pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0007552**
Facility Type	**Industrial**	APS ID	**274874**
Major / Minor	**Minor**	Authorization ID	**1363876**

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

Applicant and Facility Information

Applicant Name	**Empire Kosher Poultry Inc.**	Facility Name	**Empire Kosher**
Applicant Address	247 Empire Drive	Facility Address	247 Empire Drive
	Mifflintown, PA 17059-7746		Mifflintown, PA 17059-7746
Applicant Contact	Kevin Mcateer	Facility Contact	Kevin Mcateer
Applicant Phone	(717) 436-7003	Facility Phone	(717) 436-7003
Client ID	62443	Site ID	510169
SIC Code	2015	Municipality	Walker Township
SIC Description	Manufacturing - Poultry Slaughtering And Processing	County	Juniata
Date Application Received	August 3, 2021	EPA Waived?	No
Date Application Accepted	October 7, 2021	If No, Reason	Significant CB Discharge

Purpose of Application: NPDES Renewal for discharge of treated industrial wastewater

Summary of Review

1.0 General Discussion

This fact sheet supports the renewal of an existing NPDES permit for a discharge of treated industrial wastewater from Empire Kosher Poultry Inc. (EK) processing plant located in Walker Township, Juniata County. EK owns and operates the wastewater treatment plant that receives wastewater from their poultry processing plant that processes chicken and turkey. The kosher processing operation requires the birds to be slaughtered over an area covered with sawdust to capture blood. Blood recovered is hauled off site. The feathers, entrails, blood, and other bodily fluids are washed into the feather screening area where the material is screened through rotary screens. Other sources of the wastewater are from scalding, feather, picking, soaking, salting, chilling, cut-up packaging, boiler blowdown and plant sanitation clean-up. The solids removed by the screens are conveyed into trucks for transport to a rendering operation off-site. The loaded trucks are retained outside of the loading area to allow additional fluids to drain prior to shipment off-site. The fluids drained from the trucks are combined with the screened wastewater at the feather pit. The pit is a 30,000-gallon tank used to separate floatable materials. The screened wastewater is pumped from the feather pit to a 1.7million-gallon flow equalization basin (FEB) installed prior to the dissolved air flotation (DAF) pretreatment system to blend and equalize flow. Wastewater from the FEB is then divided into the three DAF cells where more solids are separated using chemical coagulation and flocculation. Effluent from DAFs enters a 4-stage Bardenpho Biological Nutrient Removal (BNR) tank where biological treatment is established. Wastewater then goes to a clarifier where RAS is returned to the aeration basins and the effluent enters a UV system for disinfection. Effluent from UV channel flows into a backup chlorine contact tank which also acts as a post aeration basin. WAS is sent to sludge digester for digestion. The treated wastewater is discharged continuously to Juniata River which is classified as WWF and MF. The permitted Annual Average Design Flow is 2.2 MGD. The existing permit was issued on January 26, 2017 with effective date of February 1, 2017 and expiration date of January 31, 2022. A topographical map showing discharge location is presented in attachment A. Schematic water flow diagram showing the various sources and amounts of process wastewater produced is presented in attachment B

Approve	Deny	Signatures	Date
X		*J. Pascal Kwedza* J. Pascal Kwedza, P.E. / Environmental Engineer	December 9, 2022
X		Daniel W. Martin Daniel W. Martin, P.E. / Environmental Engineer Manager	December 13, 2022

Summary of Review

1.1 Public Participation

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

1.2 Existing Permit Limitations and Monitoring Requirements

	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
	Mass Units (lbs/day)		Concentrations (mg/l)				Minimum	Required
Discharge Parameter	Avg Monthly	Max Daily	Minimum	Average Monthly	Maximum Daily	Inst. Maximum	Measurement Frequency	Sample Type
Flow (mgd)	Monitor & Report	Monitor & Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	From 6.0 to 9.0 inclusive				1/day	Grab
D.O.	XXX	XXX	Minimum of 5.0 mg/l at all times				1/day	Grab
CBOD5	Report	Report	XXX	16.8	27.4	42	2/week	24-Hr Composite
TSS	Report	Report	XXX	21.1	31.6	52	2/week	24-Hr Composite
Total Dissolved Solids	Report	XXX	XXX	Report	Report	XXX	2/week	24-Hr Composite
Oil and Grease	Report	Report	XXX	9.5	16.7	24	2/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	811 Geo Mean	XXX	XXX	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	XXX	2/week	Grab
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Nitrogen	XXX	XXX	XXX	103.0	147.0	XXX	2/week	Calculation
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Ammonia Nov 1 - Apr 30	204	407	XXX	11.1	22.2	27.75	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	116.0	233.0	XXX	6.34	12.68	16	2/week	24-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite

Summary of Review

TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	XXX	XXX	Report	XXX	5	2/week	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Sulfate	Report	XXX	XXX	Report	Report	XXX	2/week	24-Hr Composite
UV Dosage (mWsec/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Chloride	Report	XXX	XXX	Report	Report	XXX	2/week	24-Hr Composite
Bromide	Report	XXX	XXX	Report	Report	XXX	2/week	24-Hr Composite

1.2.1 Storm water Outfalls 002 & 003

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
BOD5	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

1.3 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	2.2
Latitude	40º 33' 36"	Longitude	-77º 24' 14"
Quad Name	Mifflintown	Quad Code	1426
Wastewater Description:	IW Process Effluent with ELG		

Receiving Waters	Juniata River (WWF)	Stream Code	11414
NHD Com ID	66205651	RMI	33.5
Drainage Area	2840 mi^2	Yield (cfs/mi^2)	0.159
Q_{7-10} Flow (cfs)	451.58	Q_{7-10} Basis	
Elevation (ft)	411	Slope (ft/ft)	
Watershed No.	12-A	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake	Newport Borough Water Authority		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	21.1

Changes Since Last Permit Issuance: None

1.3.1 Water Supply Intake:

The closest water supply intake located downstream from the discharge is Newport Borough Water Authority in Newport Borough, Perry County. The distance downstream from the discharge to the intake is approximately 21 miles. No impact is expected on the intake as a result of this discharge

1.4 Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0
Latitude	40º 33' 43"	Longitude	-77º 23' 55"
Quad Name	Mifflintown	Quad Code	1426
Wastewater Description:	Stormwater		
Receiving Waters	Juniata River (WWF)	Stream Code	11414
NHD Com ID	66205651	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	12-A	Chapter 93 Class.	WWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance: N/A

See details under stormwater section of the report.

