

Application Type Renewal
Facility Type Industrial
Major / Minor Minor

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

Application No. PA0111902
APS ID 1106407
Authorization ID 1471148

Applicant and Facility Information

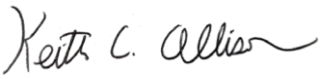

Applicant Name	<u>Dairy Farmers of America, Inc.</u>	Facility Name	<u>Dairy Farmers of America - Middlebury Center</u>
Applicant Address	<u>1405 N 98th Street</u> <u>Kansas City, KS 66111-1865</u>	Facility Address	<u>72 Milk Plant Road</u> <u>Middlebury Center, PA 16935</u>
Applicant Contact	<u>Kevin Roepe</u>	Facility Contact	<u>Matthew Slater</u>
Applicant Phone	<u>(816) 801-6354</u>	Facility Phone	<u>(570) 376-3862</u>
Client ID	<u>145118</u>	Site ID	<u>241165</u>
SIC Code	<u>2023</u>	Municipality	<u>Middlebury Township</u>
SIC Description	<u>Dry, Condensed, and Evaporated Dairy Products</u>	County	<u>Tioga</u>
Date Application Received	<u>January 30, 2024</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>January 31, 2024</u>	If No, Reason	
Purpose of Application	<u>Renewal of a NPDES Permit</u>		

Summary of Review

This facility is a dairy processing and dehydrating plant in Middlebury Township, Tioga County. A map of the discharge location is attached.

Public Participation

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

Approve	Deny	Signatures	Date
✓		 Keith C. Allison / Project Manager	December 19, 2024
✓		 Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	December 19, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.085</u>
Latitude	<u>41° 50' 30.08"</u>	Longitude	<u>-77° 16' 32.22"</u>
Quad Name	<u>Keeneyville, PA</u>	Quad Code	<u></u>
Wastewater Description: <u>Noncontact Cooling Water (NCCW)</u>			
Receiving Waters	<u>Norris Brook</u>	Stream Code	<u>31227 – Norris Brook</u>
NHD Com ID	<u>57351571</u>	RMI	<u>31189 – Crooked Creek</u>
Drainage Area	<u>25.1 mi² (@Norris Brook)</u>		<u>0.02 (@Norris Brook)</u>
	<u>74.2 mi² (@Crooked Creek)</u>	Yield (cfs/mi ²)	<u>12.5 (@Crooked Creek)</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.78 (@Norris Brook)</u>	Q ₇₋₁₀ Basis	<u>0.0312</u>
Elevation (ft)	<u>2.31 (@Crooked Creek)</u>	Slope (ft/ft)	<u>Gage No. 01518000, Tioga River at Tioga (1940-1977, pre-regulation)</u>
	<u>1162</u>		<u>0.00177</u>
Watershed No.	<u>4-A</u>	Chapter 93 Class.	<u>TSF – Norris Brook</u>
Existing Use	<u>N/A</u>	Existing Use Qualifier	<u>CWF – Crooked Creek</u>
Exceptions to Use	<u>None</u>	Exceptions to Criteria	<u>N/A</u>
Assessment Status	<u>Norris Brook - Attaining Use(s), Crooked Creek – Impaired (e. coli from Agriculture, rural residential areas, and waterfowl).</u>		
Nearest Downstream Public Water Supply Intake	<u>PA/NY Border</u>		
PWS Waters	<u>Tioga River</u>	Distance from Outfall (mi)	<u>~20</u>

Changes Since Last Permit Issuance: The above stream and drainage characteristics were determined for previous reviews and remain applicable.

Other Comments:

Because there is no nearer downstream water supply, the Department considers the PA/NY state line to be the nearest public water intake. No downstream water supply is expected at this time to be affected by this discharge with the limitations and monitoring proposed.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>002</u>	Design Flow (MGD)	<u>0.195</u>
Latitude	<u>41° 50' 30.01"</u>	Longitude	<u>-77° 16' 32.21"</u>
Quad Name	<u>Keeneyville, PA</u>	Quad Code	
Wastewater Description: <u>IW Process Effluent with ELG, Sewage Effluent</u>			
Receiving Waters	<u>Norris Brook</u>	Stream Code	<u>31227 – Norris Brook</u> <u>31189 – Crooked Creek</u>
NHD Com ID	<u>57351571</u>	RMI	<u>0.02 (@Norris Brook)</u> <u>12.5 (@Crooked Creek)</u>
Drainage Area	<u>25.1 mi² (@Norris Brook)</u> <u>74.2 mi² (@Crooked Creek)</u>	Yield (cfs/mi ²)	<u>0.0312</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.78 (@Norris Brook)</u> <u>2.31 (@Crooked Creek)</u>	Q ₇₋₁₀ Basis	<u>Gage No. 01518000, Tioga River at Tioga (1940-1977, pre-regulation)</u>
Elevation (ft)	<u>1162</u>	Slope (ft/ft)	<u>0.00177</u>
Watershed No.	<u>4-A</u>	Chapter 93 Class.	<u>TSF – Norris Brook</u> <u>CWF – Crooked Creek</u>
Existing Use	<u>N/A</u>	Existing Use Qualifier	<u>N/A</u>
Exceptions to Use	<u>None</u>	Exceptions to Criteria	<u>None</u>
Assessment Status	<u>Norris Brook - Attaining Use(s), Crooked Creek – Impaired (e. coli from Agriculture, rural residential areas, and waterfowl).</u>		
Nearest Downstream Public Water Supply Intake	<u>PA/NY Border</u>		
PWS Waters	<u>Tioga River</u>	Distance from Outfall (mi)	<u>~20</u>

Changes Since Last Permit Issuance: The above stream and drainage characteristics were determined for previous reviews and remain applicable.

Other Comments:

Because there is no nearer downstream water supply, the Department considers the PA/NY state line to be the nearest public water intake. No downstream water supply is expected at this time to be affected by this discharge with the limitations and monitoring proposed.

Treatment Facility Summary				
Treatment Facility Name: Dairy Farmers Of America				
WQM Permit No.	Issuance Date	Permit Covered:		
5993201-A4	8/3/2017	New EQ tank		
5996201-T2	2/28/2011	Dissolved Air Flotation		
5990201-T2	2/28/2011	WQ Tank, SBRs, Disinfection & Sludge Dewatering		
5990201-A2	7/2/20	Replacement of Dissolved Air Flotation and Sludge press		
5990201-A3	8/31/21	Installation of wastewater diversion tank and dechlorination		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Secondary	Sequencing Batch Reactor	No Disinfection	0.173
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.23	None specified in WQM permit	Not Overloaded	Dewatering/Belt Filtration	Land Application

Changes Since Last Permit Issuance: The permittee has made the changes under WQM permit amendments 5990201-A2 and 5990201-A3 noted above. WQM Permit No. 5992201 for the former emergency impoundment was cancelled by the Department in 2022.

Other Comments: The treatment for the process wastewater to Outfall 002 begins with an influent diversion manhole from which flows can be sent to either the treatment process or to the wastewater diversion tank. The treatment process consists of flow equalization, flash flocculation with pH treatment, dissolved air flotation clarifiers, SBR feed tank, sequencing batch reactors, chlorination with contact tank, and dechlorination.

