This project was performed by Stone Environmental, Inc. for Agri-Mark Inc., dba Cabot Creamery.

**Prepared for:**
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EXECUTIVE SUMMARY

On May 29, 2015, Stone Environmental Inc. (Stone) conducted a thorough inspection and evaluation of the collection and land application system for the dairy processing wastewater (DPWa) as per Agri-Mark, Inc. dba/ Cabot Creamery, Indirect Discharge Permit (IDP) #9-0043, March 9, 2011 Part II, Condition D4. Overall, the operation, documentation, maintenance and land application of the DPWa was operating extremely well, in excellent condition, and performed in accordance to the conditions and requirements set forth in the IDP. Present during the inspection was Peter Rahn, Quality Assurance (QA) Project Coordinator, Rejean Pion, Waste Treatment Department, and Franz Hislop, Cabot Maintenance. The inspection included following the DPWa from generation to land application, and a full document review. The inspection also included observing the land application of the dairy processing wastewater on to a disposal field. A significant improvement was noted from last year’s inspection:

1. Cabot upgraded their Wash Water Management System and changed their daily procedure to include a route plan for all trucks on duty to ensure that over-application will not occur. These upgrades were the result of an over-application on two fields in 2014. During their daily review of the truck logs, Cabot has added a pre-planning step which includes establishing the land application for the next day (or that day), and keeping a 4000 gallon buffer (1 truck load) on all fields. In addition, Cabot has added alerts to the computer system when a field is nearing application capacity.

2. Also, a cleaning chemical change was made at the end of 2014 where Cabot added Eclipse as an alkaline cleaner to replace Ultra 1030.

There were no findings generated as a result of the inspection which indicated compliance issues; one recommendation/observation was made, which is as follows:

1. The route plan is printed daily for each truck and driver (Exhibit 1) and the driver records his applications on the route plan and in the daily hardcover bound daily log. Since the route plan records the daily applications, observation wells, and daily comments made by the driver, it can serve as the daily record of applications made by the truck and drivers. The inspector recommends eliminating the additional hardbound daily logbook that the driver records their daily applications. For efficiency, the route plans can be scanned and stored, in both hardcopy and electronic, and can serve as the daily logs for all drivers and trucks eliminating having to record the information in two different places. This can eliminate the costly bound books and archived storage of these bound books.
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1. INTRODUCTION

In accordance with Agri-Mark, Inc. dba/ Cabot Creamery, Indirect Discharge Permit (IDP) #9-0043 , March 9, 2011 Part II, Condition D4, Stone conducted a year 2015 inspection and evaluation of the collection and land application system for the dairy processing wastewater (DPWa) at their manufacturing facility, located in Cabot, Vermont. The evaluation and inspection was conducted under the direction of Julie Moore, P.E. of Stone and performed by Kim Watson, RQAP-GLP of Stone on Friday, May 29, 2015. Present during the inspection were Peter Rahn, Rejean Pion and Franz Hislop. Vehicle drivers and Marvin Colburn (back-up for Rejean) were interviewed. The inspection was limited to the collection and land application system for the DPWa (IDP, Part II) and did not pertain to polished permeate disposal (IDP, Part I) or the sanitary wastewater from the facilities. This report documents the objectives, criteria, procedures, findings, observations and recommendations of the inspection.

The DPWa that leaves the plant facility exits the manufacturing building and the cut-and-wrap building via floor drains and flows by gravity to a storage tank (capacity 4,500 gallons) under the pumping station located across the main road from the main Cabot facility. The DPWa is composed of a small quantity of milk, whey spillage, cottage whey rinse water, and the water used to sanitize the trucks, CIP (clean-in-place) lines, and equipment. The pumping station has pumps in tandem and a backup power supply system, which allows for continued operation of the manufacturing facility in the event of temporary pump or grid power failure and an alarm system to alert personnel when the storage tank capacity is about to be exceeded. DPWa is pumped from the pumping station upslope by an underground pipeline to two 100,000 gallon storage tanks, in tandem, located near the Waste Treatment Department garage. A continuous flow meter in the pump house is used to measure the volume of DPWa produced and pumped to the storage tanks. A digital meter in the loading shed records influent and effluent volumes sent to and from the storage tanks. The storage volumes are recorded daily on the washwater storage tank level form submitted in the monthly report using the digital read-out. From the tanks, the DPWa is gravity fed into disposal trucks and disposed of by diffuse land application. A new digital flow meter located in the loading shed controls and records the volume transferred to the disposal vehicles; in addition the strip chart reader documents actual flow into the trucks. The vehicles used for land application are equipped with a high pressure spray nozzle (Big Gun) which distributes the DPWa to the approved disposal fields in a uniform manner.