1.4.1 Other Comments:

This outfall is located at the north of existing holding shed. The receiving stream is Juniata River, about 430 ft. upstream of outfall 001. The drainage area contributing to this outfall is about 8 acres. Live haul truck traffic and livestock holding shed is the main contributor of pollutants to this outfall. See section 4.3.20 of the report for further information

1.5 Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	0
Latitude	40º 33' 33"	Longitude	-77º 23' 54"
Quad Name		Quad Code	
Wastewater Description:	Stormwater		
Receiving Waters	Juniata River (WWF)	Stream Code	11414
NHD Com ID	66205651	RMI	
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	12-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

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

Nearest Downstream Public Water Supply Intake			
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	

Changes Since Last Permit Issuance: N/A

See details under stormwater section of the report.

1.5.1 Other Comments:

This outfall is located at the south west of existing treatment plant. The receiving stream is Juniata River, upstream of outfall 001. The drainage area contributing to this outfall is about 23 acres. Live haul truck traffic and shipping traffic is the main contributor of pollutants to this outfall. See section 4.3.20 of the report for further information

2.0 Treatment Facility Summary

Treatment Facility Name: Empire Kosher Poultry

WQM Permit No.	Issuance Date
3495201 A-2	09/23/2015
3495201 A-1	02/07/2014
3495201	06/14/2001

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Secondary	Activated Sludge	Ultraviolet	2.2

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

Changes Since Last Permit Issuance: None

2.1 Treatment Units

The wastewater treatment system consists of the following treatment units: 4 Rotary screens, one Feather Pit, One Flow Equalization Basin, 3 DAF cells, 2 four stage denitrification treatment system (2 Bardenpho BNR system one duty one standby), two Clarifiers (one duty and one standby), 3 Waste Sludge Storage Tanks,(2 receive DAF sludge and the other receives sludge from clarifier), UV for disinfection, Chlorine Contact Tank as back-up and also used for post aeration and volute press for dewatering clarifier sludge. Belt filter press is idle but could be used if needed.

2.2 Treatment Chemicals

Polymer 71306 is used in clarifier to improve settling and used in volute press to floc solids to press.
Polymer GR-105 is used to improve DAF operation.
DelPac 20/20 / Ferric Chloride as Clarifier and DAF coagulant.
Micro C as Carbon source for N removal if needed.

3.0 Compliance History

3.1 DMR Data for Outfall 001 (from October 1, 2021 to September 30, 2022)

Parameter	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
Flow (MGD) Average Monthly	0.687	0.764	0.658	0.751	0.698	0.65	0.812	0.805	0.818	0.82	0.865	0.905
Flow (MGD) Daily Maximum	1.631	1.183	1.247	1.235	1.171	1.299	1.29	1.416	1.379	1.505	1.491	1.416
pH (S.U.) Minimum	7.21	7.24	7.19	7.48	7.43	7.4	7.38	7.36	7.34	7.32	7.27	7.24
pH (S.U.) Maximum	7.38	7.47	7.51	7.58	7.59	7.57	7.58	7.53	7.48	7.45	7.46	7.42
DO (mg/L) Minimum	5.41	6.19	6.03	6.37	6.07	6.18	5.93	6.19	6.43	6.13	6.05	6.17
CBOD5 (lbs/day) Average Monthly	< 22	< 22	< 22	< 23	< 25	< 20	< 20	< 23	< 26	< 29	< 23	< 26
CBOD5 (lbs/day) Daily Maximum	36	32	34	35	36	26	24	93	43	71	26	44
CBOD5 (mg/L) Average Monthly	< 2.5	< 2.3	< 2.2	< 2.4	< 2.7	< 2.1	< 2.1	< 2.2	< 2.5	< 2.7	< 2.1	< 2.5
CBOD5 (mg/L) Daily Maximum	3.7	3.2	3.4	3.7	4	2.5	2.5	7.94	4	6.4	2.3	3.7
TSS (lbs/day) Average Monthly	< 124	< 55	< 55	< 73	141	115	108	< 119	141	120	< 62	< 68
TSS (lbs/day) Daily Maximum	307	76	67	123	216	188	176	260	244	188	105	103
TSS (mg/L) Average Monthly	< 13.9	< 5.8	< 5.6	< 7.6	15.1	12.1	11	< 11.3	14	11.3	< 5.6	< 6.4
TSS (mg/L) Daily Maximum	32	8	7	13	23	19	18	22	24	17	10	10
Total Dissolved Solids (lbs/day) Average Monthly	25108	19388	20778	18945	19262	19186	17354	20291	23731	25276	17802	15013
Total Dissolved Solids (mg/L) Average Monthly	2760	2053	2105	1971	2061	2040	1754	1953	2338	2354	1616	1403
Total Dissolved Solids (mg/L) Daily Maximum	5330	2460	2240	2700	2350	2510	2150	2230	3000	4700	1990	1850
Oil and Grease (lbs/day) Average Monthly	< 34	< 34	< 37	< 36	< 35	< 35	< 37	< 38	< 38	< 41	< 41	< 40

Oil and Grease (lbs/day) Daily Maximum	< 42	< 37	< 38	< 38	< 36	< 40	< 40	< 44	< 40	< 48	< 44	< 44
Oil and Grease (mg/L) Average Monthly	< 3.9	< 3.6	< 3.7	< 3.7	< 3.7	< 3.7	< 3.7	< 3.7	< 3.7	< 3.8	< 3.7	< 3.7
Oil and Grease (mg/L) Daily Maximum	< 4.4	< 3.9	< 3.8	< 3.8	< 3.8	< 3.7	< 3.8	< 3.7	< 3.8	< 4.3	< 3.7	< 3.7
Fecal Coliform (No./100 ml) Geometric Mean	< 3	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 2	< 1	< 1
Nitrate-Nitrite (mg/L) Average Monthly	0.9	1.08	1.18	1.23	0.61	0.6	0.59	0.61	1.01	1.2	1.51	1.99
Nitrate-Nitrite (lbs) Total Monthly	239	319	351	355	178	158	178	172	318	392	503	655
Total Nitrogen (mg/L) Average Monthly	5	< 3	3	< 4	< 3	< 3	< 5	7	10	11	5	< 3
Total Nitrogen (mg/L) Daily Maximum	9.83	6.69	4.89	10.4	5.89	6.5	10.1	12.9	14.5	21.3	7.55	< 4.62
Total Nitrogen (lbs) Effluent Net Total Monthly	1231	< 902	887	< 1278	< 839	< 753	< 1398	2142	3213	3764	1727	< 1105
Total Nitrogen (lbs) Total Monthly	1231	< 902	887	< 1278	< 839	< 753	< 1398	2142	3213	3764	1727	< 1105
Ammonia (lbs/day) Average Monthly	< 16	< 9	< 7	< 9	< 10	< 14	< 27	47	78	89	< 24	< 2
Ammonia (lbs/day) Daily Maximum	66	23	19	47	44	66	73	130	126	183	67	10
Ammonia (mg/L) Average Monthly	< 2.07	< 0.92	< 0.65	< 0.99	< 1.02	< 1.47	< 2.77	4.40	7.64	8.33	< 2.2	< 0.19
Ammonia (mg/L) Daily Maximum	6.95	2.56	1.80	4.99	4.68	6.6	7.47	11.7	12	16.5	5.94	0.805
Ammonia (lbs) Total Monthly	< 493	< 267	< 206	< 278	< 295	< 420	< 844	1327	2406	2771	< 720	< 67
TKN (mg/L) Average Monthly	< 3.9	< 2	< 1.7	< 3.2	< 2.3	< 2.1	< 4	6.6	9.2	10.1	< 3.7	< 1.3
TKN (lbs) Total Monthly	< 991	< 583	< 535	< 922	< 661	< 593	< 1220	1970	2891	3371	< 1224	< 450
Total Phosphorus (lbs/day) Average Monthly	< 3	< 2	< 2	< 2	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
Total Phosphorus (mg/L) Average Monthly	< 0.29	< 0.24	< 0.18	< 0.18	< 0.11	< 0.1	< 0.1	< 0.1	< 0.12	< 0.14	< 0.12	< 0.12