Stormwater/No Exposure Certification
<p>The applicant certified in the application that a condition of No Exposure to stormwater exists at the facility. There are two outfalls receiving stormwater runoff, 001 which also receives process and non-process wastewater and 003 which only receives stormwater.</p> <p>The applicant conducted stormwater sampling on Outfall 003 to demonstrate the no exposure conditions. All parameters were below the Department's benchmark values as listed in the NPDES Application Appendix 1 instructions.</p> <p>The permit includes stormwater BMPs and the requirement for visual monitoring of stormwater outfalls in Part C of the permit, but without the requirement for periodic sampling of stormwater outfalls.</p>

Compliance History

DMR Data for Outfall 001 (from November 1, 2023 to October 31, 2024)

Parameter	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23
Flow (MGD) Average Monthly	0.06434	0.038789	0.049237	0.067088	0.066325	0.070074	0.084751	0.071475	0.052489	0.056329	0.052395	0.057208
Flow (MGD) Daily Maximum	0.123717	0.141827	0.128229	0.228028	0.135188	0.120408	0.177488	0.142104	0.098233	0.102535	0.113616	0.11474
pH (S.U.) Instantaneous Minimum	6.81	6.57	6.86	6.05	6.19	6.51	6.57	6.85	7.05	6.73	7.01	6.69
pH (S.U.) Instantaneous Maximum	8.12	7.71	7.8	7.56	7.71	7.69	7.74	8.05	8.16	8.03	7.89	8.08
Temperature (°F) Average Monthly	73.8	75.5	81.1	84.6	83.1	84.2	77.8	72.5	66.2	63.7	63.98	63.25
Temperature (°F) Daily Maximum	87.3	89.2	89.9	92.8	94.6	93.4	91.0	82.8	83.2	81.3	78.8	81.4
BOD5 (mg/L) Average Monthly	3.0	1.0	6.0	6.0	2.0	2.0	3.0	3.0	6.0	2.0	2.0	3.0
BOD5 (mg/L) Daily Maximum	14.7	2.2	18.0	22.2	2.3	2.0	5.9	4.9	14.6	4.2	2.9	4.5

DMR Data for Outfall 002 (from November 1, 2023 to October 31, 2024)

Parameter	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23
Flow (MGD) Average Monthly	0.178681	0.174654	0.192414	0.206387	0.222247	0.224135	0.221466	0.204117	0.18297	0.187495	0.212826	0.186732
Flow (MGD) Daily Maximum	0.223084	0.234972	0.246214	0.258822	0.263828	0.281861	0.271678	0.260563	0.231582	0.232137	0.24919	0.246564
pH (S.U.) Instantaneous Minimum	6.13	6.12	6.39	6.04	6.06	6.3	6.16	6.67	6.67	7.12	6.99	6.9
pH (S.U.) Instantaneous Maximum	7.22	7.69	7.55	7.64	7.84	7.72	7.81	7.74	7.69	7.8	7.73	8.08
DO (mg/L) Instantaneous Minimum	4.52	4.03	4.31	2.98	4.48	3.57	0.01	3.74	5.16	3.63	4.26	5.39

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TRC (mg/L) Average Monthly	0.26	0.36	0.36	0.27	0.27	0.37	0.36	0.14	0.46	0.4	0.38	0.34
TRC (mg/L) Instantaneous Maximum	0.57	0.81	0.67	0.77	0.73	1.31	0.91	0.41	0.83	0.78	1.18	0.75
Temperature (°F) Average Monthly	76.1	79.1	84.4	88.0	87.4	87.1	81.5	76.8	70.9	70.8	75.3	73.8
Temperature (°F) Daily Maximum	81.9	84.4	88.7	91.0	94.4	91.5	87.7	80.9	76.1	76.9	81.4	78.5
BOD5 (lbs/day) Average Monthly	4.4	4.8	9.3	9.4	4.3	9.8	7.0	7.0	10.0	12.0	14.0	< 7.0
BOD5 (lbs/day) Daily Maximum	5.6	7.9	27.0	32.3	8.7	20.2	10.0	22.0	29.0	28.0	23.0	16.0
BOD5 (mg/L) Average Monthly	3.0	3.0	6.0	5.0	2.0	6.0	3.0	4.0	8.0	7.0	8.0	< 4.0
BOD5 (mg/L) Daily Maximum	3.5	4.9	18.4	17.2	5.1	12.8	4.8	11.6	25.0	16.4	12.9	8.9
TSS (lbs/day) Average Monthly	12.8	16.2	9.2	23.1	12.8	14.6	35.0	9.0	14.0	32.0	30.0	26.0
TSS (lbs/day) Daily Maximum	17.9	8.5	11.2	39.4	19.2	30.0	63.0	17.0	19.0	80.0	57.0	40.0
TSS (mg/L) Average Monthly	8.0	11.0	6.0	13.0	7.0	9.0	18.0	5.0	10.0	19.0	17.0	15.0
TSS (mg/L) Daily Maximum	12.0	16.0	7.0	23.0	9.0	19.0	31.0	9.0	13.0	47.0	32.0	23.0
Total Dissolved Solids (lbs/day) Daily Maximum											2818	
Total Dissolved Solids (mg/L) Daily Maximum											1170	
Fecal Coliform (No./100 ml) Geometric Mean	1.0	143	5.0	2.0	< 1.0	11.0	< 2.0	49	< 5.0	218.0	9.0	< 12.0
Ammonia (lbs/day) Average Monthly	0.2	0.2	0.3	3.6	0.6	10.7	0.8	0.2	0.2	0.5	0.03	< 0.2
Ammonia (lbs/day) Daily Maximum	0.2	0.2	0.4	6.6	0.8	20.5	1.1	0.3	0.3	0.5	0.03	< 0.2
Ammonia (mg/L) Average Monthly	< 0.1	< 0.01	< 0.001	2.0	< 0.001	7.0	< 0.01	0.001	< 0.01	< 0.001	< 0.001	< 0.0001
Ammonia (mg/L) Daily Maximum	0.09	0.32	0.21	3.5	0.43	13.0	0.61	0.19	0.17	0.33	0.15	< 0.09
Total Phosphorus (lbs/day) Average Monthly	4.1	1.8	3.8	7.9	4.5	3.4	4.8	2.3	1.4	1.4	1.7	2.3

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Dairy Farmers Of America Middlebury Center

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Total Phosphorus (lbs/day) Daily Maximum	5.0	3.0	4.0	9.0	8.0	6.0	5.0	3.0	2.0	2.0	2.0	3.0
Total Phosphorus (mg/L) Average Monthly	2.0	1.0	2.0	5.0	3.0	2.0	3.0	1.0	1.0	1.0	1.0	1.0
Total Phosphorus (mg/L) Daily Maximum	3.0	1.7	2.8	5.6	4.7	3.6	3.0	1.6	1.2	0.99	1.0	1.6
Total Antimony (ug/L) Average Quarterly		< 0.03			0.30			< 0.3			< 0.3	
Total Antimony (ug/L) Daily Maximum		< 0.03			0.30			< 0.3			< 0.3	
Total Cadmium (ug/L) Average Quarterly		< 0.25			0.20			< 0.20			< 0.13	
Total Cadmium (ug/L) Daily Maximum		< 0.25			0.2			< 0.20			< 0.13	
Dissolved Iron (ug/L) Average Quarterly		24.5			22.5			37.8			35.3	
Dissolved Iron (ug/L) Daily Maximum		24.5			22.5			37.8			35.3	
Total Thallium (ug/L) Average Monthly	< 0.03	< 0.03	< 0.03	< 0.04	< 0.03	< 0.0004	< 0.03	< 0.03	< 0.017	< 0.08	< 0.08	< 0.08
Total Thallium (ug/L) Daily Maximum	< 0.026	< 0.026	< 0.026	< 0.052	< 0.026	0.00052	< 0.026	< 0.026	< 0.017	< 0.081	< 0.081	< 0.081

Effluent Violations for Outfall 002, from: November 1, 2023 to October 31, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Ammonia	May 2024	Avg Mo	10.7	lbs/day	6.9	lbs/day
Ammonia	May 2024	Daily Max	20.5	lbs/day	13.8	lbs/day
Ammonia	May 2024	Avg Mo	7.0	mg/L	5.5	mg/L
Ammonia	May 2024	Daily Max	13.0	mg/L	11	mg/L

Compliance History, Cont'd

Summary of Inspections:	The most recent inspection of the facility by the Department on July 16, 2024 for follow-up to the repair of a deteriorating pipe identified no violations at the time of inspection. An April 17, 2024 follow-up inspection identified violations for Failure to notify the Department and an unpermitted discharge. A February 28, 2024 complaint investigation identified violations. The last full inspection of the facility on January 10, 2024 identified no violations at the time of inspection.
Other Comments:	A query in WMS found an open violation in eFACTS for Dairy Farmers of America, Inc. for a facility in the Southcentral Region for an unauthorized unpermitted discharge.

