Pennsylvania Department of Environmental Protection

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0111759**
Facility Type	**Industrial**	APS ID	**1091821**
Major / Minor	**Major**	Authorization ID	**1445574**

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

Applicant and Facility Information

Applicant Name	**Cargill Meat Solutions**	Facility Name	**Cargill Meat Solutions**
Applicant Address	151 North Main Street	Facility Address	1252 Route 706
	Wichita, KS 67202-1413		Wyalusing, PA 18853
Applicant Contact	Billy Holland	Facility Contact	Billy Holland
Applicant Phone	570-746-3000 X7408	Facility Phone	570-746-3000 X7408
Client ID	241357	Site ID	245235
SIC Code	2011,2077	Municipality	Wyalusing Township
SIC Description	See Narrative	County	Bradford
Date Application Received	June 29, 2023	EPA Waived?	No
Date Application Accepted	July 10, 2023	If No, Reason	Major IW Facility, Significant CB Discharge
Purpose of Application	Renewal of NPDES Permit		

Summary of Review

INTRODUCTION

Cargill Meat Solutions (Cargill) has applied to renew its existing NPDES permit authorizing the discharge of industrial process wastewater and stormwater from its facility in Wyalusing Township, Bradford County.

APPLICATION

Cargill submitted the *NPDES Application for Individual Permit to Discharge Industrial Wastewater* (DEP #3800-PM-BCW0008b). The application was received by the Department on June 29, 2023 and considered administratively complete on July 10, 2023. Billy Holland, Environmental Supervisor for the Wyalusing Facility, is both the client and site contacts. His additional contact information is (email) billy_holland@cargill.com. The application consultant is Brent Shick, Managing Consultant for All4, Inc. of Kimberton, PA. His contact information is (phone) 610-933-5246 X116, (FAX) 610-933-5127 and (email) bshick@all4inc.com.

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.

The case-file, permit application package and draft permit will be available for public review at Department's Northcentral Regional Office. The address for this office is 208 West Third Street, Suite 101, Williamsport, PA 17701. An appointment can be made to review these materials during the comment period by calling the file coordinator at 570-327-3636.

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Approve	Return	Deny	Signatures	Date
X			Jeffrey J. Gocek, EIT Project Manager	07/25/2025
X			Nicholas W. Hartranft, PE Environmental Engineer Manager	07/25/2025

TREATMENT FACILITY SUMMARY

Cargill Meat Solutions (CMS) owns and operates a meat processing facility, located on State Route 706 in Wyalusing, PA. By federal regulations, this facility is considered a complex slaughterhouse. Operations at the facility include beef slaughter, processing, blood drying, hide processing and rendering. The Department considers this a major industrial discharger and a significant industrial discharger of nutrients.

See Attachment 01 for the facility location map.

CMS reported both 2011 and 2077 as applicable Standard Industrial Classification (SIC) codes in the NPDES application. According to https://www.osha.gov, 2011 is *Meat Packing Plants*. The code is defined as "Establishments primarily engaged in the slaughtering, for their own account or on a contract basis for trade, of cattle, hogs, sheep, lambs and calves for meat to be sold or to be used on the same premises in canning, cooking, curing and freezing, and in making sausage, lard and other products. Also included in this industry are establishments primarily engaged in slaughtering horses for human consumption". According to https://www.osha.gov, 2077 is *Animal and Marine Fats and Oils*. The code is defined as "Establishments primarily engaged in manufacturing animal oils, including fish oil and other marine animal oils, and fish and animal meal; and those rendering inedible stearin, grease and tallow from animal fat, bones and meat scraps".

The onsite Industrial Wastewater Treatment Facility (IWTF) consists of flow equalization, grit clarifier, screening, anaerobic lagoons (2; with gas collected for use in boilers), aeration basins (2; with glycerin addition with anoxic mixing to aid in Biological Nutrient Removal (BNR)), secondary clarifiers (3), alum addition with flash mixing (for Phosphorus removal), tertiary clarifiers (2), liquid sodium hypochlorite disinfection, chlorine contact, liquid sodium bisulfite dechlorination, dechlorination contact, sludge dewatering, sludge storage and continuous effluent flow metering.

Materials collected by the screening is sent to rendering. The grit removal uses mechanical skimmers and scrapers to remove solids by sedimentation while fats, oils and grease (FOG) is removed by flotation. These solids are land applied while the FOG are processed at the onsite rendering facility. The anaerobic lagoons (2) allow for primary sedimentation of suspended solids. The wastewater is separated into liquid and solid (sludge). The aeration basins (2) use artificial aeration to continue the biological oxidation of the wastewater. The secondary clarifiers (3) use mechanical stirrers for the continuous removal of solids. The tertiary clarifiers (2) also use mechanical stirrers for the continuous removal of solids. The tertiary clarifiers follow the aluminum sulfate addition (phosphorus removal).

See Attachment 02 for the Process Flow Schematic. See Attachment 03 for the Process Flow Diagram.

COMPLIANCE HISTORY

The WQS Query Open Violations by Client revealed one unresolved violation for Cargill. Relevant information is as follows.

DEP Program	Inspection ID	Violation ID	Violation Date	Violation
Safe Drinking Water	3809388	8196881	August 07, 2024	Circumstances exist which adversely affect the quantity or quality of water.

A Compliance Evaluation Inspection (CEI) was conducted by the Department on October 16, 2024. The inspection documented the following:
1. effluent limit exceedances for Ammonia in March 2024 and May 2024,
2. the failure to collect a fecal sample in August 2024 was documented and is attributed to their contract laboratory.
3. the suspension of engineering design work on a stand-alone wastewater treatment plant (WWTP) for the plant's sanitary wastewater, and
4. the new dewatering press is operational following its construction in February 2024.

A Chesapeake Bay Load Compliance Evaluation inspection was performed by the Department on November 15, 2024. Cargill met is annual nutrient limits for the preceding water year and did not sell any nutrient credits.

The following table contains Discharge Monitoring Report (DMR) Data for Outfall 001 from June 2024 through May 2025.

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Parameter	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24
Flow (MGD) Average Monthly	0.4640	0.4766	0.5257	0.4649	0.4572	0.4374	0.4997	0.5238	0.5101	0.5211	0.5356	0.5062
Flow (MGD) Daily Maximum	0.5047	0.5480	0.5809	0.5178	0.5435	0.4723	0.5802	0.5568	0.6067	0.6003	0.5817	0.5758
pH (S.U.) Instantaneous Minimum	6.68	6.64	6.67	6.70	6.76	6.67	6.72	6.78	6.61	6.66	6.78	6.70
pH (S.U.) Instantaneous Maximum	7.25	7.05	6.95	6.99	7.39	7.36	6.97	6.94	7.01	7.01	7.02	6.93
DO (mg/L) Instantaneous Minimum	3.53	3.43	4.58	4.93	4.22	4.67	4.65	4.69	4.01	1.50	3.23	1.54
TRC (mg/L) Average Monthly	0.05	0.05	0.05	0.05	0.05	0.06	0.04	0.03	0.03	0.04	0.10	0.04
TRC (mg/L) Instantaneous Maximum	0.11	0.07	0.07	0.07	0.10	0.13	0.07	0.12	0.06	0.06	1.04	0.08
BOD5 (lbs/day) Average Monthly	33.3	26.1	< 8.7	8.7	9.6	18.1	10.9	8.6	8.1	111.5	11.1	12.5
BOD5 (lbs/day) Daily Maximum	119.3	< 77.3	< 10.1	10.9	11.9	51.1	13.9	13.2	8.9	326.2	12.7	18.1
BOD5 (mg/L) Average Monthly	8.58	6.65	< 1.95	2.33	2.52	4.98	2.60	1.98	1.90	24.40	2.53	2.98
BOD5 (mg/L) Daily Maximum	30.9	< 20.00	< 2.20	2.90	2.90	14.2	3.00	3.00	2.00	73.90	3.00	4.00
TSS (lbs/day) Average Monthly	21.1	16.1	22.4	17.0	35.9	28.8	21.1	34.9	26.2	32.1	23.1	23.0
TSS (lbs/day) Daily Maximum	28.4	17.1	31.2	24.2	46.3	35.5	36.2	53.7	37.4	69.4	36.4	30.2
TSS (mg/L) Average Monthly	5.4	4.0	5.00	4.5	9.40	7.75	5.00	8.00	6.00	7.20	5.25	5.50
TSS (mg/L) Daily Maximum	7.00	4.0	7.00	6.00	11.0	9.00	8.00	12.00	8.00	14.00	8.00	7.00
Total Dissolved Solids (lbs/day) Average Monthly	11475.4	11510.7	11727.9	10326.2	10420.8	9766.0	10993	12534.9	12202.6	12577.8	12390.6	12853.3
Total Dissolved Solids (lbs/day) Daily Maximum	12481.4	12015.3	12932.3	11468.6	12573.0	10441.1	11817.5	13112.2	13525.5	15586.8	13137.9	14340.0
Total Dissolved Solids (mg/L) Average Monthly	2932	2867.5	2610.00	2747.50	2720	2642.50	2644	2877.5	2852.50	2886.00	2825.0	3072.50
Total Dissolved Solids (mg/L) Daily Maximum	3080	3000.0	2800.00	2840.00	2990	2900.00	2790	3020.0	3040.00	3130.00	2990.00	3320.0
Oil and Grease (mg/L) Average Monthly	< 5.0	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.04	< 5.00	5.05	5.01	5.00	5.08
Oil and Grease (mg/L) Daily Maximum	< 5.0	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.20	< 5.00	5.20	5.10	5.00	5.20
Fecal Coliform (No./100 ml) Instantaneous Maximum	17.30	18.70	< 2.00	< 2.00	2.00	8.00	< 2	< 2	2.00	7.80	7.80	13.0
Nitrate-Nitrite (mg/L) Average Monthly	0.49	0.21	< 0.10	0.21	0.1	0.16	0.49	0.73	1.1	0.68	0.10	0.13
Nitrate-Nitrite (lbs) Total Monthly	60.5	24.5	14.0	23	12.0	18	62	99.5	33.5	102.5	14.0	16.5
Total Nitrogen (mg/L) Average Monthly	4.58	2.50	1.55	4.29	3.33	2.66	2.89	3.05	2.61	1.98	2.58	2.07
Total Nitrogen (mg/L) Daily Maximum	20.90	6.50	2.10	12.90	14.60	4.80	4.90	12.6	6.78	4.54	5.30	3.00
Total Nitrogen (lbs) Effluent Net Total Monthly	537.5	295.0	213.5	453.5	404.5	299.5	359.0	403.5	333.5	279.5	355.5	256.5
Total Nitrogen (lbs) Total Monthly	537.5	295.0	213.5	453.5	404.5	299.5	359	403.5	333.5	279.5	355.5	256.5
Total Nitrogen (lbs) Effluent Net Total Annual									< 3756			
Total Nitrogen (lbs) Total Annual									< 3756			
Ammonia (mg/L) Average Monthly	0.38	0.31	< 0.11	0.43	0.11	0.55	< 0.1	< 0.1	0.10	0.10	1.08	0.23
Ammonia (mg/L) Daily Maximum	2.60	1.90	0.17	2.70	0.16	3.00	< 0.1	< 0.1	0.10	0.10	4.00	1.10
Ammonia (lbs) Total Monthly	46.5	36.0	14.0	46.5	12.5	57.0	12.5	13.5	13.0	13.5	149.0	32.0
Ammonia (lbs) Total Annual									< 998			
TKN (mg/L) Average Monthly	4.07	2.29	1.45	4.09	3.23	2.50	2.38	2.29	10.0	1.30	2.48	1.94
TKN (lbs) Total Monthly	477.0	270.5	200.0	430.5	392.5	282.0	297	304	300.5	177.0	341.5	240.5

