

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
1 National Life Drive, Main 2
Montpelier, VT 05620-3521

INDIRECT DISCHARGE PERMIT
FACT SHEET

December, 2016

PERMIT NO.: ID-9-0258
APPLICANT: Crowley Cheese
NATURE OF WASTE: Whey and Washwater
DISPOSAL METHOD: Sprayfield
DISPOSAL LOCATION: USGS Mount Holly, VT 7.5' quadrangle map
Latitude N 43° 25' 31.7", Longitude W 72° 47' 17.1"
RECEIVING WATER: Tributary to Branch Brook

DISPOSAL SUMMARY

The following table summarizes the volume of whey and washwater land applied in the permittee's sprayfield from 2006 to present.

Year	# Days Sprayed	Maximum Daily Sprayed (gals)	Total Volume Land Applied (gals)
2006	12	5,000	40,000
2007	13	3,500	40,063
2008	44	4,667	60,935
2009	26	3,063	62,014
2010	35	3,200	87,244
2011	16	2,916	46,656
2012	10	2,916	29,164
2013	3	2,188	5,373
2014	5	2,188	15,752
2015	2	2,188	3,281
2016	14	2,622	14,810

2006 – 2011 figures from September 30, 2016 Water Quality Evaluation. 2012 – 2016 figures as reported in the monthly reports.

WHEY AND WASHWATER QUALITY

The following table summarizes whey and washwater quality based on sampling results of the comingled wastewater for the period June 2006 – October 2016.

Parameter (mg/L)	Samples	Mean	Median	Range
Biochemical Oxygen Demand	18	4,519	3,800	630 – 12,000
Total Suspended Solids	15	1,194	680	130 – 4,445
Total Kjeldahl Nitrogen (TKN)	15	127	130	26 – 300
Ammonia Nitrogen	16	42	27	3.23 – 130
Nitrite/Nitrate Nitrogen	17	2.49	0.20	0.018 – 14.46
Total Phosphorus	17	74	49	1.22 – 370
Total Dissolved Phosphorus	17	61	29	0.96 – 310
Chloride	17	321	210	13 – 970
Sodium	17	248	130	59 – 860
Total Dissolved Solids	16	1,625	890	240 – 5,700
pH (S.U.)	16	4.64	5.02	3.98 – 6.52

LAGOON GROUNDWATER QUALITY

The following table summarizes groundwater quality around the storage lagoon based on groundwater sampling results for the period June 2006 – October 2016.

Parameter (mg/L)	Samples	Mean	Median	Range
Biochemical Oxygen Demand	14	53	6	2.5 – 353
Total Kjeldahl Nitrogen (TKN)	13	1.6	1.1	0.31 – 3.9
Ammonia Nitrogen	14	0.42	0.47	0.09 – 1.0
Nitrite/Nitrate Nitrogen	15	0.22	0.10	0.008 – 0.96
Total Phosphorus	15	1.37	0.88	0.009 – 3.5
Total Dissolved Phosphorus	15	0.177	0.070	0.005 – 0.85
Chloride	15	27	17	6.6 – 105
Sodium	14	14	15	6.2 – 26
Total Dissolved Solids	14	556 ¹	115	44 – 6,182
pH (S.U.)	11	5.86	6.10	5.20 – 6.63

Note #1: Exceeds Groundwater Protection Rule & Strategy Enforcement Standard of 500 mg/L.

SPRAYFIELD GROUNDWATER QUALITY

The following table summarizes groundwater quality downgradient of the sprayfield based on groundwater sampling results for the period June 2006 – October 2016.

Parameter (mg/L)	Samples	Mean	Median	Range
Biochemical Oxygen Demand	18	21	3	2.5 – 146
Total Kjeldahl Nitrogen (TKN)	16	1.9	1.2	0.5 – 9.3
Ammonia Nitrogen	20	0.55	0.50	0.03 – 1.4
Nitrite/Nitrate Nitrogen	24	0.35	0.10	0.004 – 4.1
Total Phosphorus	22	0.46	0.21	0.007 – 3.6
Total Dissolved Phosphorus	25	0.045	0.017	0.005 – 0.51
Chloride	24	21	12	2.5 – 97
Sodium	20	12	10	4.4 – 22
Total Dissolved Solids	19	593 ¹	100	37 – 8,623
pH (S.U.)	16	6.15	6.33	5.69 – 6.74

Note #1: Exceeds Groundwater Protection Rule & Strategy Enforcement Standard of 500 mg/L.

SURFACE WATER QUALITY

No surface water quality monitoring was required by previous indirect discharge permits; therefore, no surface water quality data for the tributary of Branch Brook is available.

PROPOSED ACTION

The Department of Environmental Conservation intends to issue a permit renewal to Crowley Cheese. Odors have been an issue in the past, and additional requirements have been added to the draft permit to address the management of the whey and washwater, including the development of a contingency plan. The draft permit also requires the installation of at least one new groundwater monitoring well to replace an existing one that is typically dry to help assess impacts to groundwater quality around the lagoon.

The results above indicate that the concentration of total dissolved solids in groundwater exceed the Groundwater Protection Rule & Strategy enforcement standard, but the mean value is skewed by one high result from the lagoon site and two high results from the sprayfield site. All other parameters meet groundwater standards.

The permittee is not required to meet the Aquatic Permitting Criteria of the Indirect Discharge Rules for surface water quality because the disposal system is an existing indirect discharge as defined in §14-300 of the Indirect Discharge Rules. Given the low spray application rate and the dilution provided by the tributary to Branch Brook, it is assumed that the Vermont Water Quality Standards are being met.

CHANGES TO THE EXISTING PERMIT

The following substantive changes to indirect discharge permit ID-9-0258 have been made:

1. Condition D6 has been revised to specifically address the disposal of whey and washwater as animal feed.
2. Condition D8 has been added to require the submittal of a whey and washwater management plan for review and approval. The plan shall include a contingency plan for alternative methods of storage and disposal if odors from the lagoon or sprayfield persist at off-site locations.
3. Condition D9 has been added to address odor control.
4. Condition E1 has been revised to require the submittal of an updated quality assurance/quality control plan since the QA/QC Plan referenced in the current permit has not been updated in many years. The updated QA/QC Plan shall include the installation of at least one additional monitoring well around the existing lagoon.
5. Condition E2 has been revised to require whey and washwater sampling on a biannual basis instead of during the months of June and October in case whey and washwater are not discharged to the lagoon during those months.
6. Conditions E5 and E6 have been removed from the permit because surface water and soil sampling can be required by Condition E10. Subsequent permit conditions have been renumbered.
7. New Condition E5 requires the submittal of a monthly report listing the dates and volumes of whey and washwater discharged to the existing lagoon on a daily basis.

Tentative determinations regarding conditions to be included in the pending Vermont Indirect Discharge Permit have been made by the Vermont Agency of Natural Resources, Department of Environmental Conservation. The conditions imposed will assure that the Vermont Water Quality Standards and applicable provisions of 10 V.S.A. Chapter 47 will be met.