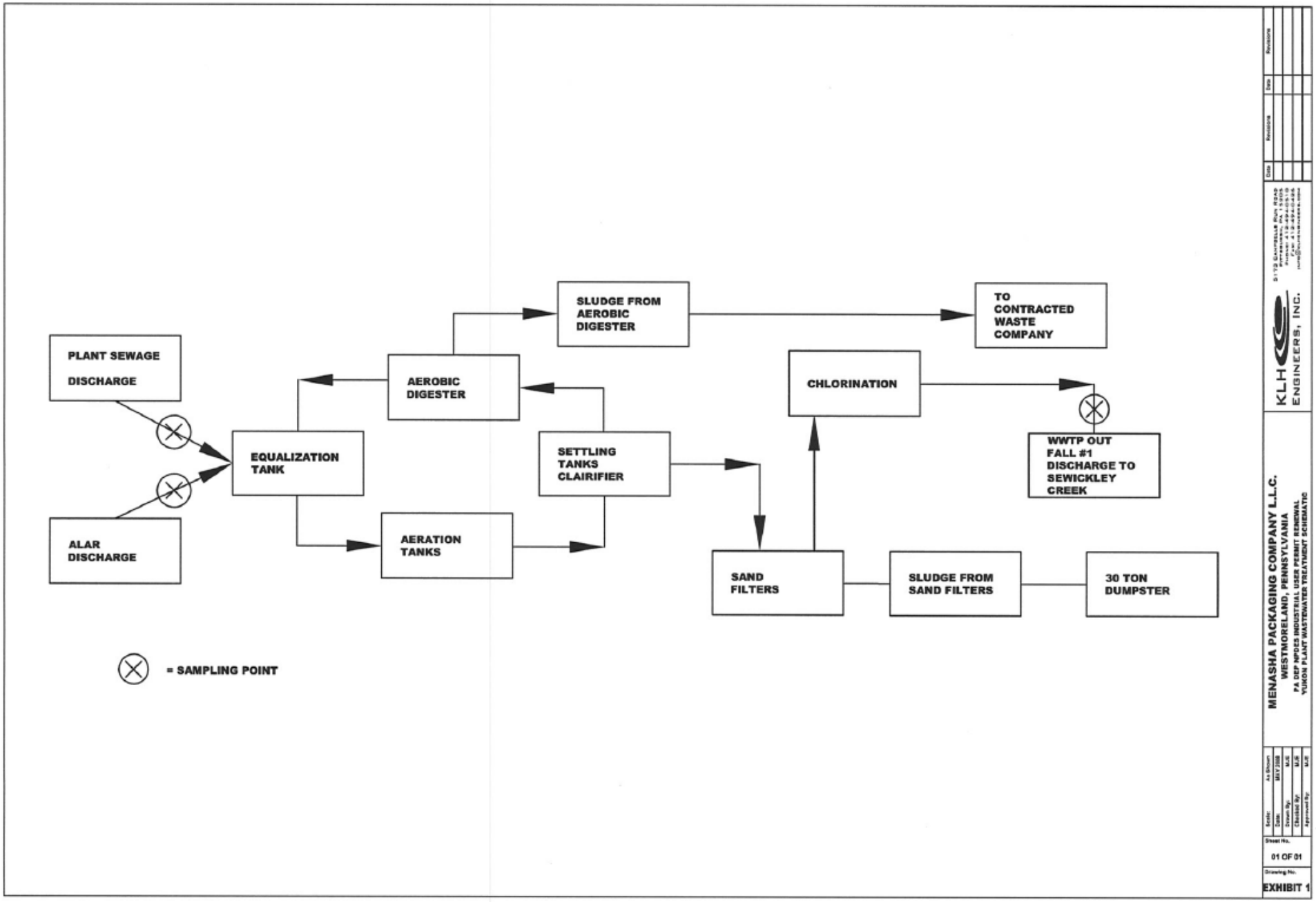
		NCCW				Effluent				Influent
		Sample Date				Sample Date				Sample Date
Parameter	**Units**	**7/6/2021**	**8/10/2021**	**8/17/2021**	**8/24/2021**	**6/30/2021**	**7/7/2021**	**7/14/2021**	**7/21/2021**	**6/30/2021**
Total Molybdenum	ug/L					570	607	702		437
Total Antimony	ug/L						1.2	1.4		< 0.8
Total Arsenic	ug/L						1	1		1
Total Berrylium	ug/L					< 0.3		< 0.3		< 0.3
Total Cadmium	ug/L						0.1	< 0.4		0.6
Total Chromium (III)	ug/L					< 0.4				40
Hexavalent Chromium	ug/L					< 5	< 5	13.5		70.2
Total Copper	ug/L					12				8
Total Lead	ug/L						0.8	0.7		5
Total Mercury	ug/L					< 0.04	< 0.04	< 0.04		< 0.04
Total Nickel	ug/L					3	6	24		34
Total Selenium	ug/L						0.6	< 0.8		< 4
Total Silver	ug/L						< 1	< 1		< 2
Total Thallium	ug/L						0.3	< 0.4		< 0.8
Total Zinc	ug/L					7	12	36		273
Total Cyanide	ug/L					6	12	75		3
Free Available Cyanide	ug/L									
Total Phenols (Phenolics)	ug/L							< 5	< 5	37
Acrolein	ug/L					< 2.5		< 2.5	< 2.5	< 2.5
Acrylonitrile	ug/L					< 5		< 5	< 5	< 5
Benzene	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
Bromoform	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	ug/L					< 1		< 1	< 1	< 1
Chlorobenzene	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
Chlorodibromomethane	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
Chloroethane	ug/L					< 1		< 1	< 1	< 1
2-Chloroethyl Vinyl Ether	ug/L					< 5		< 5	< 5	< 5
Chloroform	ug/L					< 0.5		< 0.5	< 0.5	8.7
Dichlorobromomethane	ug/L					<		<	<	<
1,1-Dichloroethane	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
1,3-Dichloropropylene	ug/L					< 1		< 1	< 1	< 1
Ethylbenzene	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
Methyl Bromide	ug/L					<		<	<	<
Methyl Chloride	ug/L					< 1		< 1	< 1	< 1

		NCCW				Effluent				Influent
		Sample Date				Sample Date				Sample Date
Parameter	Units	7/6/2021	8/10/2021	8/17/2021	8/24/2021	6/30/2021	7/7/2021	7/14/2021	7/21/2021	6/30/2021
