

**Agri-Mark, Inc. d.b.a. Cabot Creamery
Polished Permeate Spray Disposal System
2018 Annual Inspection Report
Indirect Discharge Permit # 9-0043**

May 2018

Prepared for:

AGRI-MARK, INC. d.b.a. CABOT CREAMERY

193 Home Farm Way
Waitsfield, VT 05673

Prepared by:

THE JOHNSON COMPANY, INC.

100 State Street
Montpelier, Vermont 05602

May 18, 2018

Mr. Bryan Harrington
Indirect Discharge Section
Drinking Water and Groundwater Protection Division
1 National Life Drive, Main 2
Montpelier, VT 05620-3521

Re: Agri-Mark, Inc. d.b.a. Cabot Creamery, Indirect Discharge Permit # 9-0043
2018 Annual Inspection of Spray System
JCO # 1-0303-1


Dear Mr. Harrington:

As required by Part I, Condition D5 (A) of the referenced permit we submit herewith the engineer's annual inspection report on behalf of Agri-Mark, Inc. As I informed you on April 26, the Inspection was scheduled for that day but was postponed to May 1, 2018 due to inclement weather.

The spray disposal system is generally in good condition and is being well maintained. Should have any questions please feel free to contact me.

Sincerely,

THE JOHNSON COMPANY, INC.

By: 
Joel Behrsing, P.E.
Senior Engineer

cc: Aaron Page; Agri-Mark, Inc. d.b.a. Cabot Creamery (via e-mail)

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1.0 INTRODUCTION

Agri-Mark, Inc. (dba Cabot Creamery) land-applies dairy processing wastewater and washwater under the jurisdiction of the Indirect Discharge Rules in accord with Indirect Discharge Permit #9-0043. Part I of the permit contains conditions specific to the polished permeate spray disposal system. Condition D5 (A) of Part I requires that the spray disposal system be inspected annually during April by a Vermont Registered Professional Engineer and a report on the findings be submitted by July 1st.

On May 1, 2018, Joel Behrsing, P.E. of the Johnson Company performed the spray disposal system inspection. Mr. Behrsing was accompanied during the inspection by Mr. Aaron Page of Agri-Mark's Cabot Creamery. The system was found to be in good overall condition.

2.0 POLISHED PERMEATE SPRAY DISPOSAL SYSTEM DESCRIPTION

The polished permeate is generated by a two-step reverse osmosis treatment of process wastewater. The polished permeate is transferred to one of three earthen storage lagoons. Polished permeate is also utilized for boiler make-up water and in the first step of the CIP (clean-in-place) process. A self-priming centrifugal pump draws from the lowest lagoon and pumps to a spray field valve pit. The three valves in the pit control flow to three different sets of spray-heads located in two spray-fields.

3.0 2018 ANNUAL INSPECTION

The following report is presented in the order of the system process, i.e., beginning at the facility and ending at the spray fields.

3.1 POLISHED PERMEATE TRANSFER SYSTEM

The polished permeate is either directed to one of two 30,000-gallon stainless steel vertical tanks (identified by Cabot as Silos #13 and #14) inside the facility or it is directed to the centrifugal transfer pump. The flow meter for the transfer pump is swapped out annually with a factory calibrated replacement. The current in-place meter was installed in August 2017 following factory calibration. In August 2018 Cabot will install the awaiting the replacement factory calibrated on September 11, 2017.

An air/vacuum release valve on the transfer force main is housed in a concrete manhole with a cast iron cover. The manhole is in good condition. The valve, as observed from above, appears to be in good condition. The manhole appears to be set on free draining crushed stone and no standing water was observed. The manhole is placarded “Confined Space-Entry by Permit Only”

The force main terminates at a concrete surge tank next to the lagoon valve pit. The surge tank riser was placarded with “Confined Space-Entry by Permit Only”. The surge tank discharges to the valve pit and has a vented overflow pipe that discharges to lagoon #1. The concrete valve pit and aluminum hatch are in good condition. Groundwater (2”-3” deep) covers the bottom of the valve pit to the elevation of the drain invert. The valves are labeled with plastic tags corresponding to the lagoon number that they discharge to. The valve pit was placarded with the warning “Confined Space-Entry by Permit Only”.

3.2 POLISHED PERMEATE STORAGE LAGOONS

The polished permeate is stored in three earthen lagoons, with a reported combined capacity of approximately 6.1 million gallons. Staff gauges were in place in each lagoon. Monitor wells around the lagoons are enclosed in protective steel casings.

The force main drain valve and concrete headwall at lagoon #3 appear in good condition. An apparent leak at the drain with the spray pump operating may indicate the drain piping may have partial separated due to movement of the concrete headwall. To facilitate testing of the spray system, the drain valve was not operated. No seeps were noted on the lagoon #3 exterior embankments. The embankment below the area was inspected and no seeps or other signs of piping were observed. Lagoon #2 is in good condition. Brush has been removed from the interior and exterior embankment. No seeps were noted on the lagoon #2 exterior embankments. Lagoon #1 also appears in good condition. No seeps were noted on the lagoon #1 exterior embankments. One area at the southwest corner the sod has been displaced, effectively reducing the embankment height in that area

3.3 SPRAY IRRIGATION DISPOSAL SYSTEM

A wood frame pump house at the northwest corner of lagoon #3 houses the spray irrigation pump and appurtenances. The self-priming centrifugal pump draws the polished permeate from lagoon #3 through a suction hose with a screened end. The 50 HP pump was completely rebuilt this spring including new belts, seals, shaft, bearings, and impeller. A surge relief valve, check valve and isolation gate valve are employed in the pump discharge piping. An electromagnetic type flow meter monitors the pump discharge rate and total gallons. This flow-meter was factory calibrated July 10, 2017 and installed April 25, 2018

The spray system force main terminates at the spray field valve pit. The valve pit is concrete with a weatherproof cover. The cover is in disrepair and should be replaced or rebuilt. Downhill from the valve pit is the spray field drain valve which is in good condition. Each lateral of the spray field was walked. The spray fields have been mowed, are well vegetated and no erosion was noted.