The inspection of the collection and land application management system, recordkeeping of Daily Journals, and daily wastewater production records are evidence that the dairy process water collection, and dispersal operations performed by Cabot Creamery are functioning very well, are well documented, and are in compliance with the conditions and requirements of the IDP, and associated procedures and guidelines. During the inspection Stone made a specific recommendation to enhance recordkeeping. This is outlined in Section 4 of this report.
2. OBJECTIVES

The objectives of the annual inspection were:

- To make a thorough inspection, evaluation, and report of the collection and land application system.
- To determine whether Cabot Creamery is complying with all monitoring, record keeping, record retention (archiving), and information requirements specified in IDP ID-9-0043-4A.

The inspection included the following:

- Examining the collection system and pump station(s) used to convey the dairy processing DPWa from the production area to the storage tanks;
- Verifying the proper operation of the pump(s) and, if applicable, any alarm systems;
- Examining the tanks and containment structures as well as any leakage detection systems;
- Checking the calibration of flow meters used to determine the volume of DPWa stored in the tanks or verifying, by the review of recent documentation (within the past two years), that the meters are properly calibrated within a 10% tolerance;
- Checking the equipment utilized to fill the spray trucks and observing the procedure utilized to fill the trucks;
- Observing the land application of dairy processing wastewater on disposal fields, and checking the proper operation of the each truck's spray nozzle;
- Checking each vehicle's daily journal for compliance with the requirements of Condition E7; and,
- Noting any necessary repairs, maintenance and/or improvements that should be made to the land application system.

The performance standards or evaluation criteria for the inspection were based on the written IDP #ID-9-0043-4A including Attachment A-1 and A-2, “Approved Disposal Fields” and “Approved Application Rates” and Attachment B “Listing of Manure Pits”. The criteria and procedures set forth in the Vermont Guidelines for Land Application of Dairy Processing Wastes, August 14, 1990.
3. GENERAL OBSERVATIONS

The inspection report is presented in the order of the system process. The inspection was performed in a manner to follow the DPWa process from its origin to distribution as an agricultural soil amendment. The inspection started inside the cheese processing facility, then we moved on to the cut and wrap facility to ensure that all the internal wash water drains were functioning, clean, and clear of any debris. We then went to the pumping station and ended at the truck loading area and garage. The inspection included traveling with truck operators, observing land application of the washwater, and record keeping.

3.1. Pumping Station

The pumping station has two pumps in tandem and a backup power supply (generator) located next to the pump house. Both pumps were operational and working well according to the maintenance log. The main pump comes on when the water level reaches 3.5 feet in the tank and shuts off when the level drops back to 2 feet, with a flow rate of 230 gallons per minute. The second pump comes on when the water level reaches 4 feet and it shuts off when the level drops back to 2 feet; the rate increases to 310 gallons per minute with both pumps on. An alarm system is located at both the pumping station, the processing facility, at the storage tanks and goes off when the water depth in the tank reaches 4.5 feet. DPWa is pumped from the pumping station upslope, by an underground pipeline, to two storage tanks (100,000 gallons each) located near the Waste Treatment Department garage. A continuous flow meter in the pump house measures the volume of DPWa produced and reads the gallon per minute of DPWa pumped to the storage tanks. Observed and operating in parallel to the flow meter is a strip dial, which continuously monitors the gallons pumped per minute.

Cabot Maintenance is responsible for documentation and maintenance of the pumps in the pumping station. A daily journal is kept on the pump maintenance and daily records are kept on the gallons of DPWa produced and pumped to the storage tanks. The total daily volume of DPWa generated is recorded each morning from the digital flow meter located in the pump house and entered into a spreadsheet. The in-line flow meter was replaced on May 22, 2015 with a newly calibrated flow meter. The calibration certificate (Exhibit 2) for the actual meter was traceable to the specific meter in the pumping house.