Total Phosphorus (lbs/day) Average Monthly	2.1	1.9	2.3	1.1	1.7	1.2	0.9	1.3	1.5	1.4	2.4	2.40
Total Phosphorus (mg/L) Average Monthly	0.54	0.48	0.52	0.29	0.45	0.31	0.21	0.3	0.35	0.32	0.53	0.58
Total Phosphorus (lbs) Effluent Net Total Monthly	66	56	73	31	53	36	26.5	41	46	44	73.5	72
Total Phosphorus (lbs) Total Monthly	66	56	73	31	53	36	26.5	41	46	44	73.5	72
Total Phosphorus (lbs) Effluent Net Total Annual									584			
Total Phosphorus (lbs) Total Annual									584			

The following table contains Discharge Monitoring Report (DMR) Data for Outfall 201 from June 2024 through May 2025.

Parameter	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24
pH (S.U.) Daily Maximum						7						7.6
BOD5 (mg/L) Daily Maximum						< 28.4						6.4
COD (mg/L) Daily Maximum						< 25						34.7
TSS (mg/L) Daily Maximum						54						21.0
Oil and Grease (mg/L) Daily Maximum						< 5.2						5.0
Fecal Coliform (No./100 ml) Daily Maximum						193.5						1600
Nitrate-Nitrite (mg/L) Daily Maximum						0.43						1.1

The following table contains Discharge Monitoring Report (DMR) Data for Outfall 212 from June 2024 through May 2025.

Parameter	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24
pH (S.U.) Daily Maximum						6.2						7.2
BOD5 (mg/L) Daily Maximum						< 28.4						2.4
COD (mg/L) Daily Maximum						< 25						25.0
TSS (mg/L) Daily Maximum						< 4						4.0
Oil and Grease (mg/L) Daily Maximum						< 5						5.0
Fecal Coliform (No./100 ml) Daily Maximum						16.1						920
Nitrate-Nitrite (mg/L) Daily Maximum						0.29						1.5

PERMITTING HISTORY

This NPDES permit was last issued December 03, 2018.

On July 24, 2023, the Department issued a "Department-Initiated" amendment to Water Quality Management (WQM) Permit #0805201. This was the second amendment to that permit, originally issued on July 25, 2005. This amendment eliminated unnecessary past groundwater monitoring requirements and required appropriate monitoring for the current facilities.

On February 16, 2024, the Department issued a third amendment to WQM #0805201. This amendment authorized the design, installation and operation of a screw press dewatering system.

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EXISTING LIMITATIONS

Outfall 001

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L)				Monitoring Requirements	
	Monthly Average	Daily Maximum	Minimum	Monthly Average	Daily Maximum	IMAX	Minimum Measurement Frequency	Required Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (SU)	XXX	XXX	6.0 Inst. Min.	XXX	XXX	9.0	1/Day	Grab
Dissolved Oxygen	XXX	XXX	Report Inst. Min.	XXX	XXX	XXX	1/Day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.6	1/Day	Grab
BOD_5	350	700	XXX	Report	Report	130	1/Week	24 Hour Comp
Total Suspended Solids	415	835	XXX	Report	Report	155	1/Week	24 Hour Comp
Total Dissolved Solids	Report	Report	XXX	Report	Report	XXX	1/Week	24 Hour Comp
Oil and Grease	XXX	XXX	XXX	15	30	30	1/Week	Grab
Fecal Coliform (CFU/100mL)	XXX	XXX	XXX	XXX	XXX	400	1/Week	Grab
Ammonia Nitrogen	XXX	XXX	XXX	4.0	8.0	10	2/Week	24 Hour Comp
Total Nitrogen	XXX	XXX	XXX	134	194	240	2/Week	24 Hour Comp

Parameter	Mass Units (lbs)		Concentrations (mg/L)			Monitoring Requirements	
	Monthly	Annual	Minimum	Monthly Average	Maximum	Minimum Measurement Frequency	Required Sample Type
Ammonia-N	Report	Report	XXX	4.0	8.0	2/Week	24-Hr Comp
Kjeldahl-N	Report	XXX	XXX	Report	XXX	2/Week	24-Hr Comp
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	2/Week	24-Hr Comp
Total Nitrogen	Report	Report	XXX	134	194	2/Week	24-Hr Comp
Total Phosphorus	Report	Report	XXX	Report	XXX	2/Week	24-Hr Comp
Net Total Nitrogen	Report	19,483	XXX	XXX	XXX	1/Year	Calculation
Net Total Phosphorus	Report	1,218	XXX	XXX	XXX	1/Year	Calculation

Outfalls SW02 and SW12

Parameter	Monitoring Requirements		Benchmark Values
	Minimum Measurement Frequency	Sample Type	
pH (SU)	1/6 Months	Grab	XXX
BOD_5 (mg/L)	1/6 Months	Grab	XXX
Total Suspended Solids (mg/L)	1/6 Months	Grab	100
Chemical Oxygen Demand (mg/L)	1/6 Months	Grab	120
Nitrate-Nitrite Nitrogen (mg/L)	1/6 Months	Grab	XXX
Oil and Grease (mg/L)	1/6 Months	Grab	30
Fecal Coliforms (#/100 mL)	1/6 Months	Grab	400

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PROCESS, PRODUCTS AND WASTES

The CMS Wyalusing facility is a cow and fat cattle slaughtering facility with a capacity of 1,850 head per day; five or six days per week. The cows average 1,143 pounds per head and the fat cattle weigh from 1,200 to 1,300 pounds per head. About 70% of the animals are cows. To achieve the desired throughput of head, the kill shift lasts approximately 10 hours daily from 7:30 AM to 5:30 PM, with sanitation starting immediately afterward and lasting until midnight.

Kill floor operation include stunning, sticking, bleeding, hide removal, eviscerating, trimming, carcass washing, steam pasteurization and cooling and the preparation of offal products (hearts, pet food, etc.).

After the carcasses are cooled overnight, boning and fabrication operations occur from 6:00 AM to 4:00 PM, with special projects running until 11:00 PM as needed. The grinding operation maintains a 6:00 AM to 11:00 PM schedule daily. Sanitation follows the completion of the kill, grind and boning shifts daily.

Secondary process operations include blood processing, hide curing, viscera handling and inedible rendering. Plasma from the initial blood centrifugation operation is sold to off-site buyers. The plasma from the blood centrifuge after steam sparging is discharged to the plant sewer. Blood processing lags the kill process by approximately two hours; from 9:00 AM to 7:00 PM.

Hides are soaked and fleshed prior to brine curing in raceways. After the brine curing, hides are wrung out prior to shipping. Excess brine is collected and discharged to the plant sewer.

Paunch manure is dewatered with a static screen/roller press and the manure is then land applied. Edible tripe is processed in LaParmentiere machines with screening of solids from this liquid wastewater by a Rotoshear screen. Specific Risk Material (SRM), consisting of brains, skulls, eyes, spinal columns and small intestines, is landfilled. Large intestines and bungs are sent to rendering.

Inedible material is rendered in a Duke continuous rendering system, which operates between 18 and 20 hours each day.

Sawdust is spread in pens which are then dry-cleaned, preventing additional wastewater being discharged to the sewer. All non-contaminated stormwater is directed to storm sewers. Contaminated stormwater enters the plant sewer from exterior concrete pads. Because the refrigeration system employs evaporative condensers, hardly any cooling water is discharged to the sewer.

Sanitary wastewater from showers, toilets and drinking fountains flows through several septic tanks and is collected in a common lift station segregated from process wastewater. This sanitary wastewater is then pumped to the plant anaerobic lagoon #1 where it is combined with the industrial wastewater prior to treatment at the IWTF. The common lift station has a metered discharge which shows domestic flows range between 12,000 to 15,000 gallons per day.