Total Phosphorus (lbs) Effluent Net Total Monthly	< 76	< 68	< 57	< 51	< 30	< 28	< 31	< 29	< 38	< 46	< 40	< 39
Total Phosphorus (lbs) Total Monthly	< 76	< 68	< 57	< 51	< 30	< 28	< 31	< 29	< 38	< 46	< 40	< 39
Sulfate (lbs/day) Average Monthly	< 642	< 480	718	562	591	577	< 464	543	653	789	553	576
Sulfate (mg/L) Average Monthly	< 72.7	< 51	72.8	58.7	63.3	61.6	< 46.7	52.5	64.4	73.6	49.8	53.8
Sulfate (mg/L) Daily Maximum	118	61.9	121	69.5	73.1	66.3	59.3	60.8	76.8	133	54.4	60.5
UV Dosage (mWsec/cm²) Minimum	26.11	26.23	26.14	26.13	26.64	26.11	26.39	26.81	26.12	26.3	25.94	25.86
Chloride (lbs/day) Average Monthly	15472	11109	11609	10699	11567	11216	< 10215	13231	13975	17491	11886	9879
Chloride (mg/L) Average Monthly	1697	1176	1175	1113	1238	1188	< 1031	1269	1376	1632	1074	918
Chloride (mg/L) Daily Maximum	3530	1360	1300	1480	1520	1520	1280	1810	1860	3120	1270	1210
Bromide (lbs/day) Average Monthly	< 216	< 188	< 216	< 54	< 17	13	< 13	< 12	< 10	< 11	< 3	< 11
Bromide (mg/L) Average Monthly	< 25	< 20	< 21.9	< 5.6	< 1.8	1.4	< 1.3	< 1.2	< 1	< 1	< 0.28	< 1.04
Bromide (mg/L) Daily Maximum	< 25	< 25	< 25	< 12.5	< 5	1.5	1.4	< 2.5	< 1	< 1	0.86	< 2

3.2 DMR Data for Outfall 002 (from October 1, 2021 to September 30, 2022)

Parameter	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
pH (S.U.) Daily Maximum				7.83						7.98		
BOD5 (mg/L) Daily Maximum				2.8						12.7		
COD (mg/L) Daily Maximum				< 15						21		
TSS (mg/L) Daily Maximum				34						47		
Oil and Grease (mg/L) Daily Maximum				< 3.7						< 3.7		
Nitrate-Nitrite (mg/L) Daily Maximum				< 1						0.39		

3.3 DMR Data for Outfall 003 (from October 1, 2021 to September 30, 2022)

Parameter	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
pH (S.U.) Daily Maximum				8.09						7.71		
BOD5 (mg/L) Daily Maximum				< 2						3.3		
COD (mg/L) Daily Maximum				< 15						< 15		
TSS (mg/L) Daily Maximum				35						17		
Oil and Grease (mg/L) Daily Maximum				< 3.8						< 3.7		
Nitrate-Nitrite (mg/L) Daily Maximum				< 1						0.29		

3.4 DMR Summary

Discharge Monitoring Reports (DMRs) review for the facility for the last 12 months of operation presented on the table above indicate permit limits have been met consistently and monitoring results are within acceptable range. No effluent violations noted during the period reviewed.

3.5 Summary of Inspections:

The facility was inspected a couple of times during the past permit cycle. Inspection reports review for the facility during the period indicate permit limits have been met consistently. No effluent violations were found during plant inspections.

4.0 Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 2.2
Latitude 40º 33' 32.05" **Longitude** -77º 24' 11.03"
Wastewater Description: IW Process Effluent with ELG

4.1 Basis for Effluent Limitations

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based effluent limits(TBELs) are set according to the level of treatment that is achievable using available technology and water quality-based effluent limits(WQBELs) are established to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

4.2 Technology Based Limits

Discharges from poultry processors are regulated under federal ELG 40 CFR §432 Subpart K (Poultry First Processing) and Subpart L (Poultry Further Processing). The ELG presents a production-based effluent limits in units of Live Weight killed (LWK) and units of Finished Product for existing sources which is applicable EK's discharge. The limits from 40 CFR Section 432.112 (BPT) and 432.113 (BAT) must be included in the permit for EK unless water quality based effluent limits (WQBELs) are more stringent. Table 1 presents the BPT/BAT limits that are applicable.

Table 1

SUMMARY OF BAT/BPT LIMITS		
Pollutant	**Effluent Concentrations (mg/l)**	
	Average Monthly	**Maximum Daily**
BOD_5	16	26
TSS	20	30
Oil & Grease	8	14
NH_3-N	4	8
Total N	103	147
Fecal Coliform	Maximum of 400/100ml	

EK has multiple operations within Subpart K and Subpart L. First processing operations that are performed at EK generally include the areas where animals are killed and bled, feather removal, animal evisceration, bird washing and chilling, trimming to produce whole bird or bird parts, cleaning and disinfection. EK's 5 years production data during the period from 2016 through 2020 is presented on table 2 below. The data indicates EK processed an annual average of 96,646,000 lbs. of LWK. The production at EK has reduced since 2019 due to various external factors including Covid -19 and supply chain issues. It is unclear if production will remain at current levels or change in the future. EK provided an anticipated average production of 93,000,000lbs LWK in the next 5 years. Based on the current and anticipated annual average production data provided, Subpart K requirements of the ELG will not apply because production levels are below the threshold of 100 million lbs. LWK. However, BPJ limit development is appropriate.