3.2. Storage Tanks

There are two tanks in tandem which can store a total of up to 200,000 gallons of washwater. The tanks are set inside a lined pit, with a berm on all sides directing rain water to a drain in the center of the pit. This drain connects to the sump under the loading area that drains back to the pump station, which gets pumped back to the storage tanks. The liquid levels in the storage tanks are monitored digitally in the pump house. The DPWa is gravity fed into the disposal vehicles for land application.
3.3. Drivers, Disposal Vehicles and Loading Area (Shed)

Marcel Gravel, Plant Manager, is the contact for regulatory operations in the IDP, and is identified as the Chief Operator of the wastewater system. Pete Rahn has been identified as the lead for system reporting and regulatory review. Day-to-day operation of the Waste Treatment Department is managed by Rejean Pion, Lead Resource Recovery Manager. Mr. Pion is also identified as the Assistant Chief Operator and is a vehicle driver of one of the land application vehicles. Four other drivers hold a Grade I Operator license, so as to have qualified personnel available seven days per week. Mr. Pion was the primary contact interviewed during the inspection along with Peter Rahn. The DPWa storage tank levels are recorded twice daily on the “Wash Water Storage Tank Levels” form as required by the IDP (morning and evening) and are included in the Monthly Disposal Report using the digital system in the loading hut.

Cabot employs six full time drivers and one part time driver. All of the drivers have a Class A or B commercial driver’s license and have annual physicals for medical clearance as required under the Vermont Department of Transportation (DOT) regulations.

The Waste Treatment Department at Cabot maintains a fleet of six disposal vehicles adequate to properly dispose of DPWa through land application, including discharges to manure slurry pits as allowed by IDP Part II–Section D8. Each truck is red (includes Cabot’s phone number), is numbered (trucks, #403, #404, #405, #406, #407 and #408), and has a 4,000 gallon holding tank. Maintenance of the disposal vehicles is performed in-house. Maintenance records are kept on each of the vehicles and recorded in a maintenance log. All vehicles’ inspection was current. Each vehicle’s “Big Gun” high pressure spray nozzle was in good condition, clean and clear. DOT maintenance records were available in all vehicles. The records were filled out on a daily basis and signed by the driver. Daily Journals and standard operating procedure (SOP) manuals were available in every vehicle and reviewed during the inspection. The Daily Journals were compliant with the requirements of Condition E7 of the permit. Drivers were recording their observations more frequently and included the actual groundwater levels next to the well IDs, and the actual pH of the washwater when taken.

The SOP manual available in every vehicle contained appropriate procedural documents including “Land Application of Dairy Processing Wastewater” and the procedure for determining depth to groundwater measurements. Also included in the manuals are site maps of every approved disposal field and overweight permits for the towns involved in the disposal program. The site maps of approved disposal fields provide details regarding the approved acreage for disposal (summer, fall or verified fields), location of observation wells, soil borings, water wells, buildings, slopes, distances and any limitations imposed upon that disposal field such as isolation distances, slope, soils and hydrogeology.

The DPWa is loaded into the disposal trucks by gravity through a controlled flow system within the truck loading area shed. The in-line Seimen flow meter was replaced with a calibrated meter on May 22, 2015. A daily “Remaining Capacity Report” is printed from the Wastewater Management System and is available in the loading shed for the drivers. Daily route plans are provided to each driver so they can
record where they have applied. The Wastewater Management System was up to date and included the upgrades made in March of 2015. The driver can control the amount loaded using an automated volume control and a manual control. A mirror is located on the top of the loading arm which provides a sight-line into the vehicle tank. Each driver is responsible for loading their vehicle and selecting a site for disposal based on the available “Remaining Capacity Report.” Each driver, also, had a “Capacity Report” in their vehicle. Additionally, a strip chart recorder in the pump house records all flow of wastewater into the disposal vehicles.

3.4. Land Application to Approved Disposal Field and Manure Pit

Two land application trips were randomly selected for observation on May 29th, 2015. Land applications were observed with driver Dan Gonyaw in truck #405 and with Dick Trucott in truck #403. Drivers were interviewed during the inspection and the inspector accompanied the driver on the trip to the disposal locations (Russell, Field 131A and Bickford, Field 75B). The drivers chose a field on their route plan, loaded their truck to capacity using the flow control system in the loading shed and traveled to the assigned field. There was no visible standing water in the fields. The wind directions were checked so DPWa spray would not be carried off the spray sites. The DPWa was applied to the field, stationing the truck and setting the gun to achieve a uniform application. The DPWa was sprayed from the vehicle and was moved slowly to cover the appropriate acreage (covering approximately 1/8 acre). The driver recorded the farm name, the field number, the field code, the truck route taken, and the start and stop times of disposal in the bound daily journal in the vehicle and on their route plan. The inspector recommends eliminating the additional hardbound daily logbook that the driver records their daily applications, since the route plan records the daily applications, observation wells, and daily comments made by the driver it can serve as the daily record of applications made by the truck and drivers – see Section 4.