OUTFALLS

The industrial process wastewater is discharged through Outfall 001 to Wyalusing Creek. Stormwater at this facility is discharged through 13 outfalls to both Wyalusing Creek and Brewer Creek. Below is a list of all outfalls with relevant information.

Outfall	Latitude	Longitude	Receiving Stream
001	41° 41' 07"	-76° 14' 48"	Wyalusing Creek
201	41° 41' 07"	-76° 14' 48"	Wyalusing Creek
202	41° 41' 03"	-76° 14' 51"	Wyalusing Creek
203	41° 40' 59"	-76° 14' 54"	Wyalusing Creek
204	41° 40' 58"	-76° 15' 04"	Brewer Creek
205	41° 41' 01"	-76° 15' 04"	Brewer Creek
207	41° 41' 06"	-76° 15' 04"	Brewer Creek
208	41° 41' 06"	-76° 15' 04"	Brewer Creek
209	41° 41' 08"	-76° 15' 05"	Brewer Creek
210	41° 41' 09"	-76° 15' 05"	Brewer Creek
211	41° 41' 10"	-76° 15' 05"	Brewer Creek
212	41° 40' 57"	-76° 15' 04"	Brewer Creek
213	41° 40' 55"	-76° 15' 04"	Brewer Creek
214	41° 41' 11"	-76° 15' 06"	Brewer Creek

See Attachment 04 for an outfall map.

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EFFLUENT LIMIT GUIDELINES

Effluent Limit Guidelines (ELGs) are national regulations, as part of the Clean Water Act (CWA), which control the discharge of pollutants from industrial facilities to surface waters. The Environmental Protection Agency (EPA) has developed effluent limitations based on process or treatment technologies that are both technically feasible and affordable. Since 1974, EPA has promulgated ELGs for more than 50 industrial categories. In February 2004, EPA established revised wastewater discharge limitations for the Meat and Poultry Products (MPP) industry. The MPP regulations affected approximately 170 facilities which discharge wastewater from slaughtering, rendering and other processes such as cleaning, cutting and smoking. The ruling reduced the discharge of conventional pollutants, ammonia and nitrogen to rivers, lakes and streams. The 2004 rule was the first to establish effluent limitations for poultry processors.

The MPP industry is regulated as part of the *Meat and Poultry Products Point Source Category*. These regulations can be found at 40 CFR § 432.

40 CFR § 432.3 defines the pH limitations, within the range of 6.0 to 9.0, for any discharge subject to BPT, BAT or NSPS. These acronyms are explained below.

Regulatory Sub-Category

The relevant sub-category is *Complex Slaughterhouses*, with regulations contained in 40 CFR § 432.20.

As mentioned above, CMS is considered a *Complex Slaughterhouse*. 40 CFR § 432.21 defines a Complex Slaughterhouse as *a slaughterhouse that provides extensive processing of the by-products of meat slaughtering. A complex slaughterhouse would usually include at least three processing operations, such as rendering, paunch and viscera handling, or processing of blood, hide or hair.*

40 CFR § 432.22 defines *Best Practicable Control Currently Available* (BPT). BPT is defined in Section 304(b)(1) of the federal CWA. Because this facility slaughters more than 50 million pounds per year, in units of Live Weight Killed (LWK), section 40 CFR § 432.22(b) regulations apply.

40 CFR § 432.22(a)(1) sets BPT effluent limits in accordance with the limitations presented in 40 CFR § 432.22(b)(1).

Regulated Parameter	Maximum Daily[1]	Maximum Monthly Average[1]
BOD5	0.42	0.21
Fecal Coliforms	(2)	(3)
Oil & Grease	0.16	0.08
Total Suspended Solids	0.50	0.25

[1] – pounds per 1,000 pounds LWK
[2] – Maximum of 400 MPN or CFU per 100 mL at any time
[3] – No maximum monthly average limitation

40 CFR § 432.22(b)(1) sets BPT effluent limitations for Ammonia (as N).

Regulated Parameter	Maximum Daily[1]	Maximum Monthly Average[1]
Ammonia (as N)	8.0	4.0

[1] – mg/L (ppm)

40 CFR § 432.23 defines *Best Available Technology Economically Achievable* (BAT). BAT is defined in Section 304(b)(2) of the federal CWA. Because this facility slaughters more than 50 million pounds per year, in units of Live Weight Killed (LWK), this section's regulations apply. The regulation indicates that the limitations for Ammonia (as N) and Total Nitrogen are the same as those in 40 CFR § 432.13. This section defines BAT for Simple Slaughterhouses.

Regulated Parameter	Maximum Daily[1]	Maximum Monthly Average[1]
Ammonia (as N)	8.0	4.0
Total Nitrogen	194	134

[1] – mg/L (ppm)

NSPS is an acronym for *New Source Performance Standards*. Since Cargill is an existing facility, NSPS regulation do not apply.

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PRODUCTION DATA

The recent Cargill production data is summarized in the below table.

Parameter	Production Years				
	2018	2019	2020	2021	2022
Total Annual Production (tons)	235,571	238,757	232,164	215,142	215,600
Maximum Monthly Production (tons)	21,978	20,715	19,580	19,827	21,877
Average Annual Production (tons/day)	892	947	967	854	817
Average Production Hours/Day	24	24	24	24	24
Average Production Days/Month	22	21	20	21	22
Average Annual Water Usage (MGD)	0.78	0.83	0.85	0.75	0.71
Average Annual Wastewater Flow (MGD)	0.84	0.90	0.92	0.81	0.77

The average production and the average wastewater flow, for the past five-year period, are considered to be appropriate and reasonable production measures for industrial wastewater permitting. These are presented below.

Parameter	5 Year Average
Total Annual Production (tons)	227,447
Maximum Monthly Production (tons)	20,795
Average Annual Production (tons/day)	895
Average Production Days/Month	21
Average Annual Water Usage (MGD)	0.78
Average Annual Wastewater Flow (MGD)	0.85

The Live Weight Killed (LWK, lb/day) value is now be based on the five-year average of the Annual Average Production reported in tons/day. 895 tons/day multiplied by 2,000 pounds/tons yields a LWK value of 1,790,000 pounds per day. Dividing this value by 1,000 calculates the value of 1,790 – 1,000-pound units, necessary for the ELG calculations. See below.

DEVELOPMENT OF EFFLUENT LIMITATIONS (001)

ELG-Based Limit Calculations (Technology-Based)

Using the above calculated value of 1,790,000 pounds per day for LWK, the following ELG-based effluent limitations have been calculated.

40 CFR § 432.22	Maximum Daily (pounds/day)		Maximum Monthly Average (pounds/day)	
Regulated Parameter	ELG Multiplier	Limit	ELG Multiplier	Limit
BOD5	0.42	*751.8*	0.21	*375.9*
Fecal Coliforms	Maximum of 400 MPN or CFU per 100 mL at any time		No maximum monthly average limitation	
Oil & Grease	0.16	*286.4*	0.08	*143.2*
TSS	0.5	*895*	0.25	*447.5*

See Attachment 05 for ELG limit calculation spreadsheets.

Additional Technology-Based Limitations

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
pH	6.0 – 9.0 S.U.	Min – Max	40 CFR § 432.3	25 PA § 95.2(1)
Total Residual Chlorine	0.5	Average Monthly		25 PA § 92a.48(b)(2)
Oil and Grease	15	Average Monthly		25 PA § 95.2

CONTINUED on the next page.

Technology-Based Limitations

Total Dissolved Solids

Total Dissolved Solids (TDS) are a measure of the dissolved combined content of all inorganic and organic substances present in a liquid in a molecular, ionized or micro-granular suspended form. In accordance with the Department's *Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids* (#386-2100-002), this facility is classified as Non-Exempt (Other) since the facility discharge data has shown effluent (maximum daily) values greater than 2,000 mg/L. In the application, Cargill reported a maximum monthly value of 3,253 mg/L and a maximum daily value of 4,020 mg/L. The guidance requires concentration-based limitations of 2,000 mg/L (average monthly) and 4,000 mg/L (maximum daily). Loading based limitations will also be applied, in accordance with 40 CFR § 122.45.

	Mass (lb/day)		Concentration (mg/L)			
Parameter	**Monthly Average**	**Maximum Daily**	**Minimum**	**Monthly Average**	**Maximum Daily**	**IMAX**
Total Dissolved Solids	14,178	28,356	XXX	2,000	4,000	5,000

Water Quality-Based Limitations

$CBOD_5$, NH_3-N and DO

*WQM 7.0 for Win*dows is a DEP computer model used to determine wasteload allocations and effluent limitations for $CBOD_5$, NH_3-N and DO for single and multiple point source discharge scenarios. This model simulates two basic processes. The NH_3-N module simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to the water quality criteria. The DO module simulates the mixing and consumption of DO in the stream due to degradation of $CBOD_5$ and NH_3-N and compares the calculated instream DO concentrations to the water quality criteria. The model then determines the highest pollutant loading the stream can assimilate and still meet water quality criteria under the design conditions.

Because the Cargill WWTF employs equalization and produces a continuous discharge from an extended aeration treatment, the monthly average BOD_5 daily loading (calculated above) can be converted to concentration using a long-term average wastewater flow of 0.85 MGD. 375 lb/day, at the long-term average wastewater flow, is equivalent to 52.8 mg/L. The ELG technology-based concentration limitation for Ammonia was used as model input.

The model recommended the following:

Parameter	Effluent Limitations (mg/L)		
	30 Day Average	**Maximum**	**Minimum**
$CBOD_5$	52.8		
NH_3-N	4.0	8.0	
DO			3.0

Since the model presented the input values as the monthly average effluent limitations, it confirms the technology-based effluent limitations (TBELs) are more stringent than water quality-based effluent limitations (WQBELs) for the receiving stream. The Department assumes that the BOD5 is composed entirely of CBOD5 for the purposes of modeling.