Table 2

Subpart K Production Data (lbs. of LWK)					
	Production Year				
Parameter	2016	2017	2018	2019	2020
Total Annual Production	99,288,890	101,340,376	101,005,563	92,042,552	89,332,648
Max Monthly Production	9,935,475	10,174,418	9,590,664	9,180,078	8,362,078
Month of Max Production	August	March	August	July	June
Avg Production Hrs/day	15	15	15	15	15
Avg Production Days/month	18	17	18	16	17

Further processing procedures that occur at EK consist of whole carcasses or cut-up meat or poultry products to produce fresh or frozen products, and include the following types of processing: cutting and deboning, cooking, seasoning, chopping, dicing, forming, pickling, extruding, cleaning and disinfection. EK's 5 years production data during the period from 2016 through 2020 is presented on the table 3 below. The data indicates EK processed an annual average of 54,038,369 lbs. of further processed products. The production at EK has reduced since 2019 due to various external factors including Covid -19 and supply chain issues. EK provided an anticipated annual average production of 51,987,000 lbs./year in the next 5 years. Based on production data, Subpart L requirements of the ELG applies because current and anticipated annual production exceeds 7 million lbs./year threshold.

Table 3

Subpart L Production Data (lbs.)					
	Production Year				
Parameter	2016	2017	2018	2019	2020
Total Annual Production	58,320,559	57,172,363	54,112,172	50,969,313	40,617,437
Max Monthly Production	5,804,277	5,782,089	5,189,165	4,666145	5,246,358
Month of Max Production	September	March	January	July	March
Avg Production Hrs/day	15	15	15	15	15
Avg Production Days/month	19	20	19	17	20

Meeting the threshold in Subpart L does not mandate implementing ELG limits for all operations under Subpart K. However, due to multiple operations at the site, a building block approach toward ELG limits would be implemented in utilizing Best Professional Judgment (BPJ) to develop a combined ELG discharge limitation. EK did not provide relative wastewater volumes for the processes. It was estimated that about 75% of the wastewater flow comes from first processing operations and 25% come from further processing operations. Since Subpart K ELG is not applicable, the existing limits will be multiplied by 0.75 to get proportion from Subpart K. The applicable ELG for subpart L will be multiplied by 0.25 to get the proportion from Subpart L. The limits will be summed up to get combined average monthly limits for the multiple operations at the site. Table 4 shows the results of the calculations for the average monthly and maximum daily limitations using the building block approach. Maximum daily limits were derived by multiplying average monthly limits by ratio of maximum daily to monthly average numbers of the ELGs on table 1

Table 4

Pollutant for Subpart K & L	Subpart K (<100 million LWK/year)	Flow contribution from Subpart K	Subpart K pollutant allocation	Subpart L (>7 million lbs/year)	Flow contribution from Subpart L	Subpart L pollutant allocation	Average monthly limits combined	Ratio of subpart L Max to Average monthly limits	Maximum Daily Limits, combined
NH_3-N	11.1	75%	8.325	4.0	25%	1	9.325	2	18.65
BOD5	16.84	75%	12.63	16	25%	4	16.63	1.625	27.02
TSS	21.08	75%	15.81	20	25%	5	20.81	1.5	31.22
O&G	9.52	75%	7.14	8.0	25%	2	9.14	1.75	16.00
TN	103	75%	77.25	103	25%	25.75	103	1.427	146.98
Fecal Coliform	811.32	75%	608.49	400	25%	100	708	1	708

4.3 Water Quality-Based Limitations

4.3.1 Receiving Stream

The receiving stream is the Juniata River. According to 25 PA § 93.9n, this stream is protected for Warm Water Fishes (WWF) and Migratory Fishes (MF). It is located in Drainage List n and State Watershed 12-A. It has been assigned stream code 11414. According to eMapPA, this segment of Juniata River is attaining its designated uses.

4.3.2 WQM 7.0 Stream Model

WQM7.0 **stream model** was used to calculate WQBELs for $CBOD_5$, NH_3-N and D.O for EK discharge to Juniata River. WQM 7.0 is a water quality model DEP utilizes to establish appropriate effluent limits for $CBOD_5$, NH_3-N and DO in permits. The model simulates 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 and also simulates mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3N and compares calculated instream D.O. concentrations to D.O. water quality criteria and recommends effluent limits.

4.3.3 Streamflow:

Streamflows for the water quality analysis were determined by correlating with the yield of the nearest USGS gauging station No 01567000 on Juniata River at Newport, PA. The $Q_{7\text{-}10}$ and drainage area at the gage is 534 ft^3/s and 3,354 mi^2 respectively. The resulting yields are as follows:

- $Q_{7\text{-}10}$ = (534ft^3/s)/3354 mi^2 = 0.1592$ft^3/s/ mi^2$
- $Q_{30\text{-}10}$ / $Q_{7\text{-}10}$ = 1.10
- $Q_{1\text{-}10}$ / $Q_{7\text{-}10}$ = 0.94

The drainage area at discharge as calculated by USGS StreamStats = 2,840.1 mi^2

The $Q_{7\text{-}10}$ at discharge = 2,840.1 mi^2 x 0.1592$ft^3/s/mi^2$ = 452 ft^3/s.

For modelling purpose, 25% of stream was used. $Q_{7\text{-}10}$ model = 0.25 x 452 ft^3/s = 113 ft^3/s

4.3.4 NH_3N Calculations

NH_3N calculations are based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the instream NH_3N criteria used in the WQM model of the stream:

Stream pH	=8.3 (WQN#214, median July-Sep)
Stream Temp	=24^0 C (WQN#214, median July-Sep)
Background Hardness	=119.5 (WQN#214, median July-Sep

4.3.5 **Additional** WQM 7.0 **Input Data**

Due to their proximity, the discharge from EK and Twin Borough STP (PA0023264) were modelled together. The following input data were used for modelling:

Node 1: Twin Borough Discharge

TP pH:	7.5 (DMR median July-Sep)
TP Temp:	25^{0}C (Default)
Elevation:	412 ft
Drainage Area:	2,840 mi^2 (StreamStat
River Mile Index:	33.94 (PA DEP eMapPA)
Low Flow Yield:	0.159 cfs/mi^2
Discharge Flow:	0.9 MGD

Q_{7-10} for modelling = 0.25 x 452 ft^3/s. = 112.89 ft^3/s.

