

State Pollutant Discharge Elimination System (SPDES)
INDUSTRIAL APPLICATION FORM NY-2C
 Supplement H
DAIRY PRODUCTS PROCESSING (40 CFR Part 405)

Facility Name:	SPDES Number:
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This supplement to your application requests specific production information necessary to prepare numerical limits for your SPDES permit. The following information will enable you to provide the necessary information. If you have questions, please call the Bureau of Water Permits at (518) 402-8111.

Background

Rules and Regulations promulgated by the U.S. Environmental Protection Agency and published in the Federal Register on May 28, 1974, and October 29, 1982 established discharge limits for the dairy processing industry. This supplement is directed toward determining appropriate values based on production of the dairy processing plant that will be the basis of your permit limits unless more stringent limits are required for stream protection. The 5-day biochemical oxygen demand (BOD₅) of all ingredients entered into each processing step must be determined in order to utilize the regulations.

In order to apply for and receive all discharge limits authorized by law, a full understanding of the federal regulation is necessary. Table 1 on the reverse of this page contains a summary of the promulgated regulation. Each dairy processing plant should fall into one or more of the subcategories listed on the sheet. Each subcategory receives a discharge allowance. The sum of the allowances for all the subcategories applicable to your plant, yields the total effluent allowance. The following points should be considered:

1. The milk receiving portion of a processing plant is not entitled to a receiving station allowance for any milk processed within that plant. If whole raw milk is shipped to another plant for processing, the receiving station allowance will be given for that portion shipped.
2. Production for the month which yields the highest discharge limitation should be used to determine the input values. This will normally occur during the month of highest milk receipts. Table 2, which lists the monthly milk receipts for the preceding year, must be completed. List the quantity of milk or other raw materials received in pounds or, if the raw materials are shipped in other quantitative units (e.g. kilograms, gallons, etc.), in units that are convertible to pounds.
3. A schematic diagram of the plant processing facilities must be included. Figure 1 shows a hypothetical processing plant schematic, including an allowance for fluid products, butter, condensed milk, and dry milk. The allowance for each of the subcategories would then be added, resulting in total plant effluent discharge limitation. The schematic must include the pounds of milk products going into each process.
4. Table 3 should be completed in accordance with instructions footnoted on the bottom of that page. Completion of columns 1-7 is mandatory; completion of columns 8-13 is optional. Attach any additional discussions or information necessary to explain the process along with Tables 2 and 3.

Definitions

- A. The term "BOD₅" shall mean Biochemical Oxygen Demand over a 5-day incubation period.
- B. The term "BOD₅ Input" shall mean the BOD₅ of the material entered into each manufacturing process as categorized in Table 1. It can be calculated by multiplying the percentage of fats, proteins, and carbohydrates by the factors of 0.890, 1.031, and 0.691 respectively. The sum of the products will equal the percent BOD₅ of the material entered into each process.
- C. The term "TSS" shall mean total suspended non-filterable solids.
- D. The term "Average" shall mean the average daily values over a period of 30 consecutive days.
- E. The pH limitations for all categories and subcategories shall be the range of 6.0 to 9.0 SU.

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 Table 1
Categorical Effluent Limitation Guidelines for BOD₅ and TSS