See Attachment 06 for the WQM model output.

Toxics

In addition to the required sample results (Pollutant Group 1), Cargill also tested for Mercury. According to the *NPDES Application for Individual Permit to Discharge Industrial Wastewater Instructions* (DEP #3800-PM-BCW0008a), applicants are to test for *Other Potentially Toxic Pollutants Known or Expected to be Present in the Discharge*.

The maximum pollutant concentration for Mercury was entered into the Department's Toxics Management Spreadsheet (TMS, version 1.4), which is used to determine reasonable potential (RP) and calculate water quality-based effluent limitations (WQBELS) for discharges of toxic pollutants from a single discharge point. The TMS utilizes the following logic to assign either no action, effluent limitation or monitoring; 1. Establish average monthly, daily maximum and IMAX limits in the draft permit where the maximum reported concentration exceeds 50% of the WQBEL (RP is demonstrated), 2. Establish monitoring requirements for non-conservative pollutants where the maximum reported concentrations is between 25% to 50% of the WQBEL and 3. Establish monitoring requirements for conservative pollutants where the maximum reported concentration is between 10% to 50% of the WQBEL.

CONTINUED on the next page.

The TMS recommended the following monitoring and limitations.

	Mass Limits		Concentration						
Pollutant	AML (lbs/day)	MDL (lb/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comment
Total Mercury	0.002	0.004	0.0003	0.0005	0.0008	mg/L	0.0003	THH	Discharge Conc ≥ 50% WQBEL (RP)

See Attachment 07 for TMS.

Best Professional Judgment (BPJ) Limitations

In the absence of applicable effluent guidelines for the discharge or pollutant, permit writers must identify and/or develop needed technology-based effluent limitations (TBELs) TBELs on a case-by-case basis, in accordance with the statutory factors specified in the Clean Water Act.

Total Residual Chlorine

The Department's *TRC_CALC spreadsheet* is a model used to evaluate Total Residual Chlorine (TRC) effluent limitations. This model determines applicable acute and chronic wasteload allocations (WLAs) for TRC based on the data supplied by the user and then compares the WLAs to the technology-based average monthly limit using the procedures described in the EPA Technical Support Document (for Water Quality-based Toxics Control).

Parameter	Effluent Limitations (mg/L)	
	Monthly Average	IMAX
Total Residual Chlorine	0.500	1.635

See Attachment 08 for the TRC_CALC output.

Dissolved Oxygen

The Department is establishing a monitoring requirement for Dissolved Oxygen (DO). DO concentrations above 4.0 mg/L ensure that the effluent is well oxygenated at the point of discharge and the instream DO criteria is not violated (25 PA § 93.7).

Concentration Limitations for ELG Parameters

Since the ELGs calculate mass limitations for BOD5, TSS and Oil & Grease, the Department will assign concentration limitations to these parameters, based on the flow of 0.85 MGD. Concentration limitations assure the Department that dilution is not used as a substitute for proper treatment and that the water quality standards are being met. This is in accordance with 25 PA § 93.6(a) and 40 CFR § 122.45(f)(2). See below table.

2025 DRAFT	Mass (lb/day)		Concentration (mg/L)			
Parameter	Monthly Average	Maximum Daily	Minimum	Monthly Average	Maximum Daily	IMAX
BOD5	375	750		56.92	105.80	142.29
Oil & Grease	140	285		19.75	40.20	49.37
TSS	445	895		62.77	126.25	156.93

Anti-Backsliding

40 CFR 122.44(l) states that interim (draft) NPDES effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards or conditions in the previous permit. No backsliding is proposed in this draft permit.

Using the latest production and flow data, the newly calculated ELG limitations for BOD5 and TSS are less stringent than the last issuance. The Department will continue the limitations from the existing permit, developed in 2018, in the next permit term. DMR data shows that Cargill can, and has been, meeting these limitations. See below table.

	2018 Mass (lb/day)		2025 Mass (lb/day)	
Parameter	Monthly Average	Maximum Daily	Monthly Average	Maximum Daily
BOD5	350	700	375	750
TSS	415	837	445	895

CONTINUED on the next page.

DEVELOPMENT OF EFFLUENT MONITORING (001)

$Q_{7,10}$ DETERMINATION

The $Q_{7,10}$ is the lowest seven consecutive days of flow in a 10-year period and is used for modeling wastewater treatment plant discharges. 25 PA § 96.1 defines $Q_{7,10}$ as "*the actual or estimated lowest 7 consecutive day average flow that occurs once in 10 years for a stream with unregulated flow, or the estimated minimum flow for a stream with regulated flow*".

A stream gage upstream of the existing discharge, "MB Wyalusing Creek near Birchardville, PA" (USGS #0532850) was selected as a reference gage. A Q7,10 flow for that gage (0.2 CFS) was obtained from *Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania* (USGS Open Files Report 2011-1070). The drainage area at the point of discharge (213 mi2) was calculated by the *USGS Pennsylvania StreamStats* application. Knowing the drainage area (213 mi2) at the discharge and both the drainage area (5.67 mi2) and Q7,10 (0.2 CFS) at the reference gage, the Q7,10 at the discharge was calculated to be 7.5 CFS.

See Attachment 09 for the $Q_{7,10}$ determination.

ADDITIONAL DISCHARGE DETAILS

The receiving stream for the process wastewater, Wyalusing Creek, is identified by Department stream code 29594. The Cargill discharge is located at river mile index 2.59 and in both the State Water Plan watershed 4D (Wyalusing Creek) and the Chapter 93 drainage list I. Wyalusing Creek is tributary to the Susquehanna River.

The nearest downstream public water supply intake is the Danville Municipal Water Authority, located 120 river miles downstream from Outfall 001. This intake is on the Susquehanna River at river mile index of 138.5. The flow at the intake is 1,100 CFS.

RECEIVING STREAM

Stream Characteristics

Wyalusing Creek, according to 25 PA § 93.9l, is protected for *Warm Water Fishes* (WWF) and *Migratory Fishes* (MF). These are the streams *Designated Uses*, which are defined in 25 PA § 93.1 as "those uses specified in §§ 93.9a – 93.9z for each waterbody or segment whether or not the use is being attained". Designated uses are regulations promulgated by the Environmental Quality Board (EQB) throughout the rulemaking process. This stream currently has no *Existing Use*, which is defined in 25 PA § 93.1 as "those uses actually attained in the waterbody on or after November 28, 1975 whether or not they are included in the water quality standards".

Brewer Creek, according to 25 PA § 93.9i, is protected for *Warm Water Fishes* (WWF) and *Migratory Fishes* (MF). This stream currently has no *Existing Use*. Brewer Creek is identified by Department stream code 29597. Brewer Creek is tributary to Wyalusing Creek.

Impairment/TMDL

Wyalusing Creek, according to the Department's Integrated Water Quality Report data, is not attaining its designated uses for Fish Consumption due to a cause of Mercury from an unknown source. Wyalusing is attaining its designated uses for Aquatic Life. Brewer Creek is attaining its designated uses for both Recreation and Aquatic Life. No Total Maximum Daily Loads (TMDLs) have been calculated for the receiving streams or the stretch of the Susquehanna River which they are tributary to.

The Susquehanna River, where Wyalusing Creek is tributary, is not attaining its uses for Fish Consumption due to Polychlorinated Biphenyls (PCBs) and Mercury from unknown sources. The River is attaining its designated uses for Aquatic Life.

CHESAPEAKE BAY

Background

Despite 25 years of extensive restoration efforts, the *Chesapeake Bay Total Maximum Daily Loa*d (TMDL) was prompted by insufficient progress and continued poor water quality in the Chesapeake Bay and its tidal tributaries. This TMDL, required by the Clean Water Act, is the largest ever developed by EPA. It identifies the necessary pollution reductions of nitrogen, phosphorus and sediment across Delaware, Maryland, New York, Virginia, West Virginia, District of Columbia and Pennsylvania. It also sets pollution limits necessary to meet applicable water quality standards in the Bay, tidal rivers and embayments.

CONTINUED on the next page.

WIP and Cap Loads

Pennsylvania explains how and when it will meet its pollution allocations in its *Watershed Implementation Plan* (WIP), which is incorporated into the TMDL. Pennsylvania's permitting strategy for significant sewage dischargers was outlined in the Phase IIi WIP by reference. This strategy originally imposed Total Nitrogen (TN) and Total Phosphorus (TP) cap loads. The Phase IiI WIP calls for the continued monitoring of Ammonia-N, Kjeldahl-N, Nitrate-Nitrite as well as TN and TP. The Phase II WIP also calls for the continued annual cap loads for TN and TP.

Cargill is considered one of 23 Significant Industrial Dischargers (SIDs) which are located within the Chesapeake Bay watershed in Pennsylvania. In accordance with the Department's Phase IiI Watershed Implementation Plan (WIP), last updated April 02, 2025, Cargill has annual cap loads of 19,483 pounds per year TN and 1,218 pounds per year TP. These cap loads were established in the last issuance of this permit which occurred in 2011 and are based on the 2002 flow of 0.8 MGD.

The permit will contain a Part C condition for the Chesapeake Bay Nutrient Requirements.

TOTAL DISSOLVED SOLIDS

Total Dissolved Solids (TDS) is a measure of the concentration of all inorganic and organic substances that are dissolved in the wastewater.

In accordance with the Department's "Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids" (DEP #385-2100-002), this facility is classified as Authorized Load/No Increase. This facility does not qualify for Unaffected status, since TDS concentrations exceed the 2,000 mg/L threshold for that category. This facility does not treat natural gas wastewater. Since the TDS load information was submitted in applications for previous permit renewals, the Department considers this existing discharge of TDS to now be authorized. According to 25 PA § 95.10(a)(1), the existing mass loading of TDS from industrial facilities is exempt from any treatment requirements from 25 PA § 95.10 as long as overall TDS loadings from the facility do not increase. 25 PA § 95.10(a)(7) defines an increase in TDS loading as one that exceeds 5,000 pounds per day on an annual basis. Increases below the threshold do not trigger treatment requirements.