Node 2: EK's Discharge

TP pH:	7.3 (DMR median July-Sep)
TP Temp:	25^{0}C (Default)
Elevation:	411 ft
Drainage Area:	2,840.1 mi^2 (StreamStat)
River Mile Index:	33.5 (PA DEP eMapPA)
Low Flow Yield:	0.159 cfs/mi^2
Discharge Flow:	2.2 MGD
Q_{7-10} for modelling	0.25 x 452 ft^3/s. = 113 ft^3/s.

Node 3: At the confluence with Tuscarora Creek (11830)

Elevation:	404 ft
Drainage Area:	2,850 mi^2 (StreamStat)
River Mile Index:	31.47 (PA DEP eMapPA)
Low Flow Yield:	0.159 cfs/mi^2
Discharge Flow:	0.00 MGD

4.3.6 $CBOD_5$

The WQM 7.0 stream modeling was done using stream temperature and pH presented in section 4.3.4 and additional input data presented in section 4.3.5. The attached results of the WQM 7.0 stream model (attachment C) indicates that, for EK's discharge, a water quality limit of 25 mg/l $CBOD_5$ as monthly average is adequate to protect water quality of the stream. This is less stringent than the combined technology limit of 16.63 mg/l BOD_5 (converted to 11.63 mg/l $CBOD_5$). Therefore, a monthly average limit of 11.5 mg/l $CBOD_5$ (rounded) and 19mg/L (11.63x 1.625) (rounded) daily maximum will be written in the permit. Consistent with the existing permit Mass limit reporting will remain in the permit. The recommended limits are more stringent than the existing limits, but based on the DMRs and inspection reports, the facility can meet the limits.

4.3.7 NH_3-N

The attached results of the WQM 7.0 stream model (attachment C) also indicates that a summer limit of 10.73 mg/l NH_3-N as a monthly average is necessary to protect the aquatic life from toxicity effects. This limit is less stringent than the existing WQBEL summer limit of 6.34mg/l and will not be written in the permit. The existing summer limit of 6.34mg/l with remain in the permit and the combined ELG limit of 9.33mg/l will be written for winter months. Consistent with the existing permit Mass limits will be written for NH_3-N.

Mass-based limits are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34

Mass based average monthly (lb/day) for the summer months for NH_3-N = 6.34 (mg/L) × 2.2 (mgd) × 8.34 = 116.33

Mass based daily maximum (lb/day) for the summer months for NH_3-N = 12.68 (mg/L) × 2.2 (mgd) × 8.34 = 232.65

Mass based average monthly (lb/day) for the summer months for NH_3-N = 9.33 (mg/L) × 2.2 (mgd) × 8.34 = 171.19

Mass based daily maximum (lb/day) for the summer months for NH_3-N = 18.66 (mg/L) × 2.2 (mgd) × 8.34 = 342.37

4.3.8 Dissolved Oxygen

The existing permit has a limit of 5 mg/l for Dissolved Oxygen (DO). DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001, 10/97) suggests that either the adopted minimum stream D.O. criteria for the receiving stream or the effluent level determined through water quality modeling be used for the limit. Since the WQM 7.0 model was run using a minimum D.O. of 5.0 mg/l, the existing D.O limit of 5.0mg/l will remain in the in the permit with a daily monitoring requirement.

4.3.9 Total Suspended Solids:

There is no water quality standard for TSS. The calculated combined ELG limitation of 20.5 mg/l(rounded) average monthly, and a daily maximum of 31mg/l(rounded) and 51.25 mg/L instantaneous maximum will be written in the permit for the current renewal with a minimum monitoring frequency of 2/week. Consistent with the existing permit, mass limits reporting will continue in the permit following permit writer's Manual (Document No. 362-0400-001 Table 5-2, 10/1/97).

4.3.10 Fecal Coliform:

25 PA code § 92a.47(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and § 92a.47(a)(5) requires a winter limit of 2,000/100ml as a geometric mean for Fecal Coliform and the combine ELG developed in section 4.2 requires a maximum daily limit of 700/100 ml (rounded). The existing permit has the summer technology limit of 200/100 ml as a geometric which will remain in the permit and in addition, the maximum daily limit of 700/100 ml based on the combined ELG will be required in the permit for summer months. For winter months, the combined ELG of 700 /100 ml will be written in the permit as a geometric mean and a maximum daily limit. Based on DMRs, the facility can meet the proposed new limitations.

4.3.11 Chesapeake Bay Strategy:

In 2003, EPA established state-wide cap loads for Total Nitrogen and Total Phosphorus for Pennsylvania that are needed to ensure compliance with new water quality standards enacted to restore the water quality of the Chesapeake Bay. DEP released Pennsylvania's Chesapeake Bay Tributary Strategy (CBTS) in January of 2005 to guide Pennsylvania's efforts to meet those cap loads and made revisions to the Strategy in 2006-2007 following a stakeholder process. Industrial discharges have been prioritized by DEP based on their delivered TN loadings to the Bay. Significant industrial wastewater dischargers are facilities that discharge more than 75 lbs/day of TN or 25 lbs/day of TP on an average annual basis and the rest are classified as non-significant dischargers. The determination of cap loads for significant industrial dischargers is divided into five categories. First category are those facilities that had reductions before the 2002 loads were calculated; second are those facilities that submitted a Nutrient Reduction Evaluation (NRE) and reduced their nutrient loads between 2002 and 2009; third are those facilities that submitted an NRE and are planning to reduce nutrient loads through upgrades to operation or construction of their treatment plants; fourth category are those facilities that are already at low levels of nutrient discharge loads; and fifth are those facilities that did not submit an NRE or submitted an NRE but did not plan to reduce nutrient loads. New and expanding industrial dischargers will submit report on how they will address any associated nutrient loadings. Non-significant IW dischargers will be required to monitor and report the nitrogen series (TKN, NH_3-N and NO_2+NO_3-N) and total phosphorus using a monitoring frequency that is dependent on quantity and type of discharge. Based on available data EK's cap loads allocations are 21,298lbs/yr TN and 740lb/yr TP respectively. EK has upgraded the wastewater treatment plant and has been complying with the Chesapeake Bay cap load requirement.

4.3.12 Total Nitrogen

There is no water quality standard for Total Nitrogen. The combined ELG limitation calculated an average monthly concentration limit of 103 mg/l, and a daily maximum of 147mg/l which is consistent with the existing permit and will remain in the permit. Consistent with the existing permit, mass limits reporting will continue in the permit following permit writer's Manual (Document No. 362-0400-001 Table 5-2, 10/1/97).