Existing Effluent Limitations and Monitoring Requirements – Outfall 001								
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		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Temperature (°F)	XXX	XXX	XXX	Report	Report	XXX	1/week	I-S
BOD5	XXX	XXX	XXX	20.0	40.0	50	1/week	8-Hr Composite

Existing Effluent Limitations and Monitoring Requirements – Outfall 002								
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	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
DO	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
Temperature (°F)	XXX	XXX	XXX	Report	Report	XXX	1/week	I-S
BOD5	43.2	86.4	XXX	30.0	60.0	75	1/week	8-Hr Composite
TSS	43.2	86.4	XXX	30.0	60.0	75	1/week	8-Hr Composite
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Total Dissolved Solids	XXX	Report	XXX	XXX	Report	XXX	1/year	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Ammonia Nov 1 - Apr 30	16.3	32.5	XXX	13	26	32	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	6.9	13.8	XXX	5.5	11	13	2/month	8-Hr Composite
Total Phosphorus	12.5	25	XXX	10	20	25	2/month	8-Hr Composite
Total Antimony (ug/L)	XXX	XXX	XXX	Report Avg Qrtly	Report	XXX	1/quarter	8-Hr Composite
Total Cadmium (ug/L)	XXX	XXX	XXX	Report Avg Qrtly	Report	XXX	1/quarter	8-Hr Composite
Dissolved Iron (ug/L)	XXX	XXX	XXX	Report Avg Qrtly	Report	XXX	1/quarter	8-Hr Composite
Total Thallium (ug/L)	XXX	XXX	XXX	2.08	4.16	5.2	2/month	8-Hr Composite

Development of Effluent Limitations

Outfall No. 001 Design Flow (MGD) 0.085
Latitude 41° 50' 30.00" Longitude -77° 16' 33.00"
Wastewater Description: Noncontact Cooling Water (NCCW)

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)

Comments: The pH limits noted above already are included in the permit for Outfall 001.

Water Quality-Based Limitations

No formal "Reasonable Potential Analysis" was performed for Outfall 001 due to the nature of the discharge water and the lack of toxic pollutants as indicated by the application sampling. BOD₅ is addressed with the analysis of Outfall 002 because the discharges combine prior to discharge into Norris Brook

Temperature

The existing permit has weekly monitoring for Temperature with the only limitation being on increasing the stream temperature by more than 2°F in any one-hour period of 25 Pa. Code §93.7. See under Outfall 002 regarding proposed changes for Thermal impacts from the two discharges.

Nutrients/Chesapeake Bay Requirements

Outfall 001 does not show any appreciable levels of nutrients per the sampling information provided in the application.

Best Professional Judgement (BPJ) Limitations

The existing limitation of 20 mg/l for BOD₅ was established previously pursuant to BPJ and will remain. See under Outfall 002 for additional discussion of BOD₅.

Anti-Backsliding

No limits or monitoring for Outfall 001 have been made less stringent consistent with the anti-backsliding requirements of 40 CFR 122.44(l).

Development of Effluent Limitations

Outfall No.	002	Design Flow (MGD)	0.195
Latitude	41° 50' 30.10"	Longitude	-77° 16' 31.30"
Wastewater Description: IW Process Effluent with ELG, Sewage Effluent			

Outfall 002 is the discharge from the facility's wastewater treatment plant receiving wastewater from both the milk product processing wastewater and the plant's sanitary wastewater.

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
BOD ₅	30	Average Monthly		92a.47(a)(1)
Total Suspended Solids	30	Average Monthly		92a.47(a)(1)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4) & 93.7
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4) & 93.7
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5) & 93.7
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5) & 93.7
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: The limits noted above already are included in the permit for Outfall 002. CBOD₅ and TSS limits above are included in the existing permit due to the inclusion of sewage in the wastewater.

Effluent Limitation Guidelines (ELGs)

The facility is subject to the ELGs at 40 CFR 405 – Dairy Products Processing Point Source Category, specifically the following subcategories: Subpart I – Condensed Milk and Subpart J – Dry Milk. These establish BOD₅ and TSS loading limitations based on the BOD₅ load for the process (see Attachment B). The permittee provided input BOD₅ data for the past five years for each subcategory.

The applicable effluent limitation factors from the ELGs are listed in the following table. Also listed is the average BOD₅ input based on the information provided by the permittee. The total average daily BOD input in the facility is 175,469 lbs/day. Approximately 40% goes to the production of milk powders and 60% is for condensed milk.

Subpart – Category/Citation	Parameter	Daily Max Limit (lbs/100 lbs of BOD ₅ input)	Monthly Average Limit (lbs/100 lbs of BOD ₅ input)	Average BOD ₅ Input (lbs/day)
I – Condensed Milk/ §405.92(a)	BOD ₅	0.460	0.230	105,281
	TSS	0.690	0.345	
J – Dry Milk/ §405.102(a)	BOD ₅	0.218	0.109	70,187
	TSS	0.328	0.164	

The above factors and input loadings produce the effluent loading limitations in the following table. Conversion of these loadings to concentration limitations using the 0.195 MGD average monthly discharge rate produces the concentration limits listed. These technology-based limits under 40 CFR 405 are less stringent than the limits from 92a which are also included in the table below for comparison. See Attachment C for more detail of the derivation of limits from the above factors.

Technology-Based Limitations pursuant to 40 CFR 405 and PA Code 92a.47

Parameter	40 CFR 405		40 CFR 405		92a.47
	Daily Max Limit		Monthly Average Limit		Monthly Average Limit
	(lbs /day)	(mg/l)	(lbs /day)	(mg/l)	(mg/l)
BOD ₅	637	391	318	195	30
TSS	959	588	478	294	30

The BOD₅ and TSS limits from 92a will be included in the permit for Outfall 002 as they are the most protective.

Water Quality-Based Limitations

CBOD₅ and NH₃-N

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD (CBOD₅), and ammonia nitrogen (NH₃-N) into free-flowing streams and rivers. To accomplish this, the model simulates two basic processes: the mixing and degradation of NH₃-N in the stream and the mixing and consumption of DO in the stream due to the degradation of CBOD₅ and NH₃-N. The WQM7.0 modeling was performed (Attachment D) including both 001 and 002 as one outfall since both include BOD₅. Outfall 001 has small quantities of ammonia (2.0 mg/L max) per the application sampling. Outfall 002 has existing water quality-based limits for ammonia of 5.5 mg/L for a monthly average for the months of May through October and 13 mg/L for the rest of the year.

The modeling included the combined flow of the two discharges as well as flow-weighted average of the pollutant concentrations as noted in the table below.

Outfall	Flow (MGD)	BOD ₅ (mg/L)	NH ₃ -N (mg/L)
001	0.085	20	2
002	0.195	30	5.5 (May-October)
Combined	0.280	27.0	4.44

This modeling was performed at the discharge to Crooked Creek due to the short distance (~100 feet) in Norris Brook. The model showed that the technology-based limitations discussed above are adequate. The model considers CBOD impacts so the use of the BOD level in it is more conservative. Therefore, the limits from 92a will be included in the permit as the most protective.

Water Quality Toxics Management

The following parameters were determined through water quality modeling to be candidates for effluent limitations or monitoring in the NPDES permit. The Department's Reasonable Potential Analysis recommends limits when the highest sampling result is greater than 50% of the WQBEL and monitoring when result is greater than 10% of the WQBEL for conservative pollutants. The table below shows the permittee's sample results, the WQ-based monthly average limitation and the Target Quantitation Limit for each parameter. The Department generally assumes that results for pollutants at detection levels greater than the Department's Target Quantitation Limits are potentially present at concentrations near the higher detection level. See Attachment E for the Toxics Management Spreadsheet analysis.

Reasonable Potential Analysis Results

Parameter	Water Quality-based Limit (µg/l)	Max Effluent Sample Result (µg/l)	Treatment Influent Sample Result (µg/l)	Target Quantitation Limit (µg/l)	Screening Recommendation
Total Copper	49.1	9.4	10.3	4	Monitor
Total Silver	13.4	<2.5	<1.1	0.4	Monitor
Total Zinc	420	72.5	103	5	Monitor

Silver is included because the provided sample results were at detection levels higher than the Department's Target Quantitation Limits and were high enough to trigger reasonable potential. Should the permittee conduct an additional round of sampling for Total Silver that shows that they are not detectable at detection levels at the Target QLs 0.4 µg/L or lower the Department will remove the monitoring for Total Silver from the final NPDES permit.

The permit has existing limitations or monitoring for Antimony, Cadmium, Iron, Thallium, and TDS which are no longer necessary based on current sampling and modeling results.

Total Residual Chlorine

The above Total Residual Chlorine limit from 92a.48(b)(2) is applicable to the facility. The Department uses a modeling spreadsheet to determine necessary WQBELs for TRC toxicity based on instream dilution. The attached modeling results (See attachment F) show that the BAT limit of 0.5 mg/l is adequate to protect the receiving waters.