	Mass (lb/day)		Concentration (mg/L)			
Parameter	**Monthly Average**	**Maximum Daily**	**Minimum**	**Monthly Average**	**Maximum Daily**	**IMAX**
TDS	14,178	28,356		2,000	4,000	5,000

WHOLE EFFLUENT TOXICITY TESTING

Based on the nature of the industrial activity, the submitted sampling results, the condition of the receiving stream and lack of effluent violations, Whole Effluent Toxicity (WET) testing is not necessary for this facility.

INDUSTRIAL STORMWATER

As indicated above, this site contains 13 stormwater outfalls. Monitoring for these outfalls will be based on Appendix I (*Food and Kindred Products*) of the Department's *NPDES General Permit for Discharges of Stormwater Associated with Industrial Activity (PAG-03)* (DEP #3850-PM-BCW0083d).

At the last issuance and again in the most recent application, Cargill has requested the use of Outfalls 201 and 212 as Representative Outfalls. The Department has approved this request.

The monitoring will be as follows.

Parameter	**Monitoring Requirements**		**Benchmark Values**
	Minimum Measurement Frequency	**Sample Type**	
Total Nitrogen	1/6 Months	Calculation	XXX
Total Phosphorus	1/6 Months	Grab	XXX
pH (SU)	1/6 Months	Grab	9.0
BOD_5 (mg/L)	1/6 Months	Grab	30
Total Suspended Solids (mg/L)	1/6 Months	Grab	100
Chemical Oxygen Demand (mg/L)	1/6 Months	Grab	120
Nitrate-Nitrite Nitrogen (mg/L)	1/6 Months	Grab	XXX
Oil and Grease (mg/L)	1/6 Months	Grab	30

The benchmark values are not effluent limitations, and exceedances do not constitute permit violations. If the sampling demonstrates exceedances of the 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.

CONTINUED on the next page.

In addition to the general NPDES stormwater coverage parameters, the Department is requiring monitoring of fecal coliforms.

Parameter	Monitoring Requirements		Benchmark Values
	Minimum Measurement Frequency	Sample Type	
Fecal Coliforms (#/100 mL)	1/6 Months	Grab	400

The permit will contain a Part C condition for Industrial Stormwater Requirements. Best Management Practices (BMPs) from Appendix I have been included in this condition.

ADDITIONAL CONSIDERATIONS

Preparedness, Prevention and Contingency (PPC) Plan

Instead of the required PPC Plan, Cargill maintains an Integrated Contingency Plan, which contains elements of a PPC Plan, a Spill Prevention Response (SPR) Plan and a Spill Prevention Control and Countermeasure (SPCC) Plan. This plan was last revised by Resource Environmental Management, Inc. of Montrose, PA in January 2021.

Rounding of Limitations

Limitations have been rounded in accordance with the *Department's Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001).

Limit Multipliers

The instantaneous maximum limitations have been calculated using multipliers of 2.0 (for conventional pollutants) and 2.5 (for industrial pollutants) times the monthly average. This is in accordance with the *Department's Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001).

Sample Frequencies and Types

The sample type and minimum measurement frequencies are in accordance with the *Department's Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001).

Standard Operating Procedures

The review of this permit application was in accordance with the Department's *SOP for New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications* (SOP #BPNPSM-PMT-001) and the *SOP for Establishing Effluent Limitations for Individual Industrial Permits* (SOP #BPNPSM-PMT-032).

Special Permit Conditions

Chesapeake Bay Nutrient Requirements
Chemical Additives
Industrial Stormwater Requirements
Approval Contingencies
Proper Waste Disposal

Supplemental Discharge Monitoring Reports

Chemical Additives
Daily Effluent Monitoring
Lab Accreditation
Non-Compliance Reporting
Annual Stormwater Inspection Form

CONTINUED on the next page.

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.

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

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L)				Monitoring Requirements	
	Monthly Average	Daily Maximum	Minimum	Monthly Average	Daily Maximum	IMAX	Minimum Measurement Frequency	Required Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (SU)	XXX	XXX	6.0 Inst. Min.	XXX	XXX	9.0	1/Day	Grab
Dissolved Oxygen	XXX	XXX	4.0 Inst. Min.	XXX	XXX	XXX	1/Day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.6	1/Day	Grab
BOD_5	350	700	XXX	50	105	130	1/Week	24 Hour Comp
Total Suspended Solids	415	835	XXX	60	125	155	1/Week	24 Hour Comp
Total Dissolved Solids	14,175	28,355	XXX	2,000	4,000	5,000	1/Week	24 Hour Comp
Oil and Grease	105	210	XXX	15	30	30	1/Week	Grab
Fecal Coliform (CFU/100mL)	XXX	XXX	XXX	XXX	XXX	400	1/Week	Grab
Ammonia Nitrogen	XXX	XXX	XXX	4.0	8.0	10	2/Week	24 Hour Comp
Total Nitrogen	XXX	XXX	XXX	134	194	240	2/Week	24 Hour Comp
Total Mercury	0.002	0.004	XXX	0.0003	0.000605	0.0008	1/Week	24 Hour Comp

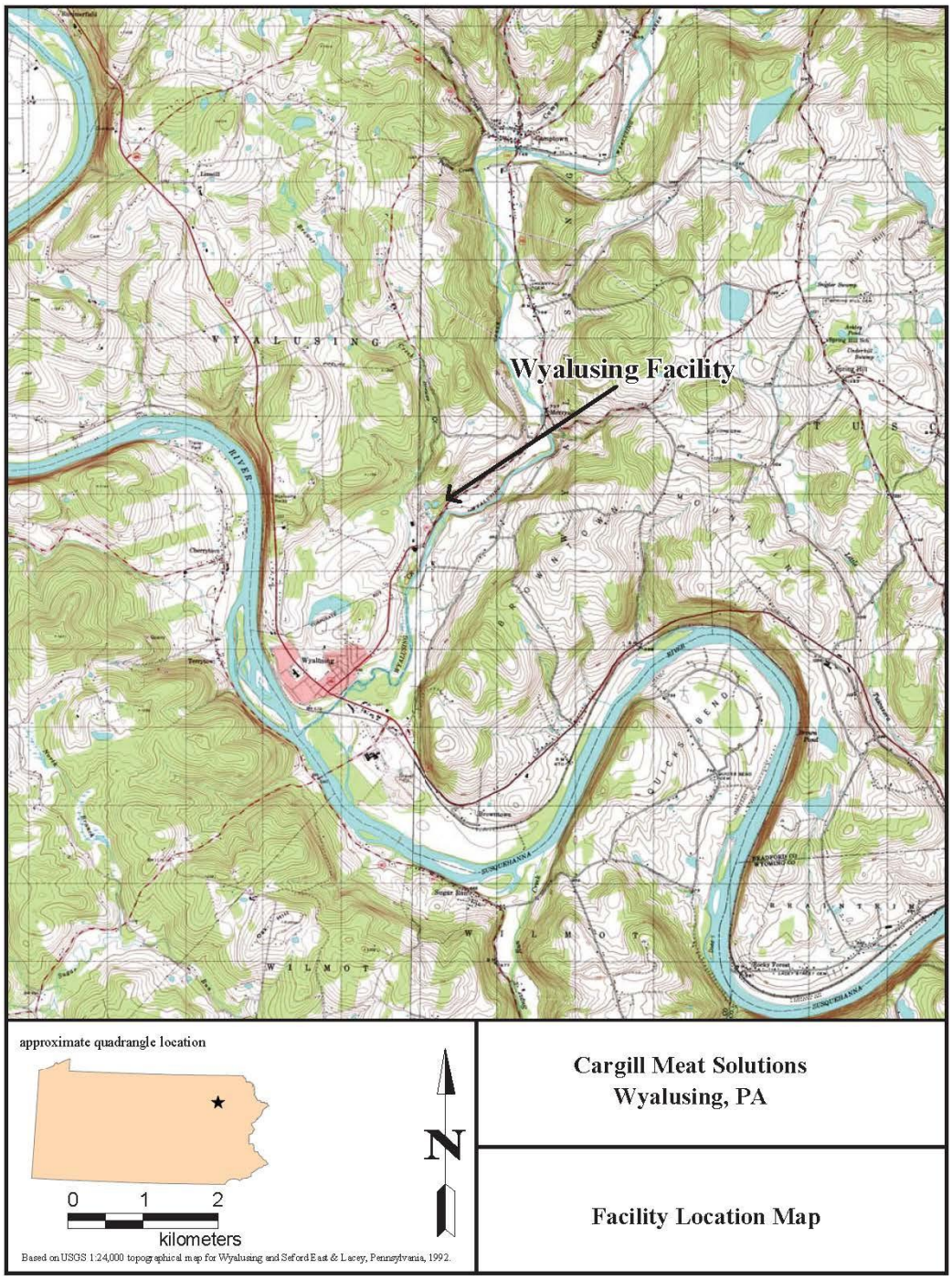
Parameter	Mass Units (lbs)		Concentrations (mg/L)			Monitoring Requirements	
	Monthly	Annual	Minimum	Monthly Average	Maximum	Minimum Measurement Frequency	Required Sample Type
Ammonia-N	Report	Report	XXX	4.0	8.0	2/Week	24-Hr Comp
Kjeldahl-N	Report	XXX	XXX	Report	XXX	2/Week	24-Hr Comp
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	2/Week	24-Hr Comp
Total Nitrogen	Report	Report	XXX	134	194	2/Week	24-Hr Comp
Total Phosphorus	Report	Report	XXX	Report	XXX	2/Week	24-Hr Comp
Net Total Nitrogen	Report	19,483	XXX	XXX	XXX	1/Year	Calculation
Net Total Phosphorus	Report	1,218	XXX	XXX	XXX	1/Year	Calculation

Outfalls 201 and 212, Effective Period: Permit Effective Date through Permit Expiration Date

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L)				Monitoring Requirements	
	Monthly Average	Daily Maximum	Minimum	Monthly Average	Daily Maximum	IMAX	Minimum Measurement Frequency	Required Sample Type
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
pH (SU)	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
BOD_5	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Total Suspended Solids	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Chemical Oxygen Demand	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Nitrate-Nitrite Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab
Fecal Coliforms (#/100 mL)	XXX	XXX	XXX	XXX	Report	XXX	1/6 Months	Grab

END of Fact Sheet.