4.3.13 Phosphorus:

The segment Juniata River that EK discharges to doesn't have instream phosphorus related impairment to require a local Phosphorus limit, however, the existing monitoring requirement for Phosphorus and IMAX of 5mg/L will be carried forward in the current permit renewal due to anti-backsliding restrictions.

4.3.14 Total Residual Chlorine (TRC):

The permittee utilizes UV instead of chlorine for wastewater disinfection. However, the permittee retained the existing chlorine disinfection system as back-up for disinfection if needed and may use chlorine-based chemicals for cleaning. The existing permit included TRC limitation is part of the permit and is required to optimize chlorine usage to prevent negative impacts on receiving stream incase chlorine is used for disinfection or for cleaning. The TRC limit in the permit was calculated following DEP's TRC model which utilizes equations and calculations as presented in the Department's 2003 Implementation Guidance for Residual Chlorine (TRC) (ID # 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92a, Section 92a.48 (b) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The attached TRC results presented in attachment D indicate that an average monthly technology limit of 0.5 mg/l and 1.63 mg/l IMAX would be needed to prevent toxicity concerns. This is consistent with the existing permit limit for TRC in Part C.I. E of the permit and will remain in the current permit renewal. Daily UV Dosage ($mWsec/cm^2$) monitoring required in the existing permit will continue to ensure efficiency of the UV unit.

4.3.15 Oil and Grease

25 PA code § 95.2(3) (ii) requires 15 mg/l and 30 mg/l for average monthly and maximum daily limits respectively for O&G. However, the calculated combined ELGs of 9 mg/L(rounded) monthly average and 16 mg/L daily maximum for O&G are more stringent and will be written in the permit with monitoring requirement for mass limits. In addition to the technology-based numerical effluent limits, narrative water quality-based limits for oil and grease, such as prohibiting visible sheening, are included in the permit.

4.3.16 pH

Following PA code 25 § 95.2, a pH of not less than 6 and not greater than 9, required in the existing permit will continue for this current permit renewal with daily monitoring requirement.

4.3.17 Toxics Limits

Toxics are not expected to be present at levels of concern in the discharge from poultry processing facilities and data presented in the application shows effluent levels that are below screening detection levels for all parameters. No limits or monitoring is needed for any toxics at this time.

4.3.18 Chemical Additives

The following Chemical additives have been approved for use at the facilty and are currently being used at the site:

- Sodium Hypochlorite for poultry processing and anti-microbial being applied 4-6days/week at 10,900gallons/year.
- PAAC for poultry processing and anti-microbial, being applied 4-6days/week at 300gpd.

The permit is written with chemical additive usage and notification requirement located in Part C.II of the permit.

4.4.19 TDS, Chloride, Sulfate, Bromide

The existing monitoring requirement for TDS, Chloride, Sulfate, and Bromide will be discontinued in the permit. Adequate data has been collected for this facility.

4.3.20 Stormwater:

The application listed two outfalls 002 (40º 33' 43"/77º 23' 55") Southern Area and 003 (40º 33' 33"/77º 23' 54") as receiving stormwater from the treatment plant site. Poultry processing facilities fall under SIC code 2015 which requires stormwater coverage. The requirements in Appendix I of the current PAG 03 applies and has been monitored and will continue to be monitored in the permit. The permittee shall monitor and report analytical results for the parameters listed below on Discharge Monitoring Reports (DMRs) for outfalls 002 and 003. The benchmark values listed on the table are not effluent limitations, and exceedances do not constitute permit violations. However, if the permittee's sampling demonstrates exceedances of benchmark values for two consecutive monitoring periods, the permittee shall submit a corrective action plan within 90 days of the end of the monitoring period triggering the plan

Parameter	Minimum Measuring Frequency	Sample Type (mg/l)	Benchmark Values
pH (S.U.)	1 / 6months	Grab	XXX
BOD_5	1 / 6months	Grab	XXX
TSS	1 / 6months	Grab	100
COD	1 / 6months	Grab	120
NO_3+NO_2-N	1 / 6months	Grab	XXX
Oil & Grease	1 / 6months	Grab	30
TKN*	1 / 6months	Grab	XXX
Total Phosphorus*	1 / 6months	Grab	XXX

*In addition, the Chesapeake Bay Strategy requires storm water to be monitored for the nitrogen series and TP. Semi-annual monitoring of TKN and Total Phosphorus have been added to Appendix I parameters.

4.3.21 Best Management Practices (BMPs)

In addition to general BMPs, the permittee shall implement the following BMPs that may be applicable to SIC code 2015.

- Store all dry raw materials, additives and products in enclosed/covered areas; install dust collection and control system for silos, holding bins, etc.
- Store liquids in tanks with secondary containment and lead detection, where appropriate.
- Minimize raw water usage for washing products and raw materials; recycle wash water to the maximum extent practicable.
- Practice good housekeeping to limit spillage/leakage of residue and provide for prompt clean-up; dispose of rotting products promptly.
- Manage inventories to ensure only short-term supplies of raw materials and products are stored on-site.
- Limit use of pesticides, insecticides and rodenticides to the maximum extent possible; apply during dry conditions; investigate non (or least) hazardous alternatives.
- Wherever possible, enclose/cover animal holding areas; install run-on controls and collect and treat run-off, as appropriate.
- Practice good housekeeping by containing and promptly removing and managing animal manure

4.3.22 Biosolids Management

Sludge from DAF cells is stored in two of the three sludge tanks prior to hauling off site to Kurtz Valley Energy for further processing and disposal. Clarifier sludge is pumped to the third holding tank and pressed using volute press prior to hauling off-site for final disposal by land application at one of the following sites: Dysinger Farm, Brubaker Farm, Dobson Run Farm, Seven Stars Dairy, Greenfield Farms, Ken Deamer Farms or Steve Long Farm.

5.0 Other Requirements

5.1 Antidegradation Requirements (25 PA Code § 93.4):

Chapter 93.4a(b) of the Department's rules and regulations require that "Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." The discharge is into a segment of Juniata River which is classified as Warm Water Fishery (WWF), and Migratory Fishes (MF.) No High Quality (HQ) stream will be impacted by this discharge. No Exceptional value Waters are impacted by this discharge.

5.2 Anti-backsliding

Not applicable to this permit.

5.3 Class A Wild Trout Streams:

No Class A Wild Trout Fisheries are impacted by this discharge

5.4 Endangered Species

There is no confirmed existence of endangered species in the area close to the discharge. Therefore, the discharge authorized by this permit is not likely to impact any endangered or threatened species or adversely affect its critical habitat.