Temperature

The Department uses a modeling spreadsheet to model thermal impacts to receiving streams using the criteria of 25 Pa. Code 93.7 See Attachment G for results of this modeling. The modeling assumed the combination of outfalls 001 and 002.

Also included is a table comparing the daily maximum temperature limits determined with the reported daily maximum temperature ranges seen for the past permit term at each outfall for each timeframe. As can be seen limits do not appear achievable from May through November for either outfall.

Proposed Temperature Limitations

Time Period	Proposed Limitation (°F)	(Outfall 001) Reported Daily Max Temperatures (°F)	(Outfall 002) Reported Daily Max Temperatures (°F)
Jan 1-31	99.7	67.8 – 85.2	76.9 – 85.1
Feb 1-29	88.6	66.6 – 83.2	76.1 – 85
Mar 1-31	110	68.0 – 83.9	75.6 – 84.9
Apr 1-15	110	71.4 – 91.0	82.0 – 91.4
Apr 16-30	97.8	71.4 – 91.0	82.0 – 91.4
May 1-15	80.6	85.4 – 93.4	83.9 – 91.5
May 16-30	84.6	85.4 – 93.4	83.9 – 91.5
Jun 1-15	78.5	87.2 – 94.4	87.2 – 94.4
Jun 16-30	82.5	87.2 – 94.4	87.2 – 94.4
Jul 1-31	80.2	82.2 – 97.2	88.6 – 94.6
Aug 1-15	77.7	78.8 – 93.3	86.8 – 93.1
Aug 16-31	77.7	78.8 – 93.3	86.8 – 93.1
Sep 1-15	72.3	79.4 – 87.4	82.8 – 89.0
Sep 16-30	66.3	79.4 – 87.4	82.8 – 89.0
Oct 1-15	61.8	71.8 – 89.8	81.4 – 87.4
Oct 16-31	57.8	71.8 – 89.8	81.4 – 87.4
Nov 1-15	54.7	68.3 – 83.7	78.5 – 82.3
Nov 16-30	57.4	68.3 – 83.7	78.5 – 82.3
Dec 1-31	97.8	65.6 – 87.8	78.4 – 82.7

Due to the lack of a convenient way to divide the thermal load between the two outfalls, the limitations are being applied to both outfalls.

Due to the potential difficulty in meeting these new temperature limits a 59-month compliance schedule will be included as shown below.

PROPOSED SCHEDULE OF COMPLIANCE

- A. *The permittee shall achieve compliance with final effluent limitations or terminate this discharge in accordance with the following schedule:*

- | | |
|--|--|
| 1. <i>Feasibility study completion</i> | <u>One Year after Permit Effective Date</u> |
| 2. <i>Final plan completion</i> | <u>Two Years after Permit Effective Date</u> |
| 3. <i>Start construction, if necessary</i> | <u>Three Years after Permit Effective Date</u> |

- | | |
|--|---|
| 4. Construction progress report(s), if necessary | <u>Forty-Two Months after Permit Effective Date</u> |
| 5. End construction, if necessary | <u>Four Years after Permit Effective Date</u> |
| 6. Compliance with effluent limitations | <u>59 Months after Permit Effective Date</u> |

B. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit to DEP a written notice of compliance or non-compliance with the specific schedule requirement. Each notice of non-compliance shall include the following information:

1. A short description of the non-compliance.
2. A description of any actions taken or proposed by the permittee to comply with the elapsed schedule requirement.
3. A description of any factors which tend to explain or mitigate the non-compliance.
4. An estimate of the date that compliance with the elapsed schedule requirement will be achieved and an assessment of the probability that the next scheduled requirement will be met on time.

Chesapeake Bay/Nutrient Requirements

A portion of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the Water Pollution Control Act, 33 U.S.C. §1313(d). Total Nitrogen and Total Phosphorus cap loads have been established for significant dischargers in Pennsylvania to reduce the total nutrient load to the Bay and meet State of Maryland Water Quality Standards. The Dairy Farmers of America plant is considered an existing insignificant Chesapeake Bay industrial discharger per the Phase III Watershed Implementation Plan (WIP) and thus has received no Cap Loads. Per the application, TP averages 2.94 mg/L and the TN averages 25.1 mg/L. However, the existing twice per month monitoring for total phosphorus will remain and annual Total Nitrogen monitoring will be included at 002. Total Phosphorus has an existing limitation of 10 mg/L as a monthly average which will remain.

The Hammond Reservoir, approximately 7 miles downstream of this discharge, is unimpaired.

E. Coli

E. coli monitoring is proposed consistent with recent changes to Chapter 93 of the Department's regulations and current Department policy. Quarterly e. coli monitoring will be included in the draft permit for this 0.195 MGD discharge with a sewage component.

Best Professional Judgment (BPJ) Limitations

Comments: No additional BPJ limitations are needed above the Technology and Water Quality-based limits noted above.

Chemical Additives

The facility uses a number of chemical additives as listed in the application. The permittee has made additional changes in their additive usage as approved by the Department on June 13, 2024 and October 8, 2024.

Anti-Backsliding

Loading limitations for TSS, BOD5, and NH3-N have increased consistent with the increase in discharge flow consistent with the anti-backsliding requirements of 40 CFR 122.44(l). Otherwise, no BPJ or water quality-based limitations have been made less stringent.

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 001, Effective Period: Permit Effective Date through Start of Final Period.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Temperature (deg F) (°F)	XXX	XXX	XXX	Report	Report Daily Max	XXX	1/day	I-S

Compliance Sampling Location: Outfall 001

Other Comments: Interim Temperature monitoring

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 001, Effective Period: Start of Final Period through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Temperature (deg F) (°F) Jan 1 - 31	XXX	XXX	XXX	XXX	99.7 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Feb 1 - 29	XXX	XXX	XXX	XXX	88.6 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Mar 1 - 31	XXX	XXX	XXX	XXX	110 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Apr 1 - 15	XXX	XXX	XXX	XXX	110 Daily Max	XXX	1/day	I-S

Outfall 001 , Continued (from Start of Final Period through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Temperature (deg F) (°F) Apr 16 - 30	XXX	XXX	XXX	XXX	97.8 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) May 1 - 15	XXX	XXX	XXX	XXX	80.6 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) May 16 - 31	XXX	XXX	XXX	XXX	84.6 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Jun 1 - 15	XXX	XXX	XXX	XXX	78.5 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Jun 16 - 30	XXX	XXX	XXX	XXX	80.2 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Jul 1 - 31	XXX	XXX	XXX	XXX	80.2 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Aug 1 - 15	XXX	XXX	XXX	XXX	77.7 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Aug 16 - 31	XXX	XXX	XXX	XXX	77.7 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Sep 1 - 15	XXX	XXX	XXX	XXX	72.3 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Sep 16 - 30	XXX	XXX	XXX	XXX	66.3 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Oct 1 - 15	XXX	XXX	XXX	XXX	61.8 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Oct 16 - 31	XXX	XXX	XXX	XXX	57.8 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Nov 1 - 15	XXX	XXX	XXX	XXX	54.7 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Nov 16 - 30	XXX	XXX	XXX	XXX	57.4 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Dec 1 - 31	XXX	XXX	XXX	XXX	97.8 Daily Max	XXX	1/day	I-S

Compliance Sampling Location: Outfall 001

Other Comments: Final Temperature Limitations

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Biochemical Oxygen Demand (BOD5)	XXX	XXX	XXX	20.0	40.0	50	1/week	8-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: Final Temperature limitations are new in this draft permit.