ATTACHMENT 01



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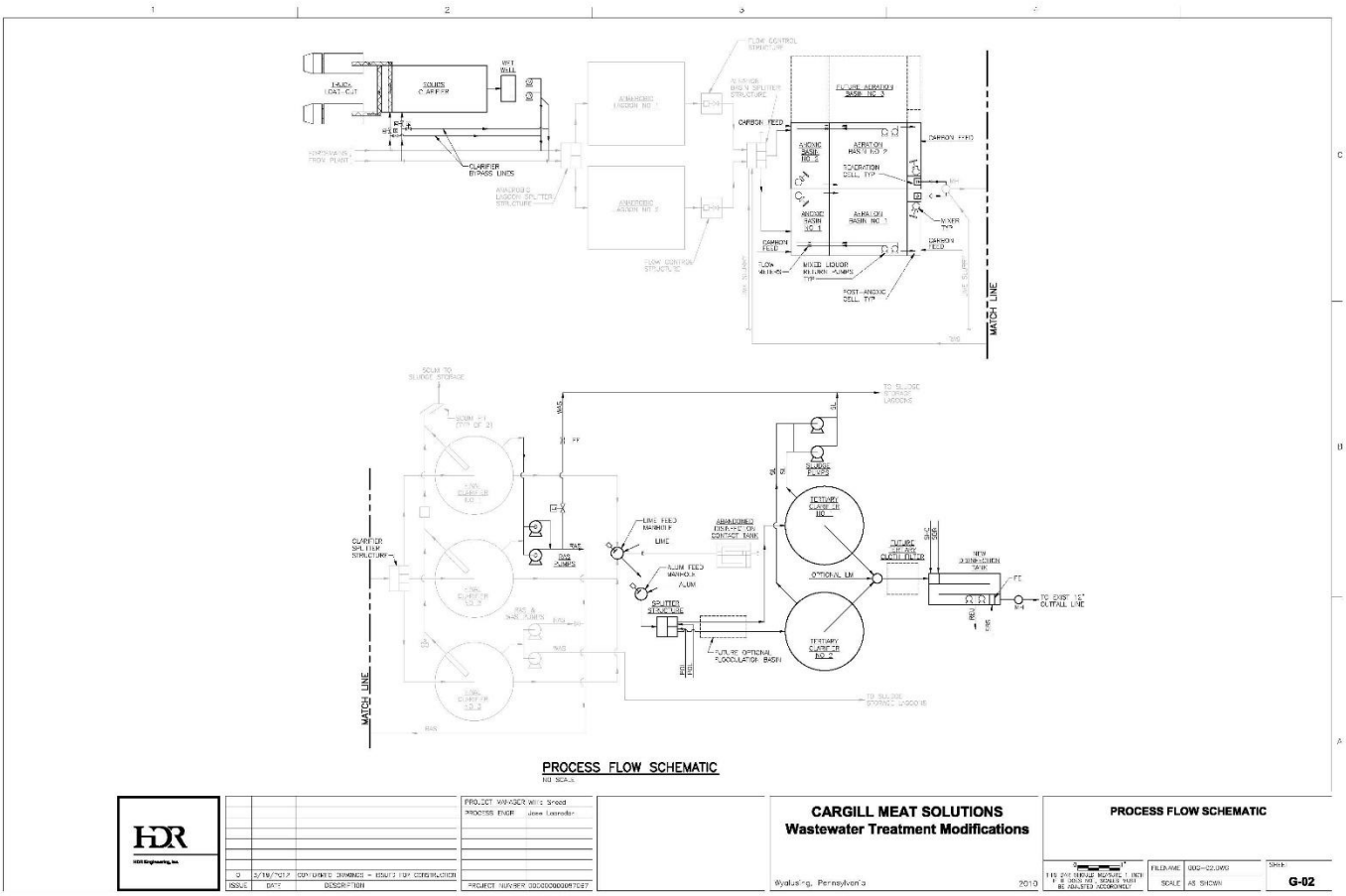
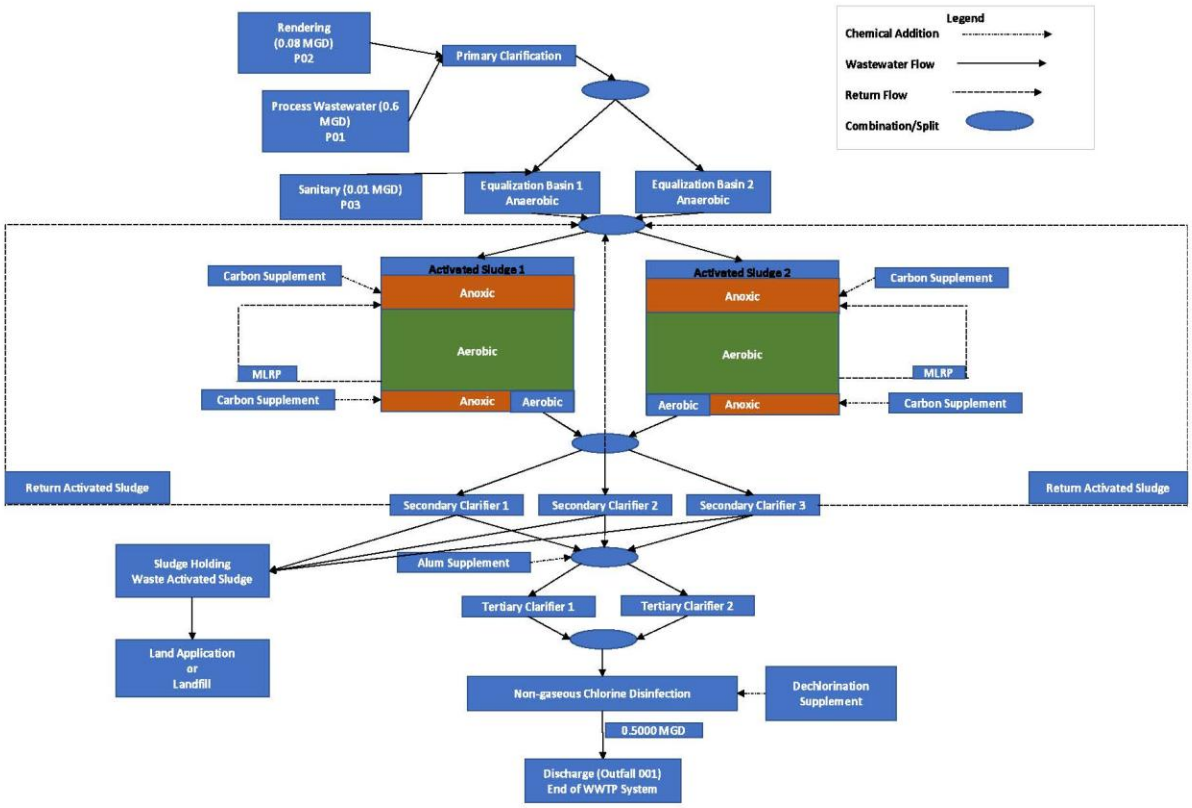
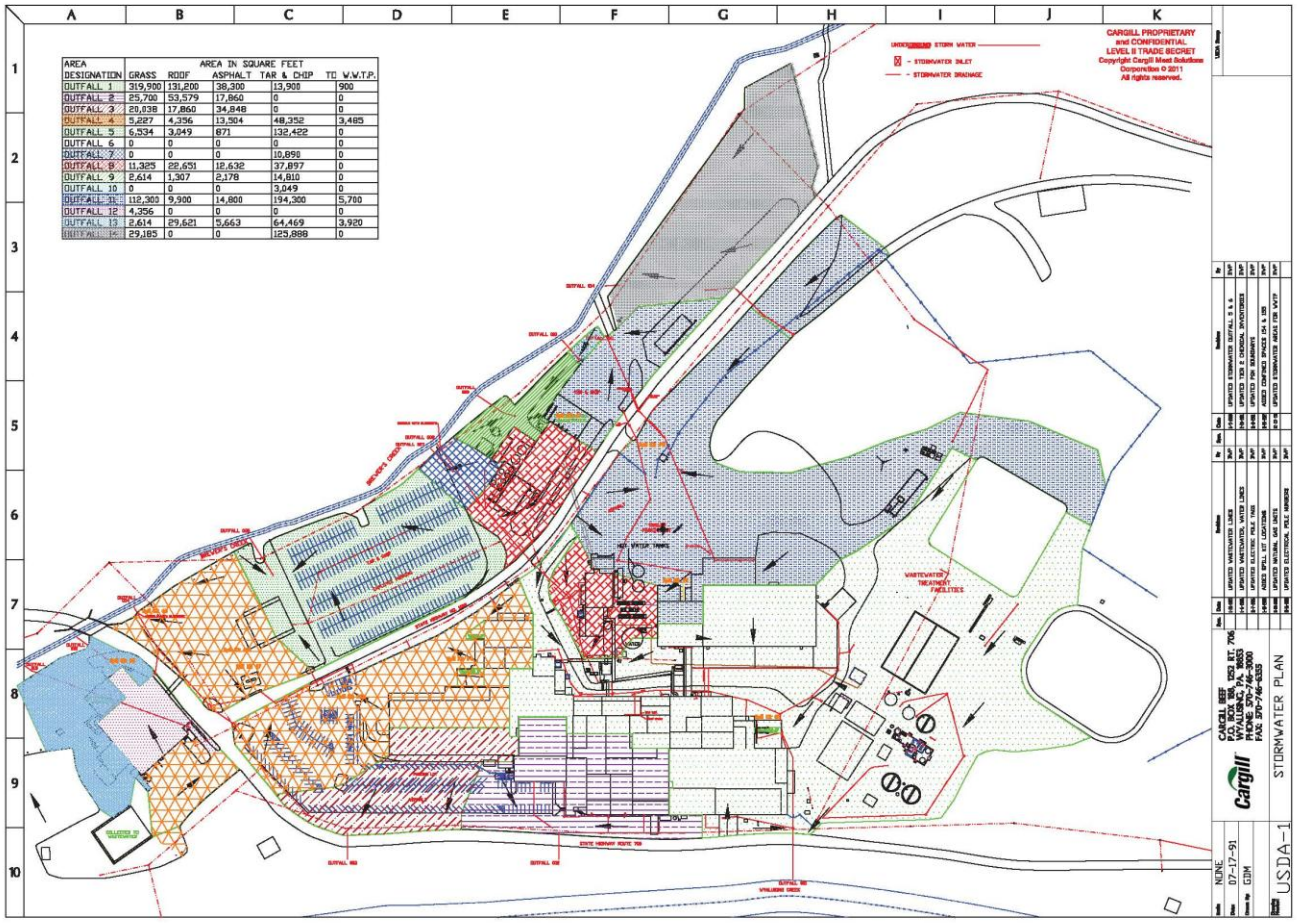
ATTACHMENT 02