The spray disposal system was operated to inspect the spray heads. During the inspection it was observed that all sprinkler heads were in place (except for one in Field #1 B2) and all were operating properly with the exception of two sprinkler heads with poor spray patterns (Field #1 C1 and Field #2 B5 on attached Figure 1).

4.0 RECOMMENDATIONS

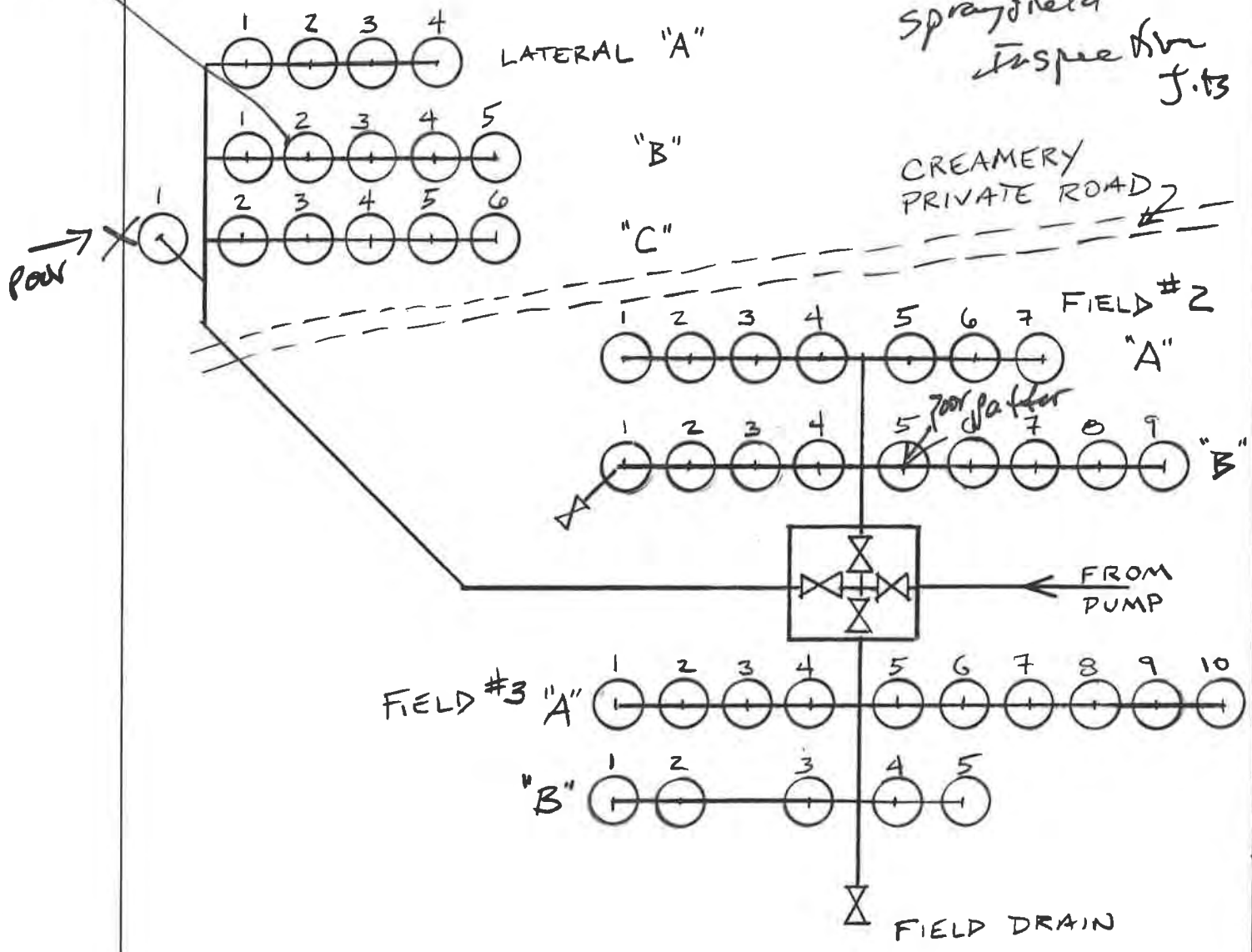
1. Continue mowing and brush cutting activities on the storage lagoons. Inspect and monitor the force main drain headwall for movement. Replace the sod and restore the southwest corner of the embankment at Lagoon #3
2. Continue to maintain an operation log book for the spray irrigation pump system.
3. Install, replace or clean spray heads as needed for proper operation. Periodically observe the spray heads in operation and clean those noted to be improperly functioning.
4. Continue to cut back brush and trim trees around the spray fields.
5. Annually exercise the valves in spray field valve pit.
6. Fix the leak at the spray system drain at Lagoon #3.
7. Replace or repair the cover for the spray field valve pit.

Leaky
Missing
Head

FIELD #1

5/1/2018

Sprayfield
Inspection
J.B.



SPRAY FIELD SCHEMATIC

CABOT CREAMERY COOP. INC.

CHARRETTE

FIGURE 1

THE JOHNSON COMPANY, INC.
 Environmental Sciences and Engineering
 MONTPELIER, VERMONT 05602

Scale	
Drawn by	J.B.
Checked by	
Date	5/94
Dwg No.	