5.5 303d Listed Streams:

The discharge is located in a stream segment of Juniata River which is attaining its designated use(s.)

5.6 Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

5.7 Effluent Monitoring Frequency

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

6.0 Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	Report	Report	XXX	11.5	19.0	28.75	2/week	24-Hr Composite
Total Suspended Solids	Report	Report	XXX	20.5	31.0	51.25	2/week	24-Hr Composite
Oil and Grease	Report	Report	XXX	9.0	16.0	22.5	2/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	700 Geo Mean	700	XXX	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	700	XXX	2/week	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	171	342	XXX	9.33	18.65	23.33	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	116.0	233.0	XXX	6.34	12.68	16	2/week	24-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	5	2/week	24-Hr Composite
Ultraviolet light dosage (mWsec/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded

Compliance Sampling Location: At Outfall 001

6.1 Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 002 and 003, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Biochemical Oxygen Demand (BOD5)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Chemical Oxygen Demand (COD)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nitrate-Nitrite as N	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Kjeldahl Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: At Outfalls 002 and 003

6.3 Proposed Effluent Limitations and Monitoring Requirements

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

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

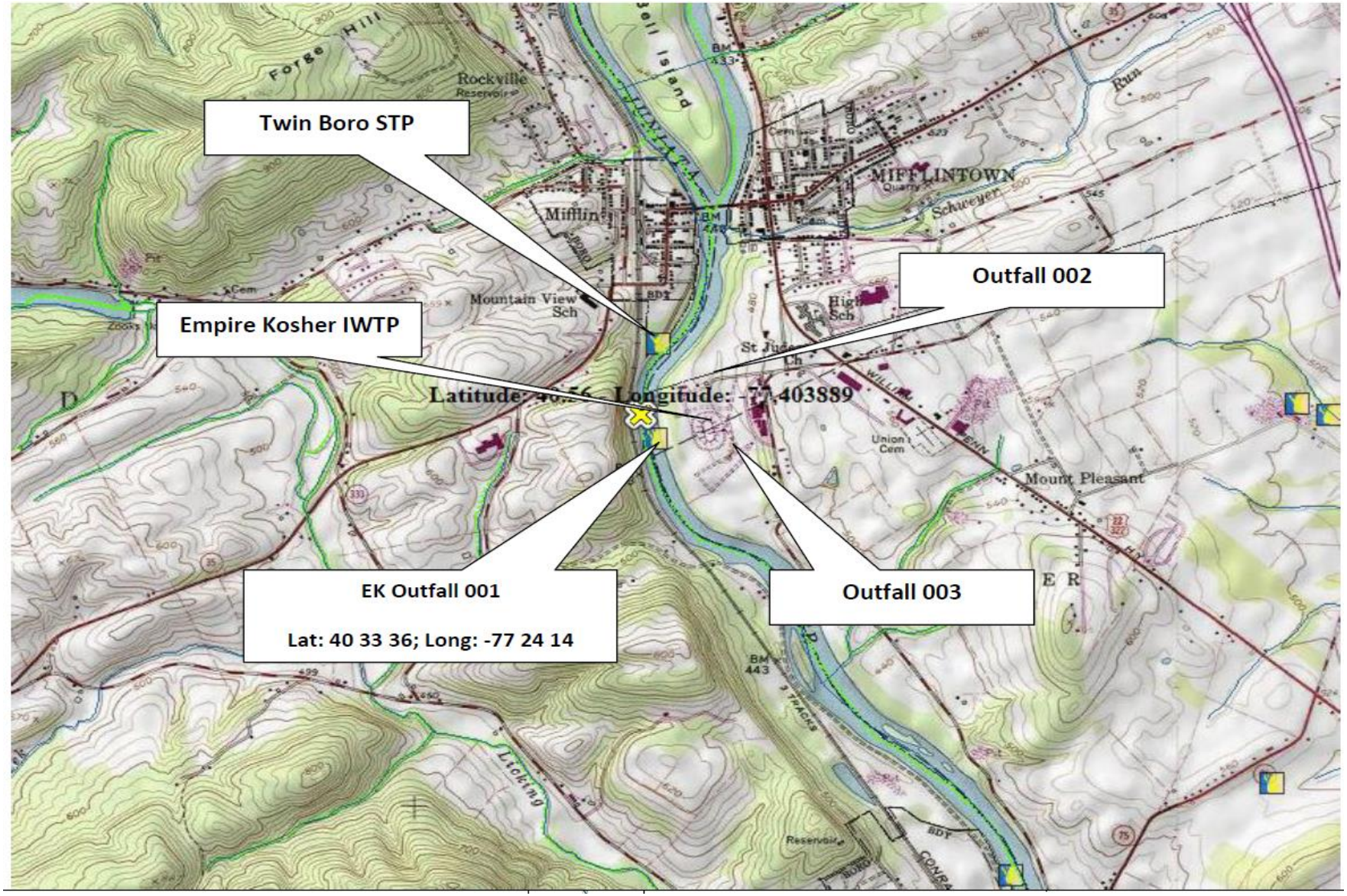
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	2/week	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	XXX	21928.0	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	740	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: At Outfall 001