3.5. Data Input, Calculation, and Reporting

Rejean Pion was interviewed regarding the input, calculation, and reporting of DPWa management data. Peter Rahn enters field data from IDP Attachment A-2 and B into the Wastewater Management System database regarding the landowner and address, usable acreages, application rates, seasonal gallons available for application, and description codes. Two new fields in the Stowe area were added in 2014. Mr. Pion and Mr. Rahn ensure that the data in the Wash Water Data Management System is accurate and up to date.

Mr. Pion, or his designee, enters the daily disposal data from the route plan into the database daily. Due to an over application on two fields in 2014, as a corrective action Cabot upgraded their Wash Water Management System and changed their daily procedure to include a route plan. The route reports are prepared by Mr. Pion or his designee daily prior to the start of the days applications. Additionally, Mr. Pion provides daily oversight to the drivers and their fleet of disposal vehicles. Mr. Rahn follows up the
entry with a quality control check of the entered data and oversees the regulatory procedures. Mr. Rahn prepares the required regulatory reports to the State which are reviewed and signed off on by Marcel Gravel.

Monthly disposal reports are submitted as required under Part II–Section E9 of the IDP and the April 2015 Monthly report was available during the inspection. An annual report is submitted to the Secretary of the Agency of Natural Resources, per Part II–Section E10.

According to Pete Rahn there was a notice of violation in the last year which resulted from an over-application of two fields. As a corrective action, Cabot upgraded their Wash Water Management System and changed their daily procedure to include a route plan for all trucks as noted above. In addition, alerts were added to the computer system which are triggered when a field is nearing capacity. Mr. Rahn also noted in 2014 that the cleaning chemical was changed to Eclipse as an alkaline cleaner to replace Ultra 1030 (MSDS, Exhibit 3).

3.6. Inspection Compliance Checklist

A completed Inspection Compliance Checklist is provided in Appendix A of this report and Appendix B (Exhibit 4). The checklist includes one column with each of the requirements outlined in the IDP and a second column with the inspection requirement and its location as discussed in this report.
4. FINDINGS AND RECOMMENDATIONS

The collection and land application system for the DPWa is operating very well, is well documented, and within the terms and conditions set forth in Part II of the IDP. Operations management is adequate, well organized, and well-liked by the staff. The drivers were knowledgeable and competent, and understood the restrictions and limitations for land application as outlined in the permit and the state guidelines. There were no findings generated as a result of the inspection which indicated compliance issues. There was a single recommendation/observation made to for efficiency in record keeping which is as follows:

1. The route plan is printed daily for each truck and driver (Exhibit 1) and the driver records his applications on the route plan and in the daily hardcover bound daily log. Since the route plan records the daily applications, observation wells, and daily comments made by the driver it can serve as the daily record of applications made by the truck and drivers. The inspector recommends eliminating the additional hardbound daily logbook that the driver records their daily applications. For efficiency, the route plans can be scanned and stored, both in hardcopy and electronic, and serve as the daily logs for all drivers and trucks eliminating having to record the information in two different places. This can eliminate the costly bound books and their archived storage.
## APPENDIX A: INSPECTION COMPLIANCE CHECKLIST

<table>
<thead>
<tr>
<th>Indirect Discharge Permit Inspection Item</th>
<th>2015 Inspection Report Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. examination of the collection system and pump station(s) used to convey the dairy processing wastewater from the production to the storage tanks;</td>
<td>Section 3.1</td>
</tr>
<tr>
<td>b. verification of the proper operation of the pump(s) and, if applicable, any alarm systems;</td>
<td>Section 3.1</td>
</tr>
<tr>
<td>c. examination of the tanks and containment structures as well as any leakage detection systems;</td>
<td>Sections 3.1, 3.2</td>
</tr>
<tr>
<td>d. checking the calibration of flow meters used to determine the volume of dairy processing wastewater stored in the tanks or verifying, by the review of recent documentation (within the past two years), that the meters are properly calibrated within a 10% tolerance:</td>
<td>Sections 3.1, 3.2 and 3.6</td>
</tr>
<tr>
<td>e. checking the equipment utilized to fill the spray trucks and observing the procedure utilized to fill the trucks:</td>
<td>Section 3.3</td>
</tr>
<tr>
<td>f. observing the land application of dairy processing wastewater on disposal fields, and checking the proper operation of the each truck's spray nozzle;</td>
<td>Section 3.4</td>
</tr>
<tr>
<td>g. checking each vehicle’s daily journal for compliance with the requirements of Condition E7, (Daily Journal).</td>
<td>Section 3.3 and 3.4</td>
</tr>
<tr>
<td>h. noting any necessary repairs and maintenance and/or improvements that should be made to the land application system.</td>
<td>Section 4 and Executive Summary</td>
</tr>
</tbody>
</table>
APPENDIX B: EXHIBITS 1 - 4
Spray Date: 04/23/15