ATTACHMENT 03



ATTACHMENT 04



AREA DESIGNATION	AREA IN SQUARE FEET				
	GRASS	ROOF	ASPHALT	TAR & CHIP	TO W.W.T.P.
OUTFALL 1	319,900	131,200	38,300	13,900	900
OUTFALL 2	25,700	53,579	17,860	0	0
OUTFALL 3	20,038	17,860	34,848	0	0
OUTFALL 4	5,227	4,356	13,504	48,352	3,485
OUTFALL 5	6,534	3,849	871	132,422	0
OUTFALL 6	0	0	0	0	0
OUTFALL 7	0	0	0	10,898	0
OUTFALL 8	11,325	22,651	12,632	37,897	0
OUTFALL 9	2,614	1,307	2,178	14,810	0
OUTFALL 10	0	0	0	3,049	0
OUTFALL 11	112,303	9,900	14,800	194,300	5,700
OUTFALL 12	4,356	0	0	0	0
OUTFALL 13	2,614	29,621	5,663	64,469	3,920
OUTFALL 14	29,185	0	0	125,888	0

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STORMWATER PLAN

USDA-1

ATTACHMENT 05

Total Annual Production (tons)	**212,409**
Maximum Monthly Production (tons)	**20,795**
Average Annual Production (tons/day)	**837**
Average Production Hours/Day	**24**
Average Production Days/Month	**21**
Average Annual Water Usage (MGD)	**0.73**
Average Annual Wastewater Flow (MGD)	**0.85**

2023 LWK	895	tons/day
	1,790,000	lb/day
	1,790	1000 pound units (per day)

40 CFR § 432.22	Maximum Daily		Maximum Monthly Average	
Regulated Parameter	ELG Multiplier	Limit	ELG Multiplier	Limit
BOD5	*0.42*	**751.8**	*0.21*	**375.9**
Fecal Coliforms	Maximum of 400 MPN or CFU per 100 mL at any time		No maximum monthly average limitation	
Oil & Grease	*0.16*	**286.4**	*0.08*	**143.2**
TSS	*0.5*	**895**	*0.25*	**447.5**

Oil & Grease Comparison	Maximum Daily	Maximum Monthly Average
40 CFR § 432.22	285	140
25 PA § 95.2	30	15

Flow	0.85	MGD

CFR	Mass Limits (lb/day)		Concentration (mg/L)		
Parameter	Monthy Average	Daily Maximum	Monthly Average	Daily Maximum	IMAX
BOD5	**375**	**750**	56.92	105.80	142.29
Oil & Grease	**140**	**285**	19.75	40.20	49.37
TSS	**445**	**895**	62.77	126.25	156.93

PA	Mass Limits (lb/day)		Concentration (mg/L)		
Parameter	Monthy Average	Daily Maximum	Monthly Average	Daily Maximum	IMAX
Oil & Grease	106.335	212.67	15.00	30.00	30.00

PA	Mass Limits (lb/day)		Concentration (mg/L)		
Parameter	Monthy Average	Daily Maximum	Monthly Average	Daily Maximum	IMAX
Ammonia Nitrogen			**4.00**	**8.00**	**10.00**
Total Nitrogen			**134**	**194**	**242.5**

PA	Mass Limits (lb/day)		Concentration (mg/L)		
Parameter	Monthy Average	Daily Maximum	Monthly Average	Daily Maximum	IMAX
Total Mercury	0.0020	0.0040	0.0003	0.0005	0.0008
			Concentration (ug/L)		
			Monthly Average	Daily Maximum	IMAX
			0.3000	0.5000	0.8000

2018 Limits					
LWK = 1674	Mass (lb/day)		Concentration (mg/L)		
Flow = 0.79 MGD	Maximum Monthly	Maximum Daily	Monthly Average	Daily Maximum	IMAX
BOD	351.54	703.08	53.36	106.71	133.39
Oil & Grease	133.92	267.84	20.33	40.65	50.82
TSS	418.5	837	63.52	127.04	158.80
TSS			15.00	30.00	30.00
Ammonia N			4.00	8.00	10.00
Total Nitrogen			134	194	242.5
Total Mercury (ug/L)	0.0024	0.0047	0.3570	0.7140	0.8925

2025 Limits					
LWK = 1790	Mass (lb/day)		Concentration (mg/L)		
Flow = 0.85 MGD	Maximum Monthly	Maximum Daily	Monthly Average	Daily Maximum	IMAX
BOD	375.9	751.8	56.92	105.80	142.29
Oil & Grease	143.2	286.4	19.75	40.20	49.37
TSS	447.5	895	62.77	126.25	156.93
TSS	106.335	212.67	15.00	30.00	30.00
Ammonia N			4.00	8.00	10.00
Total Nitrogen			134	194	242.5
Total Mercury (ug/L)	0.0020	0.0040	0.3000	0.5000	0.8000

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
04D	29594	WYALUSING CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
2.600	Cargill	PA0111759	0.850	CBOD5	52.8		
				NH3-N	4	8	
				Dissolved Oxygen			3

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
04D	29594	WYALUSING CREEK	**2.600**	719.00	213.00	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	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Cargill	PA0111759	0.8500	0.8500	0.8500	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	52.80	0.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	4.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
04D	29594	WYALUSING CREEK	**0.100**	665.00	220.00	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	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
04D	29594	WYALUSING CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
2.600	21.30	0.00	21.30	1.3149	0.00409	.875	70.96	81.1	0.36	0.419	20.29	7.00
Q1-10 Flow												
2.600	13.63	0.00	13.63	1.3149	0.00409	NA	NA	NA	0.29	0.529	20.44	7.00
Q30-10 Flow												
2.600	28.97	0.00	28.97	1.3149	0.00409	NA	NA	NA	0.43	0.356	20.22	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
04D	29594	WYALUSING CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
2.600	Cargill	16.16	8	16.16	8	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
2.600	Cargill	1.86	4	1.86	4	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)		
2.60	Cargill	52.8	52.8	4	4	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
04D	29594	WYALUSING CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.600	0.850	20.291	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
70.959	0.875	81.101	0.364
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.07	1.500	0.23	0.716
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.938	10.239	Tsivoglou	6
Reach Travel Time (days)			
0.419			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.042	2.88	0.23	8.09
0.084	2.70	0.22	8.20
0.126	2.54	0.21	8.20
0.168	2.38	0.21	8.20
0.210	2.23	0.20	8.20
0.252	2.09	0.19	8.20
0.294	1.96	0.19	8.20
0.336	1.84	0.18	8.20
0.377	1.73	0.18	8.20
0.419	1.62	0.17	8.20

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2025

Discharge Information

Instructions | Discharge | Stream

Facility: **Cargill Meat Solutions** NPDES Permit No.: **PA0111759** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Complex Slaughterhouse**

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
0.85	286	7.72	0.504	1	1	1		

					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											
	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	mg/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	mg/L		0.0002									
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	mg/L											
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Toxics Management Spreadsheet
Version 1.4, May 2025

Stream / Surface Water Information

Cargill Meat Solutions, NPDES Permit No. PA0111759, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: _____ 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	029594	2.6	719	213			Yes
End of Reach 1	029594	0.01	665	220			Yes

Q_{7-10}

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	2.6	0.1	7.5									100	7		
End of Reach 1	0.01	0.1	7.7												

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	2.6														
End of Reach 1	0.01														

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Toxics Management Spreadsheet
Version 1.4, May 2025

Model Results

Cargill Meat Solutions, NPDES Permit No. PA0111759, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.504 Analysis Hardness (mg/l): 148 Analysis pH: 7.10

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 Mercury	0	0		0	1.400	1.65	6.38	Chem Translator of 0.85 applied

☑ ***CFC*** CCT (min): 58.106 PMF: 1 Analysis Hardness (mg/l): 127.75 Analysis pH: 7.06

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 Mercury	0	0		0	0.770	0.91	6.07	Chem Translator of 0.85 applied