Subpart	Subcategory Description		Milk Equivalent, lbs/day	Size of BOD ₅ Input, lbs/day	Effluent Limitation guideline values, lbs/100 lbs BOD ₅ Input								Subpart
					BCT, Existing Sources				New Sources				
					BOD ₅		TSS		BOD ₅		TSS		
					Avg.	Max	Avg	Max	Avg	Max	Avg	Max	
A	Receiving Stations:	Small			0.031	0.063	0.047	0.094	0.005	0.010	0.006	0.013	A
		Other	> 150,000	> 15,600	0.019	0.048	0.029	0.071	0.005	0.010	0.006	0.013	
B	Fluid Products:	Small			0.225	0.450	0.338	0.675	0.037	0.074	0.046	0.093	B
		Other	> 250,000	> 25,900	0.135	0.338	0.203	0.551	0.037	0.074	0.046	0.093	
C	Cultured Products:	Small			0.225	0.450	0.338	0.675	0.037	0.074	0.046	0.093	C
		Other	> 60,000	> 6,200	0.135	0.338	0.203	0.506	0.037	0.074	0.046	0.093	
D	Butter:	Small			0.091	0.183	0.137	0.274	0.008	0.016	0.010	0.020	D
		Other	> 175,000	> 18,180	0.055	0.138	0.083	0.206	0.008	0.016	0.010	0.020	
E	Cottage Cheese and	Small			0.446	0.893	0.669	1.339	0.074	0.148	0.093	0.185	E
	Cultured Cream Cheese:	Other	> 25,000	> 2,600	0.268	0.670	0.402	1.005	0.074	0.148	0.093	0.185	
F	Natural and Processed	Small			0.049	0.098	0.073	0.146	0.008	0.016	0.010	0.020	F
	Cheese:	Other	> 25,000	> 2,600	0.029	0.073	0.044	0.109	0.008	0.016	0.010	0.020	
G	Ice Cream/Frozen Dessert	Small			0.146	0.293	0.219	0.439	0.024	0.048	0.030	0.060	G
	Fluid Mix:	Other	> 25,000	> 2,600	0.088	0.220	0.132	0.330	0.024	0.048	0.030	0.060	
H	Ice Cream/Frozen Desserts/	Small			0.306	0.613	0.459	0.919	0.047	0.094	0.059	0.118	H
	Novelties/Dairy Desserts:	Other	> 25,000	> 2,600	0.184	0.460	0.276	0.690	0.047	0.094	0.059	0.118	
I	Condensed Milk:	Small			0.230	0.460	0.345	0.690	0.038	0.076	0.048	0.095	I
		Other	> 25,000	> 2,600	0.138	0.345	0.207	0.518	0.038	0.076	0.048	0.095	
J	Dry Milk:	Small			0.109	0.218	0.164	0.328	0.018	0.036	0.023	0.045	J
		Other	> 25,000	> 2,600	0.065	0.163	0.098	0.244	0.018	0.036	0.023	0.045	
K	Condensed Whey:	Small			0.065	0.130	0.098	0.195	0.011	0.022	0.014	0.028	K
		Other	> 25,000	> 2,600	0.040	0.100	0.060	0.150	0.011	0.022	0.014	0.028	
L	Dry Whey:	Small			0.065	0.130	0.098	0.195	0.011	0.022	0.014	0.028	L
		Other	> 25,000	> 2,600	0.040	0.100	0.060	0.150	0.011	0.022	0.014	0.028	
1	2	3	4	5	6	7	8	9	10	11	12	13	

References: Federal Register, May 28, 1974: Pages 18597 to 18609
 Federal Register, October 29, 1982: Page 49186

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Figure 1: Sample Schematic Diagram:

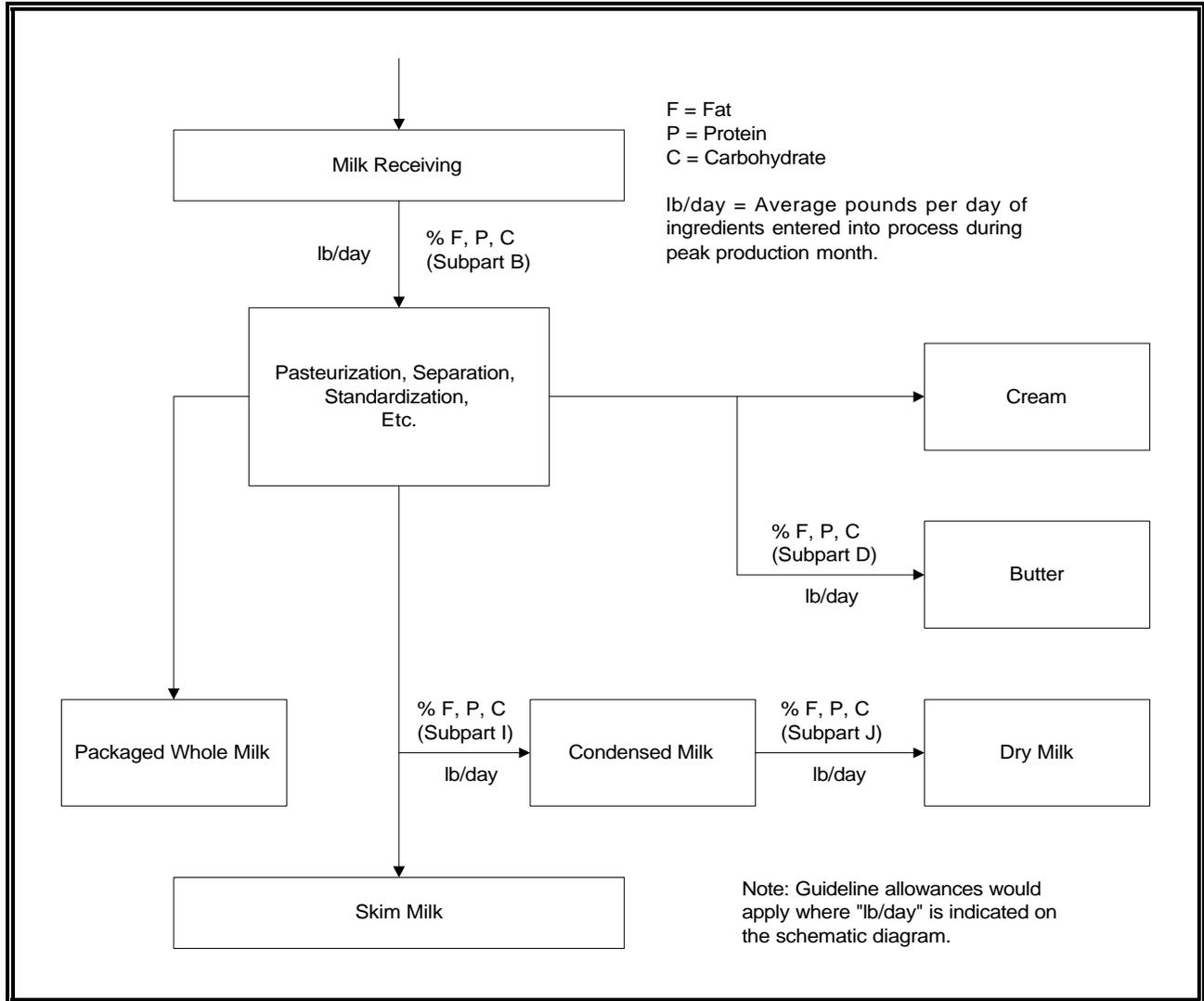


Table 2: Milk (or other raw material) received over past 12 calendar months:

Month	Quantity	Units	Month	Quantity	Units
January:			July:		
February:			August:		
March:			September:		
April:			October:		
May:			November:		
June:			December:		

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 Table 3
 Calculation of BOD₅ and TSS Effluent Limits

Subpart (Note 1)	Subcategory	Ingredient Name (Note 2)	Ingredient Use	F P C (Note 3)			BOD ₅ (Note 4)	BOD ₅ Input (Note 5)	BCT or New Source (as applicable) Effluent Limitations, in lbs/day (Note 6)				
				lb/day	%	%			%	30 Day Average		Daily Maximum	
										BOD ₅	TSS	BOD ₅	TSS
1	2	3	4	5	6	7	8	9	10	11	12	13	

Notes:

1. Complete columns 1 and 2 using the appropriate Subpart and Subcategory names from Table 1 of this supplement.
2. List all ingredients and the quantity used per process, consistent with the information for the highest production month listed in Table 2 of this supplement.
3. List the percent fat (F), protein (P), and carbohydrate (C) of each ingredient. Use information from your own production data, U.S. Ag. Handbook No. 8, "Composition of Food," or other reliable references.
4. $[BOD_5\%] = [0.890 \times \%F] + [1.031 \times \%P] + [0.691 \times \%C]$. Organic acids should be included with Carbohydrates.
5. $[BOD_5 \text{ Input, lb/day}] = [\text{Ingredient Use, lb/day}] \times [BOD_5\%]$
6. $[\text{Effluent Limitations}] = [BOD_5 \text{ Input, lb/day}] \times [\text{Guideline Value}/100]$. Guideline Values are listed in Table 1, Columns 5 through 12 of this supplement.