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, Effective Period: Permit Effective Date through Start of Final Period.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Temperature (deg F) (°F)	XXX	XXX	XXX	Report	Report Daily Max	XXX	1/day	I-S

Compliance Sampling Location: Outfall 002

Other Comments: Interim Temperature Monitoring

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, Effective Period: Start of Final Period through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Temperature (deg F) (°F) Jan 1 - 31	XXX	XXX	XXX	XXX	99.7 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Feb 1 - 29	XXX	XXX	XXX	XXX	88.6 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Mar 1 - 31	XXX	XXX	XXX	XXX	110 Daily Max	XXX	1/day	I-S

Outfall 002, Continued (from Start of Final Period through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Temperature (deg F) (°F) Apr 1 - 15	XXX	XXX	XXX	XXX	110 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Apr 16 - 30	XXX	XXX	XXX	XXX	97.8 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) May 1 - 15	XXX	XXX	XXX	XXX	80.6 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) May 16 - 31	XXX	XXX	XXX	XXX	84.6 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Jun 1 - 15	XXX	XXX	XXX	XXX	78.5 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Jun 16 - 30	XXX	XXX	XXX	XXX	80.2 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Jul 1 - 31	XXX	XXX	XXX	XXX	80.2 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Aug 1 - 15	XXX	XXX	XXX	XXX	77.7 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Aug 16 - 31	XXX	XXX	XXX	XXX	77.7 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Sep 1 - 15	XXX	XXX	XXX	XXX	72.3 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Sep 16 - 30	XXX	XXX	XXX	XXX	66.3 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Oct 1 - 15	XXX	XXX	XXX	XXX	61.8 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Oct 16 - 31	XXX	XXX	XXX	XXX	57.8 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Nov 1 - 15	XXX	XXX	XXX	XXX	54.7 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Nov 16 - 30	XXX	XXX	XXX	XXX	57.4 Daily Max	XXX	1/day	I-S
Temperature (deg F) (°F) Dec 1 - 31	XXX	XXX	XXX	XXX	97.8 Daily Max	XXX	1/day	I-S

Compliance Sampling Location: Outfall 002

Other Comments: Final Temperature Limitations

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 002, 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	Daily Maximum	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	Report Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	1.6	XXX	1/day	Grab
Temperature (°F)	XXX	XXX	XXX	Report	Report	XXX	1/day	I-S
Biochemical Oxygen Demand (BOD5)	48.8	97.6	XXX	30.0	60.0	75	1/week	8-Hr Composite
Total Suspended Solids	48.8	97.6	XXX	30.0	60.0	75	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	21.1	42.3	XXX	13	26	32	2/month	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	8.9	17.8	XXX	5.5	11	13	2/month	8-Hr Composite
Total Phosphorus	12.5	25	XXX	10	20	25	2/month	8-Hr Composite
Copper, Total (ug/L)	XXX	XXX	XXX	Report Avg Qrtly	Report	XXX	1/quarter	8-Hr Composite

Outfall 002 , 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	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Silver, Total (ug/L)	XXX	XXX	XXX	Report Avg Qrtly	Report	XXX	1/quarter	8-Hr Composite
Zinc, Total (ug/L)	XXX	XXX	XXX	Report Avg Qrtly	Report	XXX	1/quarter	8-Hr Composite
E. coli (No./100 ml)	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	Grab

Compliance Sampling Location: Outfall 002

Other Comments: Loading limitations for TSS, BOD5, and NH3-N have changed as mentioned above. Monitoring or limits for TDS, Antimony, Cadmium, and Dissolved Iron have been removed as also mentioned above. In addition, monitoring for Copper, Silver, Zinc and e. coli are new.

NPDES Permit Fact Sheet

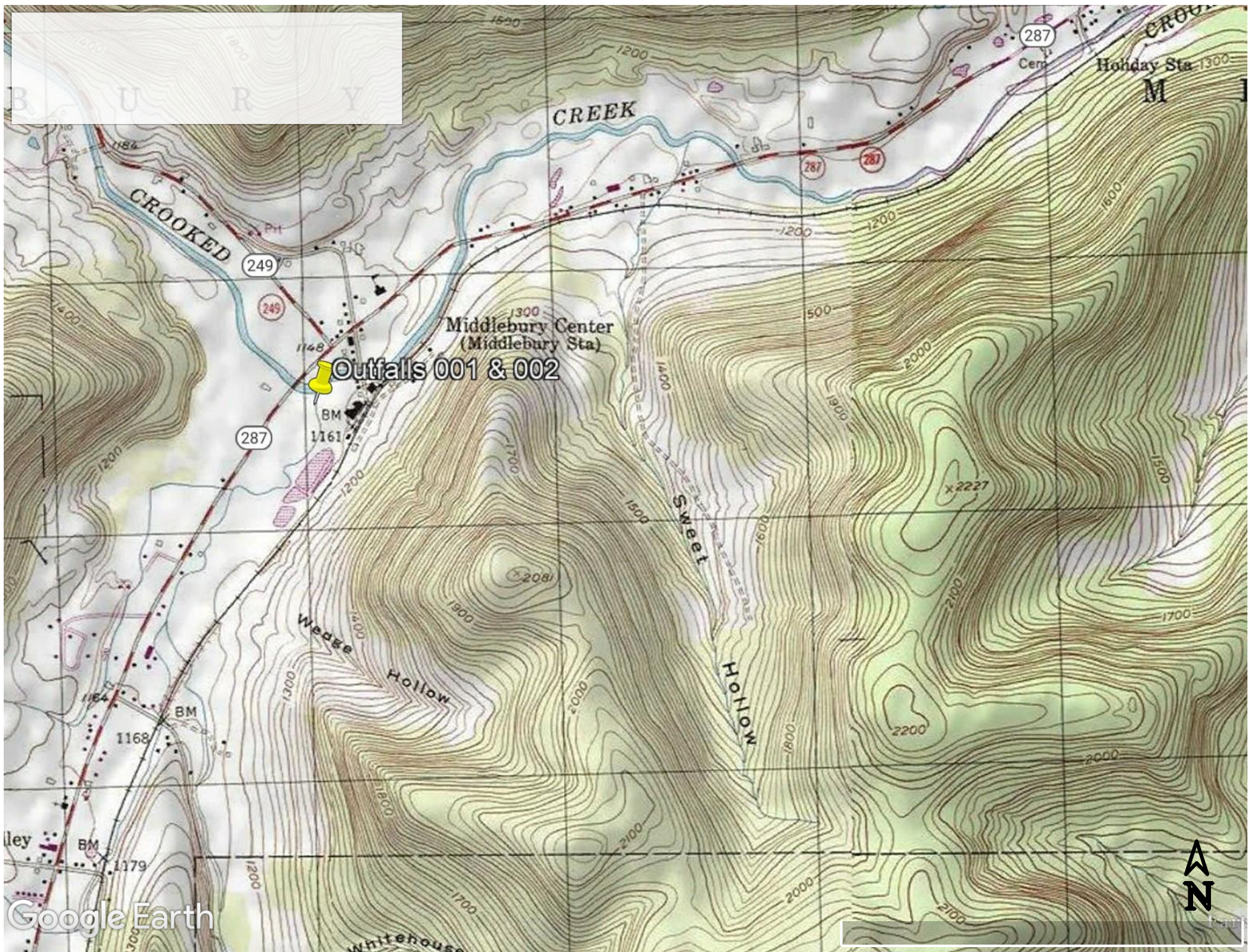
NPDES Permit No. PA0111902

Dairy Farmers Of America Middlebury Center

Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment D)
<input checked="" type="checkbox"/>	Toxics Management Spreadsheet (see Attachment E)
<input checked="" type="checkbox"/>	TRC Model Spreadsheet (see Attachment F)
<input checked="" type="checkbox"/>	Temperature Model Spreadsheet (see Attachment G)
<input checked="" type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input checked="" type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input checked="" type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
<input checked="" type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input checked="" type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
<input checked="" type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input checked="" type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input checked="" type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input checked="" type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
<input type="checkbox"/>	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, 386-2000-010, 3/1999.
<input checked="" type="checkbox"/>	Design Stream Flows, 386-2000-003, 9/98.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
<input checked="" type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input checked="" type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input type="checkbox"/>	SOP:

Attachments:

- A. Discharge Location Map
- B. 40 CFR 405 Excerpt
- C. Tech Limits Derivation
- D. WQM7.0 Model
- E. Toxics Management Spreadsheet
- F. TRC Spreadsheet
- G. Temperature Model



ELECTRONIC CODE OF FEDERAL REGULATIONS**e-CFR data is current as of July 12, 2018**

Title 40 -, Chapter I -, Subchapter N -, Part 405 -, Subpart B

Title 40: Protection of Environment
PART 405-DAIRY PRODUCTS PROCESSING POINT SOURCE CATEGORY**Subpart 8-Fluid Products Subcategory****Contents**

§405.20 Applicability; description of the fluid products subcategory.

§405.21 Specialized definitions.

§405.22 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

§405.23 [Reserved]

§405.24 Pretreatment standards for existing sources.