Methylene Chloride	ug/L					<		<	<	<
1,1,2,2-Tetrachloroethane	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
Tetrachloroethylene	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
Toluene	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
1,2-trans-Dichloroethylene	ug/L					<		<	<	<
1,1,1-Trichloroethane	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
Trichloroethylene	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
Vinyl Chloride	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
2-Chlorophenol	ug/L					<		<	<	<
2,4-Dichlorophenol	ug/L					<		<	<	<
2,4-Dimethylphenol	ug/L					<		<	<	<
4,6-Dinitro-o-Cresol	ug/L					<		<	<	<
2,4-Dinitrophenol	ug/L					<		<	<	<
2-Nitrophenol	ug/L					<		<	<	<
4-Nitrophenol	ug/L					<		<	<	<
p-Chloro-m-Cresol	ug/L					<		<	<	<
Pentachlorophenol	ug/L					<		<	<	<
Phenol	ug/L					<		<	<	<
2,4,6-Trichlorophenol	ug/L									
Acenaphthene	ug/L					< 1.5		< 1.5		
Acenaphthylene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
Anthracene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
Benzidine	ug/L					< 4		< 3.9	< 4	< 3.9
Benzo(a)Anthracene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
Benzo(a)Pyrene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
3,4-Benzofluoranthene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
Benzo(ghi)Perylene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
Benzo(k)Fluoranthene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
Bis(2-Chloroethoxy)Methane	ug/L					< 3		< 3	< 3	< 3
Bis(2-Chloroethyl)Ether	ug/L					< 3		< 3	< 3	< 3
Bis(2-Chloroisopropyl)Ether	ug/L					< 3		< 3	< 3	< 3
Bis(2-Ethylhexyl)Phthalate	ug/L					< 3		< 3	< 3	< 3
4-Bromophenyl Phenyl Ether	ug/L					< 3		< 3	< 3	< 3
Butyl Benzyl Phthalate	ug/L					< 3		< 3	< 3	< 3
2-Chloronaphthalene	ug/L					< 3		< 3	< 3	< 3
4-Chlorophenyl Phenyl Ether	ug/L					< 3		< 3	< 3	< 3