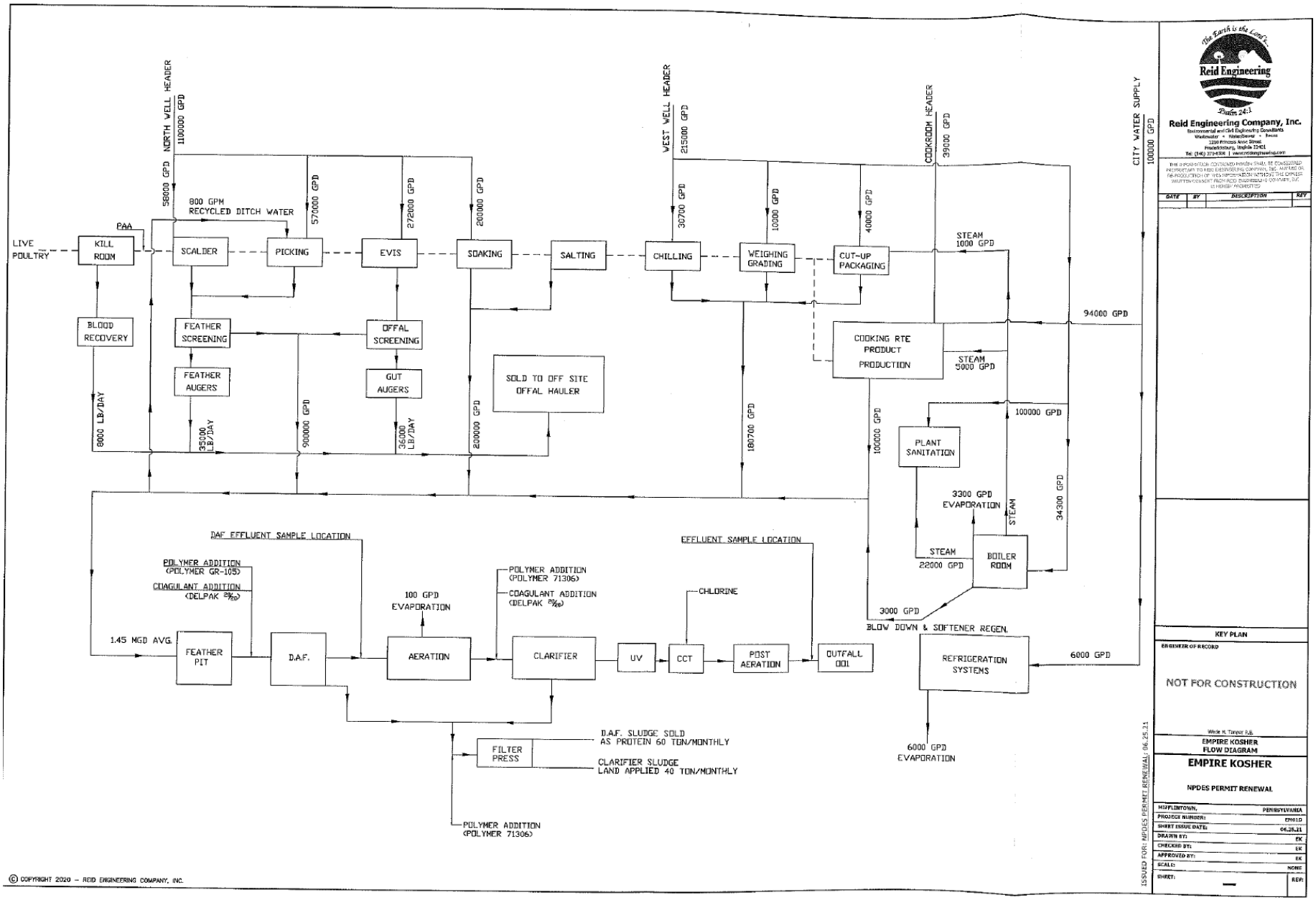
7.0 Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **C**)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☒	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☒	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishing effluent limitations for individual industrial waste permits
☒	Other: 40 CFR § 432 Subpart K and L

Attachments

A. Topographical Map



B. Process Flow Diagram



C. WQM Model Results

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
12B	11414	JUNIATA RIVER

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)
33.940	Twin Borough	PA0023264	0.900	CBOD5	25		
				NH3-N	16.36	32.72	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
33.500	Empire Kosher P	PA0007552	2.200	CBOD5	25		
				NH3-N	10.73	21.46	
				Dissolved Oxygen			5

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
12B	11414	JUNIATA RIVER	**33.940**	412.00	2840.00	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	0.159	0.00	112.89	0.000	0.000	0.0	0.00	0.00	24.00	8.30	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
Twin Borough	PA0023264	0.9000	0.9000	0.9000	0.000	25.00	7.50

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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11414	JUNIATA RIVER	**33.500**	411.00	2840.10	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	0.159	0.00	113.00	0.000	0.000	0.0	0.00	0.00	24.00	8.30	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
Empire Kosher P	PA0007552	2.2000	0.0000	0.0000	0.000	25.00	7.30

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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11414	JUNIATA RIVER	**31.470**	404.00	2850.00	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	0.159	0.00	113.50	0.000	0.000	0.0	0.00	0.00	24.00	8.30	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	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
12B	11414	JUNIATA RIVER

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												
33.940	112.89	0.00	112.89	1.3923	0.00043	1.2	210.69	175.54	0.45	0.060	24.01	8.27
33.500	113.00	0.00	113.00	4.7957	0.00065	1.192	210.2	176.39	0.47	0.264	24.04	8.18
Q1-10 Flow												
33.940	106.12	0.00	106.12	1.3923	0.00043	NA	NA	NA	0.44	0.062	24.01	8.27
33.500	106.22	0.00	106.22	4.7957	0.00065	NA	NA	NA	0.45	0.273	24.04	8.17
Q30-10 Flow												
33.940	124.18	0.00	124.18	1.3923	0.00043	NA	NA	NA	0.48	0.056	24.01	8.28
33.500	124.30	0.00	124.30	4.7957	0.00065	NA	NA	NA	0.50	0.251	24.04	8.19

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.94	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.1	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
12B	11414	JUNIATA RIVER

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
33.940	Twin Borough	1.66	50	1.66	47.27	2	5
33.500	Empire Kosher P	1.93	50	2.01	47.27	2	5

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
33.940	Twin Borough	.39	25	.39	16.36	2	35
33.500	Empire Kosher P	.44	16.4	.45	10.73	2	35

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)		
33.94	Twin Borough	25	25	16.36	16.36	5	5	0	0
33.50	Empire Kosher P	25	25	10.73	10.73	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
12B	11414	JUNIATA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
33.940	0.900	24.012	8.273
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
210.694	1.200	175.538	0.452
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.28	0.191	0.20	0.953
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.203	0.998	Tsivoglou	5
Reach Travel Time (days)			
0.060			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.006	2.28	0.20	7.67
0.012	2.27	0.20	7.67
0.018	2.27	0.20	7.67
0.024	2.27	0.19	7.67
0.030	2.26	0.19	7.67
0.036	2.26	0.19	7.67
0.042	2.26	0.19	7.67
0.048	2.26	0.19	7.67
0.054	2.25	0.19	7.67
0.060	2.25	0.19	7.67

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
33.500	3.100	24.041	8.179
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
210.196	1.192	176.394	0.470
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.91	0.434	0.49	0.955
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.591	1.577	Tsivoglou	5
Reach Travel Time (days)			
0.264			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.026	2.87	0.48	7.52
0.053	2.83	0.47	7.45
0.079	2.79	0.46	7.38
0.106	2.75	0.45	7.32
0.132	2.71	0.43	7.26
0.158	2.68	0.42	7.21
0.185	2.64	0.41	7.16
0.211	2.60	0.40	7.12
0.237	2.57	0.39	7.08
0.264	2.53	0.38	7.04

D. TRC Calculations Results

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

113	= Q stream (cfs)	0.5	= CV Daily
2.2	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= 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)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 10.610	1.3.2.iii	WLA cfc = 10.337
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 3.954	5.1d	LTA_cfc = 6.009

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

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