§405.25 Standards of performance for new sources.

§405.26 Pretreatment standards for new sources.

§405.27 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

[t. Back to Top](#)**§405.20 Applicability; description of the fluid products subcategory.**

The provisions of this subpart are applicable to discharges resulting from the manufacture of market milk (ranging from 3.5 percent fat to fat-free), flavored milk (chocolate and others) and cream (of various fat concentrations, plain and whipped).

[t. Back to Top](#)**§405.21 Specialized definitions.**

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in part 401 of this chapter shall apply to this subpart.

(b) The term "BODS input" shall mean the biochemical oxygen demand of the materials entered into process. It can be calculated by multiplying the fats, proteins and carbohydrates by factors of 0.890, 1.031 and 0.691 respectively. Organic acids (e.g., lactic acids) should be included as carbohydrates. Composition of input materials may be based on either direct analyses or generally accepted published values.

[t. Back to Top](#)**§405.22 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

Except as provided in §§125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) For fluid products plants receiving more than 250,000 lb/day of milk equivalent (more than 25,900 lb/day of BODS input).

Effluent characteristic	Maximum for any 1 day	Effluent limitations	
		Average of daily values for 30 consecutive days shall not exceed-	
		Metric units (kilograms per 1,000 kg of BODS input)	
8005	3.375		1.350
TSS	5.500		2.025
pH	(¹)		(¹)
		English units (pounds per 100 lb of BOD5 input)	
BOD5	0.338		0.135

¹Within the range 6.0 to 9.0.

(b) For fluid products plants receiving 250,000 lb/day or less of milk equivalent (less than 25,900 lb/day of BODS input).

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed-
	Metric units (kilograms per 1,000 kg of BODS input)	
BODS	4.50	2.25
TSS	6.75	3.37
pH	(1)	(1)
	English units (pounds per 100 lb of BODS input)	
BODS	0.45	0.22
TSS	0.675	.33
pH	(1)	(1)

¹Within the range 6.0 to 9.0.

[39 FR 18597, May 28, 1974, as amended at 39 FR 32994, Sept. 13, 1974; 60 FR 33933, June 29, 1995]

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§405.23 [Reserved]

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§405.24 Pretreatment standards for existing sources.

Any existing source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403. In addition, the following pretreatment standard establishes the quantity or quality of pollutants or pollutant properties controlled by this section which may be discharged to a publicly owned treatment works by a point source subject to the provisions of this subpart.

Pollutant or pollutant property	Pretreatment standard
pH	No limitation.
BODS	Do.
TSS	Do.

[40 FR 6434, Feb. 11, 1975, as amended at 60 FR 33933, June 29, 1995]

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§405.25 Standards of performance for new sources.

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed
	Metric units (kilograms per 1,000 kg of BODS input)	
BODS	0.74	0.37
TSS	0.925	.463
pH	(1)	(1)
	English units (pounds per 100 lb of BODS input)	
BODS	0.074	0.037
TSS	0.0925	.0463
pH	(1)	(1)

¹Within the range 6.0 to 9.0.

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§405.26 Pretreatment standards for new sources.

Any new source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

[60 FR 33933, June 29, 1995]

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§405.27 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in §§125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT): The limitations shall be the same as those specified for conventional pollutants (which are defined in §401.16) in §405.22 of this subpart for the best practicable control technology currently available (BPT).

[51 FR 24996, July 9, 1986]

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ELECTRONIC CODE OF FEDERAL REGULATIONS**e-CFR data is current as of July 12, 2018**

Title 40 __. Chapter I __. Subchapter N __. Part 405 __. Subpart I

Title 40: Protection of Environment
PART 405-DAIRY PRODUCTS PROCESSING POINT SOURCE CATEGORY**Subpart I-Condensed Milk Subcategory****Contents**

§405.90 Applicability; description of the condensed milk subcategory.

§405.91 Specialized definitions.

§405.92 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

§405.93 [Reserved]

§405.94 Pretreatment standards for existing sources.

§405.95 Standards of performance for new sources.

§405.96 Pretreatment standards for new sources.

§405.97 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

t. Back to Top**§405.90 Applicability; description of the condensed milk subcategory.**

The provisions of this subpart are applicable to discharges resulting from the manufacture of condensed whole milk, condensed skim milk, sweetened condensed milk and condensed buttermilk.

t. Back to Top**§405.91 Specialized definitions.**

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in part 401 of this chapter shall apply to this subpart.

(b) The term "BODS input" shall mean the biochemical oxygen demand of the materials entered into process. It can be calculated by multiplying the fats, proteins and carbohydrates by factors of 0.890, 1.031 and 0.691 respectively. Organic acids (e.g., lactic acids) should be included as carbohydrates. Composition of input materials may be based on either direct analyses or generally accepted published values.

t. Back to Top**§405.92 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

Except as provided in §§125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) For plants condensing more than 100,000 lb/day of milk equivalent (more than 10,390 lb/day of BODS input).

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed-
	Metric units (kilograms per 1,000 kg of BODS inout)	
80D5	3.450	1.380
TSS	5.175	2.070
pH	(1)	(1)
	English units (pounds per 100 lb of 8005 input)	
B005	0.345	0.138
TSS	0.518	.207

pH

¹Within the range 6.0 to 9.0.

(b) For plants condensing 100,000 lb/day or less of milk equivalent (less than 10,390 lb/day of BODS input).

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed-
	Metric units (kilograms per 1,000 kg of 8005 input)	
BODS	4.60	2.30
TSS	6.90	.450
pH	(¹)	(¹)
	English units (pounds per 100 lb of BODS input)	
BODS	0.460	0.230
TSS	0.690	.345
pH	(¹)	(¹)

¹Within the range 6.0 to 9.0.

(c) For plants in the size range covered by paragraph (b) once-through barometric condenser water may be discharged untreated if the composite net entrainment is below 15 mg/l of BODS for any one day and below 10 mg/l of BODS as the average for thirty consecutive days.

[39 FR 18597, May 28, 1974, as amended at 39 FR 32993, Sept. 13, 1974; 60 FR 33935, June 29, 1995]

[t](#) Back to Top**§405.93 [Reserved]**[t](#) Back to Top**§405.94 Pretreatment standards for existing sources.**

Any existing source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403. In addition, the following pretreatment standard establishes the quantity or quality of pollutants or pollutant properties controlled by this section which may be discharged to a publicly owned treatment works by a point source subject to the provisions of this subpart.

Pollutant or pollutant property	Pretreatment standard
pH	No limitation.
B005	Do.
TSS	Do.

[40 FR 6435, Feb. 11, 1975, as amended at 60 FR 33935, June 29, 1995]

[t](#) Back to Top**§405.95 Standards of performance for new sources.**

The following standards of performance establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a new source subject to the provisions of this subpart:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed-
	Metric units (kilograms per 1,000 kg of 8005 input)	
8005	0.760	0.380
TSS	0.950	.475
pH	(¹)	(¹)
	English units (pounds per 100 lb of B005 input)	
BODS	0.076	0.038
TSS	0.095	.048
pH	(¹)	(¹)

¹Within the range 6.0 to 9.0.

[39 FR 18597, May 28, 1974, as amended at 39 FR 32994, Sept. 13, 1974]

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§405.96 Pretreatment standards for new sources.

Any new source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

[60 FR 33935, June 29, 1995]

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§405.97 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in §§125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT): The limitations shall be the same as those specified for conventional pollutants (which are defined in §401.16) in §405.92 of this subpart for the best practicable control technology currently available (BPT).

[51 FR 24996, July 9, 1986]

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ELECTRONIC CODE OF FEDERAL REGULATIONS**e-CFR data is current as of July 12, 2018**

Title 40 -> Chapter I ----> Subchapter N ----> Part 405 ----> Subpart J

Title 40: Protection of Environment

PART 405-DAIRY PRODUCTS PROCESSING POINT SOURCE CATEGORY

Subpart J-Dry Milk Subcategory**Contents**

§405.100 Applicability; description of the dry milk subcategory.

§405.101 Specialized definitions.

§405.102 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

§405.103 [Reserved]

§405.104 Pretreatment standards for existing sources.

§405.105 Standards of performance for new sources.

§405.106 Pretreatment standards for new sources.