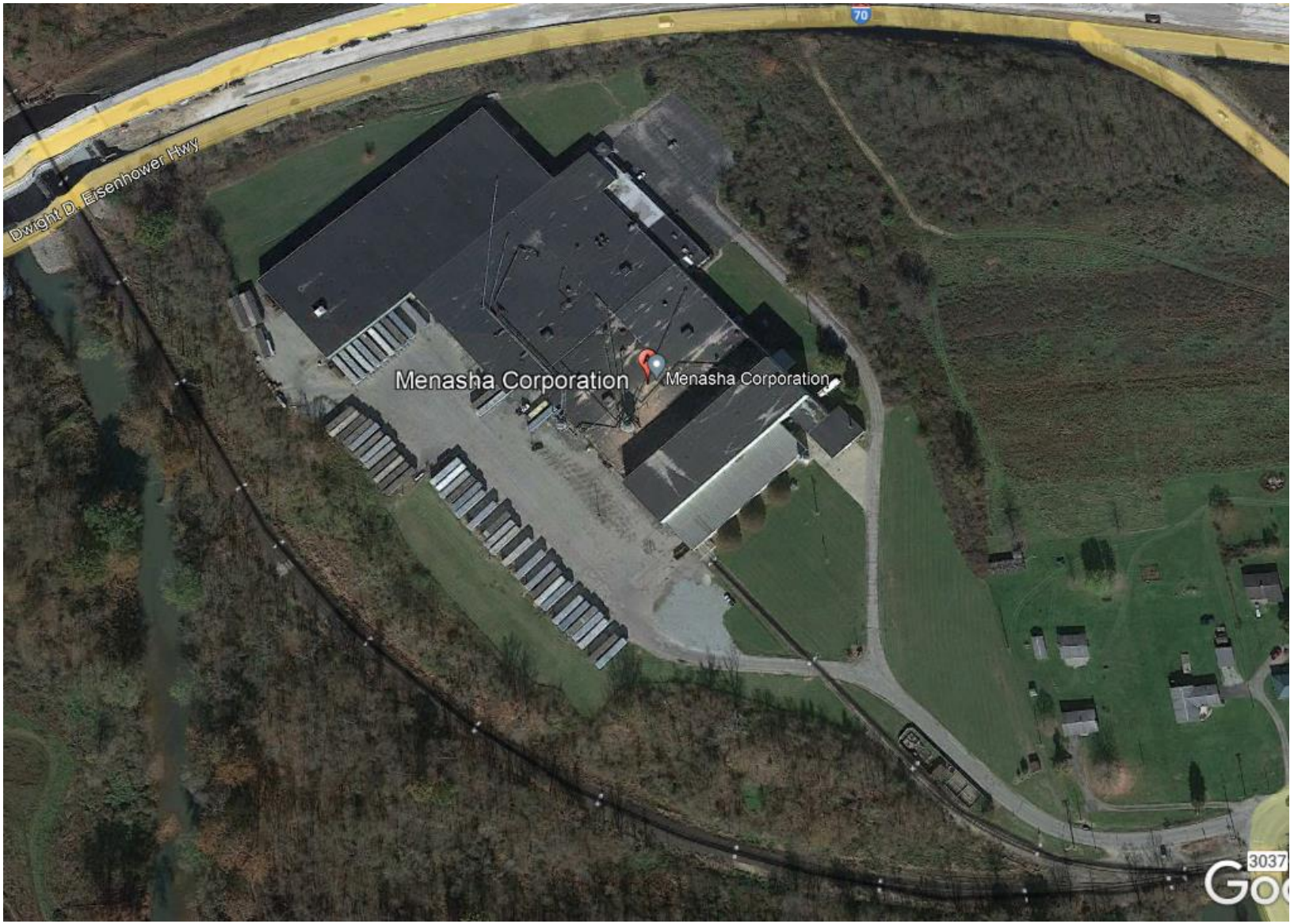
		NCCW				Effluent				Influent
		Sample Date				Sample Date				Sample Date
Parameter	Units	7/6/2021	8/10/2021	8/17/2021	8/24/2021	6/30/2021	7/7/2021	7/14/2021	7/21/2021	6/30/2021
Chrysene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
Dibenzo(a,h)Anthrancene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
1,2-Dichlorobenzene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
1,3-Dichlorobenzene	ug/L					<		<	<	<
1,4-Dichlorobenzene	ug/L					<		<	<	<
3,3-Dichlorobenzidine	ug/L					< 3		< 3	< 3	< 3
Diethyl Phthalate	ug/L					< 3		< 3	< 3	< 3
Dimethyl Phthalate	ug/L					< 3		< 3	< 3	< 3
Di-n-Butyl Phthalate	ug/L					<		<	<	<
2,4-Dinitrotoluene	ug/L					< 3		< 3	< 3	< 3
2,6-Dinitrotoluene	ug/L					< 3		< 3	< 3	< 3
Di-n-Octyl Phthalate	ug/L					< 3		< 3	< 3	< 3
1,2-Diphenylhydrazine	ug/L					< 3		< 3	< 3	< 3
Fluoranthene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
Fluorene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
Hexachlorobenzene	ug/L					< 3		< 3	< 3	< 3
Hexachlorobutadiene	ug/L					< 3		< 3	< 3	< 3
Hexachlorocyclopentadiene	ug/L					< 3		< 3	< 3	< 3
Hexachloroethane	ug/L					< 3		< 3	< 3	< 3
Indeno(1,2,3-cd)Pyrene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
Isophorone	ug/L					< 3		< 3	< 3	< 3
Naphthalene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
Nitrobenzene	ug/L					< 3		< 3	< 3	< 3
n-Nitrosodimethylamine	ug/L					< 3		< 3	< 3	< 3
n-Nitrosodi-n-Propylamine	ug/L					< 3		< 3	< 3	< 3
n-Nitrosodiphenylamine	ug/L					< 3		< 3	< 3	< 3
Phenanthrene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
Pyrene	ug/L					< 1.5		< 1.5	< 1.5	< 1.5
1,2,4-Trichlorobenzene	ug/L					< 3		< 3	< 3	< 3
Aldrin	ug/L					< 0.02		< 0.02	< 0.02	< 0.02
alpha-BHC	ug/L					<		<	<	<
beta-BHC	ug/L					< 0.02		< 0.02	< 0.02	< 0.02
gamma-BHC	ug/L					< 0.02		< 0.02	< 0.02	< 0.02
delta BHC	ug/L					< 0.02		< 0.02	< 0.02	< 0.02