☑ ***THH*** CCT (min): 58.106 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 Mercury	0	0		0	0.050	0.05	0.34	

☑ ***CRL*** CCT (min): 25.950 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 Mercury	0	0		0	N/A	N/A	N/A	

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

No. Samples/Month: 4

Mass Limits	*Concentration Limits*

Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Mercury	0.002	0.004	0.0003	0.0005	0.0008	mg/L	0.0003	THH	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments

TRC_CALC

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

7.5	= Q stream (cfs)	0.5	= CV Daily
0.85	= 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)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 1.838	1.3.2.iii	WLA cfc = 1.785
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.685	5.1d	LTA_cfc = 1.038

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)**

ATTACHMENT 09

Q_{7-10} Analysis	
Facility:	Cargill Meat Solutions
Outfall:	001

NPDES Permit No.:	PA0111759
RMI at 001:	2.59

Reference Stream Gage Information	
Stream Name	Wyalusing Creek
Reference Gage	1532850
Station Name	MB Wyalusing Creek near Birchardville, PA
Gage Drainage Area (sq. mi.)	5.67
Q_{7-10} at gage (cfs)	0.20
Yield Ratio (cfs/mi^2)	0.0353

Q7-10 at 001	
Drainage Area at 001 (sq. mi.)	213.00
Q7-10 at 001 (cfs)	7.513
Q7-10 at 001 (mgd)	4.8559

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi^2, square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi^2)	Regulated[1]
01508803	West Branch Tioughnioga River at Homer, N.Y.	42.638	-76.176	71.5	N
01509000	Tioughnioga River at Cortland, N.Y.	42.603	-76.159	292	N
01510000	Otselic River at Cincinnatus, N.Y.	42.541	-75.900	147	N
01512500	Chenango River near Chenango Forks, N.Y.	42.218	-75.848	1,483	N
01515000	Susquehanna River near Waverly, N.Y.	41.985	-76.501	4,773	N
01516350	Tioga River near Mansfield, Pa.	41.797	-77.080	153	N
01516500	Corey Creek near Mainesburg, Pa.	41.791	-77.015	12.2	N
01518000	Tioga River at Tioga, Pa.	41.908	-77.129	282	Y
01518700	Tioga River at Tioga Junction, Pa.	41.953	-77.115	446	Y
01518862	Cowanesque River at Westfield, Pa.	41.923	-77.532	90.6	N
01520000	Cowanesque River near Lawrenceville, Pa.	41.997	-77.140	298	Y
01520500	Tioga River at Lindley, N.Y.	42.029	-77.132	771	Y
01521500	Canisteo River at Arkport, N.Y.	42.396	-77.711	30.6	Y
01523500	Canacadea Creek near Hornell, N.Y.	42.335	-77.683	57.9	Y
01524500	Canisteo River below Canacadea Creek at Hornell, N.Y.	42.314	-77.651	158	Y
01526500	Tioga River near Erwins, N.Y.	42.121	-77.129	1,377	Y
01527000	Cohocton River at Cohocton, N.Y.	42.500	-77.500	52.2	N
01527500	Cohocton River at Avoca, N.Y.	42.398	-77.417	152	N
01528000	Fivemile Creek near Kanona, N.Y.	42.388	-77.358	66.8	N
01529000	Mud Creek near Savona, N.Y.	42.308	-77.197	76.6	Y
01529500	Cohocton River near Campbell, N.Y.	42.253	-77.217	470	N
01529950	Chemung River at Corning, N.Y.	42.146	-77.057	2,006	Y
01530332	Chemung River at Elmira, N.Y.	42.086	-76.801	2,162	Y
01530500	Newtown Creek at Elmira, N.Y.	42.105	-76.798	77.5	Y
01531000	Chemung River at Chemung, N.Y.	42.002	-76.635	2,506	Y
01531500	Susquehanna River at Towanda, Pa.	41.765	-76.441	7,797	Y
01532000	Towanda Creek near Monroeton, Pa.	41.707	-76.485	215	N
01532850	MB Wyalusing Creek near Birchardville, Pa.	41.863	-76.007	5.67	N
01533400	Susquehanna River at Meshoppen, Pa.	41.607	-76.050	8,720	Y
01533500	North Branch Mehoopany Creek near Lovelton, Pa.	41.531	-76.156	35.2	N
01533950	SB Tunkhannock Creek near Montdale, Pa.	41.575	-75.642	12.6	N
01534000	Tunkhannock Creek near Tunkhannock, Pa.	41.558	-75.895	383	N
01534300	Lackawanna River near Forest City, Pa.	41.680	-75.472	38.8	Y
01534500	Lackawanna River at Archbald, Pa.	41.505	-75.542	108	Y
01536000	Lackawanna River at Old Forge, Pa.	41.359	-75.744	332	Y
01536500	Susquehanna River at Wilkes-Barre, Pa.	41.251	-75.881	9,960	Y
01537000	Toby Creek at Luzerne, Pa.	41.281	-75.896	32.4	Y
01537500	Solomon Creek at Wilkes-Barre, Pa.	41.228	-75.904	15.7	N
01538000	Wapwallopen Creek near Wapwallopen, Pa.	41.059	-76.094	43.8	N
01539000	Fishing Creek near Bloomsburg, Pa.	41.078	-76.431	274	N
01539500	Little Fishing Creek at Eyers Grove, Pa.	41.080	-76.511	56.5	N
01540200	Trexler Run near Ringtown, Pa.	40.853	-76.280	1.77	N
01540500	Susquehanna River at Danville, Pa.	40.958	-76.619	11,220	Y
01541000	West Branch Susquehanna River at Bower, Pa.	40.897	-78.677	315	N
01541200	West Branch Susquehanna River near Curwensville, Pa.	40.961	-78.519	367	Y

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft^3/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft^3/s)	7-day, 10-year (ft^3/s)	7-day, 2-year (ft^3/s)	30-day, 10-year (ft^3/s)	30-day, 2-year (ft^3/s)	90-day, 10-year (ft^3/s)
01530500	1940–2008	69	5.0	6.1	11.0	7.6	13	9.0
01531000	[2]1981–2008	28	138	147	237	169	296	203
01531000	[3]1905–1979	68	86.3	97.0	175	116	219	161
01531500	[2]1981–2008	28	550	592	1,030	733	1,340	952
01531500	[3]1915–1979	65	539	571	990	675	1,230	928
01532000	1915–2008	94	2.2	2.8	9.7	4.6	14.4	9.4
01532850	1967–1979	13	.1	.2	.4	.3	.8	.7
01533400	[2]1981–2008	28	602	648	1,110	790	1,430	1,060
01533500	1942–1958	17	.4	.6	1.5	.8	2.0	1.7
01533950	1962–1978	17	.2	.3	1.0	.6	1.4	1.0
01534000	1915–2008	94	15.2	17.3	35.9	24.2	51.0	38.7
01534300	1960–2008	49	1.1	1.7	5.1	2.8	7.6	4.8
01534500	[2]1961–2008	48	16.7	18.8	29.2	21.9	35.8	27.6
01534500	[3]1941–1959	19	18.8	23.0	33.3	25.6	39.2	34.9
01536000	[2]1961–2008	48	28.7	32.7	51.7	40.8	68.1	54.3
01536000	[3]1940–1959	20	77.8	93.9	119	105	138	124
01536500	[2]1981–2008	28	828	872	1,450	1,030	1,830	1,350
01536500	[3]1901–1979	79	778	811	1,350	927	1,640	1,260
01537000	1943–1993	51	1.3	2.0	4.9	3.1	6.4	4.7
01537500	1941–1990	50	.2	.3	1.9	.5	3.1	1.6
01538000	1921–2008	88	3.1	3.6	7.1	5.0	9.3	7.5
01539000	1940–2008	69	15.4	16.8	36.8	21.1	51.1	36.8
01539500	1942–1958	17	.1	.3	1.4	1.0	3.3	2.3
01540200	1965–1981	17	0	0	.3	.1	.3	.1
01540500	[2]1981–2008	28	1,080	1,120	1,870	1,320	2,330	1,690
01540500	[3]1906–1979	74	927	978	1,660	1,160	2,050	1,590
01541000	1915–2008	94	25.3	27.9	50.7	35.3	66.6	49.6
01541200	[2]1967–2008	40	34.6	45.2	66.0	63.1	100	92.4
01541200	[3]1957–1965	9	22.9	24.7	44.7	27.7	58.2	36.4
01541303	1980–2008	29	53.4	58.5	94.0	74.4	123	102
01541308	1969–1979	11	1.3	1.3	1.9	1.6	2.4	2.1
01541500	[2]1962–2008	47	39.0	41.9	66.5	51.9	86.3	70.6
01541500	[3]1915–1960	46	14.9	21.3	41.9	28.5	55.0	42.9
01542000	1942–1993	52	8.1	9.1	14.8	11.3	17.8	14.6
01542500	[2]1967–2008	33	216	235	326	285	435	402
01542500	[3]1941–1965	20	—	131	189	152	243	221
01542810	1966–2008	43	.1	.1	.3	.2	.5	.3
01543000	1915–2008	94	2.9	4.2	16.0	9.6	27.4	19.2
01543500	1940–2008	69	10.7	14.5	44.9	26.6	74.9	50.5
01544000	[2]1957–2008	52	3.3	6.9	19.0	11.2	31.1	19.0
01544500	1942–2008	67	4.2	4.9	12.5	7.5	17.4	11.7
01545000	[2]1964–2008	45	6.8	8.2	21.2	12.0	32.7	20.7
01545500	[2]1963–2008	46	217	238	446	306	629	428
01545500	[3]1909–1961	53	125	141	278	190	387	296
01545600	1966–2008	43	1.2	1.5	4.4	2.4	6.7	4.2