§405.107 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

t. Back to Top**§405.100 Applicability; description of the dry milk subcategory.**

The provisions of this subpart are applicable to discharges resulting from the manufacture of dry whole milk, dry skim milk and dry buttermilk.

t. Back to Top**§405.101 Specialized definitions.**

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in part 401 of this chapter shall apply to this subpart.

(b) The term "BODS input" shall mean the biochemical oxygen demand of the materials entered into process. It can be calculated by multiplying the fats, proteins and carbohydrates by factors of 0.890, 1.031 and 0.691 respectively. Organic acids (e.g., lactic acids) should be included as carbohydrates. Composition of input materials may be based on either direct analysis or generally accepted published values.

t. Back to Top**§405.102 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

Except as provided in §§125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) For milk drying plants with an input equivalent to more than 145,000 lb/day of milk equivalent (more than 15,070 lb/day of BODS input).

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed-
		Metric units (kilograms per 1,000 kg of BODS input)
BODS	1.625	0.650
TSS	2.43	.975
pH	()	()
		English units (pounds per 100 lb of BODS input)
BODS	0.163	0.068

¹Within the range 6.0 to 9.0.

(b) For milk drying plants with an input equivalent to 145,000 lb/day or less of milk equivalent (less than 15,070 lb/day of BOD5 input).

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed-
		Metric units (kilograms per 1,000 kg of BOD5 input)
BOD5	2.176	1.088
TSS	3.276	1.638
pH	(¹)	(¹)
		English units (pounds per 100 lb of BOD5 input)
BOD5	0.218	0.109
TSS	0.328	.164
pH	(¹)	(¹)

¹Within the range 6.0 to 9.0.

[39 FR 18597, May 28, 1974, as amended at 60 FR 33935, June 29, 1995]

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§405.103 [Reserved]

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§405.104 Pretreatment standards for existing sources.

Any existing source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403. In addition, the following pretreatment standard establishes the quantity or quality of pollutants or pollutant properties controlled by this section which may be discharged to a publicly owned treatment works by a point source subject to the provisions of this subpart.

Pollutant or pollutant property	Pretreatment standard
pH	No limitation.
BOD5	Do.
TSS	Do.

[40 FR 6435, Feb. 11, 1975, as amended at 60 FR 33935, June 29, 1995]

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§405.105 Standards of performance for new sources.

The following standards of performance establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a new source subject to the provisions of this subpart.

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed-
		Metric units (kilograms per 1,000 kg of BOD5 input)
BOD5	0.036	0.018
TSS	0.450	.225
pH	(¹)	(¹)
		English units (pounds per 100 lb of BOD5 input)
BOD5	0.036	0.018
TSS	0.045	.023
pH	(¹)	(¹)

¹Within the range 6.0 to 9.0.

[39 FR 18597, May 28, 1974, as amended at 39 FR 32993, Sept. 13, 1974]

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§405.106 Pretreatment standards for new sources.

Any new source subject to this subpart that introduces process wastewater pollutants into a publicly owned treatment works must comply with 40 CFR part 403.

[60 FR 33935, June 29, 1995]

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§405.107 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

Except as provided in §§125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT): The limitations shall be the same as those specified for conventional pollutants (which are defined in §401.16) in §405.102 of this subpart for the best practicable control technology currently available (BPT).

[51 FR 24996, July 9, 1986]

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Need assistance?

Dairy Farmers of America
 NPDES No. PA0111902
 Middlebury Township, Tioga County

Technology Limitations Derivation from 40 CFR 405

		Limitation Factor		Production	Subpart Daily Limit	Subpart Monthly Limit
		Daily	Monthly			
Subpart		lb BOD per 100 lb BOD input		lbs/day	lbs/day	lbs/day
I	BOD5	0.46	0.23	105281	484.2926	242.1463
	TSS	0.69	0.345	105281	726.4389	363.21945
J	BOD5	0.218	0.109	70187	153.00766	76.50383
	TSS	0.328	0.164	70187	230.21336	115.10668

Flow=	0.195 MGD
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		Daily Limit lbs/day	Monthly Limit lbs/day	Daily Limit mg/L	Monthly Limit mg/L
Total	BOD5	637.30026	318.65013	391.9	195.9
Total	TSS	956.65226	478.32613	588.2	294.1

Sample Calculations:

Subpart Limit = Subpart Factor (lbs BOD / 100 lbs BOD input) x Production(lbs BOD/day) = 0.460 x 105,281 = 484.29 lbs/day

Total Limit = ΣSubpart Limits (lbs/day) = 484.2926+153.0077 = 637.30 lbs/day

Concentration Limit = Loading Limit (lbs/day) / Flow (MGD) / 8.34 lbs/gal = 637.30 / (0.195 x 8.34) = 391.9 mg/L

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
	04A	31189	CROOKED CREEK	12.500	1141.00	74.20	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data												
Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.031	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
DFA	PA0111602	0.2800	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	27.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	4.44	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
04A	31189	CROOKED CREEK	9.960	1117.30	75.20	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Temp	<u>Tributary</u> pH	<u>Stream</u> Temp	pH
	(cfsm)	(cfs)	(cfs)						(°C)		(°C)	
Q7-10	0.031	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						
04A		31189				CROOKED CREEK						
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
Q7-10 Flow												
12.500	2.30	0.00	2.30	.4332	0.00177	.665	31.34	47.16	0.13	1.183	20.79	7.00
Q1-10 Flow												
12.500	1.47	0.00	1.47	.4332	0.00177	NA	NA	NA	0.11	1.448	21.14	7.00
Q30-10 Flow												
12.500	3.13	0.00	3.13	.4332	0.00177	NA	NA	NA	0.15	1.020	20.61	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	6		

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>			
04A	31189	CROOKED CREEK			
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
12.500	0.280	20.792		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
31.345	0.665	47.164		0.131	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
5.96	0.755	0.70		0.744	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
7.412	2.245	Tsivoglou		6	
<u>Reach Travel Time (days)</u>	Subreach Results				
1.183	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)	
	0.118	5.43	0.64	6.86	
	0.237	4.95	0.59	6.51	
	0.355	4.52	0.54	6.33	
	0.473	4.12	0.49	6.25	
	0.591	3.75	0.45	6.25	
	0.710	3.42	0.41	6.31	
	0.828	3.12	0.38	6.40	
	0.946	2.84	0.35	6.52	
	1.065	2.59	0.32	6.66	
	1.183	2.36	0.29	6.80	

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
04A	31189	CROOKED CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
12.500	DFA	15.25	8.88	15.25	8.88	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
12.500	DFA	1.81	4.44	1.81	4.44	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
12.50	DFA	27	27	4.44	4.44	3	3	0	0

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
04A		31189		CROOKED CREEK			
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
12.500	DFA	PA0111602	0.280	CBOD5	27		
				NH3-N	4.44	8.88	
				Dissolved Oxygen			3

Discharge Information

Instructions

Discharge

Stream

Facility: **Dairy Farmers of America**

NPDES Permit No.: **PA0111902**

Outfall No.: **002**

Evaluation Type **Major Sewage / Industrial Waste**

Wastewater Description: **Dairy Process Wastewater**

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
0.195	106	7.1						

	Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank		1 if left blank		
				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	1350									
	Chloride (PWS)	mg/L	99.8									
	Bromide	mg/L	< 0.5									
	Sulfate (PWS)	mg/L	420									
	Fluoride (PWS)	mg/L	< 0.01									
Group 2	Total Aluminum	µg/L	223									
	Total Antimony	µg/L	< 0.3									
	Total Arsenic	µg/L	< 2.5									
	Total Barium	µg/L	104									
	Total Beryllium	µg/L	< 0.5									
	Total Boron	µg/L	< 50									
	Total Cadmium	µg/L	< 0.13									
	Total Chromium (III)	µg/L	< 2.5									
	Hexavalent Chromium	µg/L	< 1									
	Total Cobalt	µg/L	< 2.5									
	Total Copper	µg/L	9.4									
	Free Cyanide	µg/L	0.01									
	Total Cyanide	µg/L	0.01									
	Dissolved Iron	µg/L	78.1									
	Total Iron	µg/L	63.7									
	Total Lead	µg/L	0.76									
	Total Manganese	µg/L	106									
	Total Mercury	µg/L	< 0.2									
	Total Nickel	µg/L	< 2.5									
	Total Phenols (Phenolics) (PWS)	µg/L	< 0.05									
	Total Selenium	µg/L	< 2.5									
	Total Silver	µg/L	< 2.5									
	Total Thallium	µg/L	< 0.026									
	Total Zinc	µg/L	72.5									
	Total Molybdenum	µg/L	< 2.5									
	Acrolein	µg/L	<									
	Acrylamide	µg/L	<									
	Acrylonitrile	µg/L	<									
	Benzene	µg/L	<									
	Bromoform	µg/L	<									
	Carbon Tetrachloride	µg/L	<									