Chlordane	ug/L					< 0.2		< 0.2	< 0.2	< 0.2
4,4-DDT	ug/L					< 0.02		< 0.02	< 0.02	< 0.02
4,4-DDE	ug/L					< 0.02		< 0.02	< 0.02	< 0.02

		NCCW				Effluent				Influent
		Sample Date				Sample Date				Sample Date
Parameter	Units	7/6/2021	8/10/2021	8/17/2021	8/24/2021	6/30/2021	7/7/2021	7/14/2021	7/21/2021	6/30/2021
4,4-DDD	ug/L					< 0.02		< 0.02	< 0.02	< 0.02
Dieldrin	ug/L					< 0.02		< 0.02	< 0.02	< 0.02
alpha-Endosulfan	ug/L					< 0.02		< 0.02	< 0.02	< 0.02
beta-Endosulfan	ug/L					<		<	<	<
Endosulfan Sulfate	ug/L					< 0.02		< 0.02	< 0.02	< 0.02
Endrin	ug/L					< 0.02		< 0.02	< 0.02	< 0.02
Endrin Aldehyde	ug/L					<		<	<	<
Heptachlor	ug/L					< 0.02		< 0.02	< 0.02	< 0.02
Heptachlor Epoxide	ug/L					< 0.02		< 0.02	< 0.02	< 0.02
PCB-1242	ug/L					< 0.05		< 0.05	< 0.05	< 0.05
PCB-1254	ug/L					< 0.05		< 0.05	< 0.05	< 0.05
PCB-1221	ug/L					< 0.05		< 0.05	< 0.05	< 0.05
PCB-1232	ug/L					< 0.05		< 0.05	< 0.05	< 0.05
PCB-1248	ug/L					< 0.05		< 0.05	< 0.05	< 0.05
PCB-1260	ug/L					< 0.05		< 0.05	< 0.05	< 0.05
PCB-1016	ug/L					< 0.5		< 0.5	< 0.5	< 0.5
Toxaphene	ug/L					< 0.05		< 0.05	< 0.05	< 0.05
Butanoic Acid	ug/L									141
Benzeneacetic Acid	ug/L									35.6

Attachment G – Water Flow and Sewage Treatment Summary


PLANT SEWAGE DISCHARGE
ALAR DISCHARGE
EQUALIZATION TANK
AEROBIC DIGESTER
SLUDGE FROM AEROBIC DIGESTER
TO CONTRACTED WASTE COMPANY
AERATION TANKS
SETTLING TANKS CLAIRIFIER
CHLORINATION
WWTP OUT FALL #1 DISCHARGE TO SEWICKLEY CREEK
SAND FILTERS
SLUDGE FROM SAND FILTERS
30 TON DUMPSTER
= SAMPLING POINT
KLH ENGINEERS, INC.
MENASHA PACKAGING COMPANY L.L.C.
WESTMORELAND, PENNSYLVANIA
PA DEP NPDES INDUSTRIAL USER PERMIT RENEWAL
YUKON PLANT WASTEWATER TREATMENT SCHEMATIC
01 OF 01
EXHIBIT 1

Attachment H – Facility Site Plan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Dwight D. Eisenhower Hwy
Menasha Corporation
Menasha Corporation
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