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

[illegible][illegible]

Stream / Surface Water Information

Dairy Farmers of America, NPDES Permit No. PA0111902, Outfall 002

Instructions Discharge **Stream**

Receiving Surface Water Name: **Crooked Creek**

No. Reaches to Model: **1**

- ☒ Statewide Criteria
☐ Great Lakes Criteria
☐ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi ²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	031189	12.5	1141	74.2			Yes
End of Reach 1	031189	9.96	1117.3	75.2			Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	12.5	0.0312										100	7		
End of Reach 1	9.96	0.0312													

Q_h

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	12.5														
End of Reach 1	9.96														

Model Results

Dairy Farmers of America, NPDES Permit No. PA0111902, Outfall 002

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

☒ All

☐ Inputs

☐ Results

☐ Limits

☒ **Hydrodynamics**

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
12.5	2.32		2.32	0.302	0.002	0.661	30.902	46.729	0.128	1.212	45.317
9.96	2.35		2.34624								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
12.5	15.47		15.47	0.302	0.002	1.458	30.902	21.197	0.35	0.443	17.019
9.96	15.656		15.66								

☒ **Wasteload Allocations**

☒ **AFC**

CCT (min): 15

PMF: 0.575

Analysis Hardness (mg/l): 101.11

Analysis pH: 7.02

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	4,061	
Total Antimony	0	0		0	1,100	1,100	5,957	
Total Arsenic	0	0		0	340	340	1,841	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	113,719	
Total Boron	0	0		0	8,100	8,100	43,863	
Total Cadmium	0	0		0	2.035	2.16	11.7	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	574.929	1,819	9,852	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	88.2	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	514	
Total Copper	0	0		0	13.579	14.1	76.6	Chem Translator of 0.96 applied

Free Cyanide	0	0		0	22	22.0	119	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	65.361	82.8	448	Chem Translator of 0.789 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	8.92	Chem Translator of 0.85 applied
Total Nickel	0	0		0	472.621	474	2,564	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.278	3.86	20.9	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	352	
Total Zinc	0	0		0	118.280	121	655	Chem Translator of 0.978 applied

☒ **CFC**

CCT (min): 45.317

PMF: 1

Analysis Hardness (mg/l): 100.69

Analysis pH: 7.01

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	1,908	
Total Arsenic	0	0		0	150	150	1,301	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	35,564	
Total Boron	0	0		0	1,600	1,600	13,879	
Total Cadmium	0	0		0	0.247	0.27	2.36	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.534	86.7	752	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	90.2	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	165	
Total Copper	0	0		0	9.009	9.38	81.4	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	45.1	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	13,011	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.536	3.21	27.8	Chem Translator of 0.79 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	7.86	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.311	52.5	455	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	43.3	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	113	
Total Zinc	0	0		0	118.831	121	1,045	Chem Translator of 0.986 applied

☒ **THH**

CCT (min): 45.317

PMF: 1

Analysis Hardness (mg/l): N/A

Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	48.6	
Total Arsenic	0	0		0	10	10.0	86.7	
Total Barium	0	0		0	2,400	2,400	20,818	
Total Boron	0	0		0	3,100	3,100	26,890	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	34.7	
Dissolved Iron	0	0		0	300	300	2,602	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	8,674	
Total Mercury	0	0		0	0.050	0.05	0.43	
Total Nickel	0	0		0	610	610	5,291	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	2.08	
Total Zinc	0	0		0	N/A	N/A	N/A	

☒ **CRL**

CCT (min): **17.019**

PMF: **1**

Analysis Hardness (mg/l): **N/A**

Analysis pH: **N/A**

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	

Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☒ **Recommended WQBELs & Monitoring Requirements**

No. Samples/Month: 4

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Copper	Report	Report	Report	Report	Report	µg/L	49.1	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Silver	Report	Report	Report	Report	Report	µg/L	13.4	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	420	AFC	Discharge Conc > 10% WQBEL (no RP)

☐ **Other Pollutants without Limits or Monitoring**

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

2.31	= Q stream (cfs)	0.5	= CV Daily
0.195	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	0.575	= 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 = 1.424	1.3.2.iii	WLA cfc = 2.392
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.530	5.1d	LTA_cfc = 1.391

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	$1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)$

Instructions

Inputs

Facility: **Dairy Farmers of America**

Permit No.: **PA0111902**

Stream Name: **Crooked Creek**

Analyst/Engineer: **K. Allison**

Stream Q7-10 (cfs)*: **2.3**

Outfall No.: **002**

Analysis Type*: **CWF**

Facility Flows

Semi-Monthly Increment	Intake (Stream) (MGD)*	Intake (External) (MGD)*	Consumptive Loss (MGD)*	Discharge Flow (MGD)
Jan 1-31		0.31		0.31
Feb 1-29		0.31		0.31
Mar 1-31		0.31		0.31
Apr 1-15		0.31		0.31
Apr 16-30		0.31		0.31
May 1-15		0.31		0.31
May 16-31		0.31		0.31
Jun 1-15		0.31		0.31
Jun 16-30		0.31		0.31
Jul 1-31		0.31		0.31
Aug 1-15		0.31		0.31
Aug 16-31		0.31		0.31
Sep 1-15		0.31		0.31
Sep 16-30		0.31		0.31
Oct 1-15		0.31		0.31
Oct 16-31		0.31		0.31
Nov 1-15		0.31		0.31
Nov 16-30		0.31		0.31
Dec 1-31		0.31		0.31

Stream Flows

Q7-10 Multipliers (Default Shown)	PMF	Seasonal Stream Flow (cfs)	Downstream Stream Flow (cfs)
3.2	1.00	7.39	7.87
3.5	1.00	8.09	8.56
7	1.00	16.17	16.65
9.3	1.00	21.48	21.96
9.3	1.00	21.48	21.96
5.1	1.00	11.78	12.26
5.1	1.00	11.78	12.26
3	1.00	6.93	7.41
3	1.00	6.93	7.41
1.7	1.00	3.93	4.41
1.4	1.00	3.23	3.71
1.4	1.00	3.23	3.71
1.1	1.00	2.54	3.02
1.1	1.00	2.54	3.02
1.2	1.00	2.77	3.25
1.2	1.00	2.77	3.25
1.6	1.00	3.70	4.18
1.6	1.00	3.70	4.18
2.4	1.00	5.54	6.02

Thermal Limits Spreadsheet

Version 1.0, April 2024

Temperature

[illegible]

Instructions

CWF Results

Recommended Limits for Case 1 or Case 2

Semi-Monthly Increment	CWF Target Maximum Stream Temp. (°F)	Case 1 Daily WLA (Million BTUs/day)	Case 2 Daily WLA (°F)
Jan 1-31	38	N/A -- Case 2	99.7
Feb 1-29	38	N/A -- Case 2	88.6
Mar 1-31	42	N/A -- Case 2	110.0
Apr 1-15	48	N/A -- Case 2	110.0
Apr 16-30	53	N/A -- Case 2	97.8
May 1-15	56	N/A -- Case 2	80.6
May 16-31	60	N/A -- Case 2	84.6
Jun 1-15	64	N/A -- Case 2	78.5
Jun 16-30	68	N/A -- Case 2	82.5
Jul 1-31	72	N/A -- Case 2	80.2
Aug 1-15	71	N/A -- Case 2	77.7
Aug 16-31	71	N/A -- Case 2	77.7
Sep 1-15	67	N/A -- Case 2	72.3
Sep 16-30	61	N/A -- Case 2	66.3
Oct 1-15	56	N/A -- Case 2	61.8
Oct 16-31	52	N/A -- Case 2	57.8
Nov 1-15	47	N/A -- Case 2	54.7
Nov 16-30	42	N/A -- Case 2	57.4
Dec 1-31	40	N/A -- Case 2	97.8

Date	Version
4/3/2024	1.0

Change(s)
Original