**ROUTE PLAN**

NUMBER: 194

Vehicle: 406
FREIGHTLINER, CORNADO SD, TANKER
Capacity: 4000

Driver: 22
HARVEY LYON

Own/Loc/Code: 116 A YR HARVEY LYON
Rte: ___/___ Start/End: ____/____
Number of Trips: ___

Rte: ___/___ Start/End: ____/____

Driver Comments: ____________________________

Own/Loc/Code: 110 B YR JOHN SPRAGUES
Rte: ___/___ Start/End: ____/____
Number of Trips: ___

Rte: ___/___ Start/End: ____/____

Driver Comments: ____________________________

Own/Loc/Code: 88 A YR DOUGLAS NELSON, JR
Rte: ___/___ Start/End: ____/____
Number of Trips: ___

Rte: ___/___ Start/End: ____/____

Driver Comments: ____________________________

Own/Loc/Code: 88 B YR DOUGLAS NELSON, JR
Rte: ___/___ Start/End: ____/____
Number of Trips: ___

Rte: ___/___ Start/End: ____/____

Driver Comments: ____________________________

Own/Loc/Code: 105 A YR JEFF SIMPSON
Rte: ___/___ Start/End: ____/____
Number of Trips: ___

Rte: ___/___ Start/End: ____/____

Driver Comments: ____________________________

**Alt** Own/Loc/Code: 88 C YR DOUGLAS NELSON, JR
Rte: ___/___ Start/End: ____/____
Number of Trips: ___

Rte: ___/___ Start/End: ____/____

Driver Comments: ____________________________

**Alt** Own/Loc/Code: 96 A YR ROBERT RIENDEAU
Rte: ___/___ Start/End: ____/____
Number of Trips: ___

Rte: ___/___ Start/End: ____/____

Driver Comments: ____________________________

Driver: ____________________________

Spray Date: ____________
## SIEMENS MAGFLO® Verification Certificate

### Customer:
- **Name:** Twnico Corp
- **Address:** 145 Ellicot Rd
  - West Falls, NY
- **Phone**
- **Email**

### MAGFLO® Identification:
- **TAG No./Name:** 0
- **Sensor Code No.:** 083Z6985
- **Sensor Serial No.:** 099631T462
- **Transmitter Code No.:** 7ME692
- **Transmitter Serial No.:** 093730U151
- **Location**

### Results:
- **Verification file name or No. Transmitter Sensor Insulation Magnetic Circuit**
- **File #5**
  - Passed
  - Passed
  - Passed

<table>
<thead>
<tr>
<th>Velocity</th>
<th>Theoretical</th>
<th>Current Output</th>
<th>Frequency Output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theoretical</td>
<td>Actual</td>
<td>Deviation</td>
</tr>
<tr>
<td>0.5m/s</td>
<td>4.800mA</td>
<td>4.802mA</td>
<td>0.20%</td>
</tr>
<tr>
<td>1.0m/s</td>
<td>5.600mA</td>
<td>5.602mA</td>
<td>0.14%</td>
</tr>
<tr>
<td>3.0m/s</td>
<td>8.800mA</td>
<td>8.796mA</td>
<td>-0.07%</td>
</tr>
</tbody>
</table>

**Current Output: 4-20mA**  
**Frequency Output: 0-10kHz**

### Transmitter Settings:
- **Basic**
  - Qmax.: 500,000 US G /min
  - Flow Direction: Positive
  - Low flow Cut-off: 1.50%
  - Empty Pipe: OFF
- **Output**
  - Current Output: OFF
  - Time Constant: Off
  - Relay Output: N/A
  - Error Level: N/A
  - Digital Output: OFF
  - Frequency Range: N/A
  - Time Constant: N/A
  - Volume/pulse: 0.0 US G/p
  - Pulse width: 0.066 sec.
  - Pulse polarity: Positive

### Sensor Details:
- **Size:** DN 150 6 IN
- **Cal. Factor:** 18.21900068
- **Correction Factor:** 1.0
- **Excitation Freq.:** 7.5Hz

### Verificator Details (083F5061)
- **Serial No.:** 101415N400
- **Device No.:** 90952
- **Software Version:** 1.40
- **PC Software Version:** 5.01
- **Cal. date:** 2013.08.20
- **ReCal. date:** 2014.08.20

### Comments:

These tests verify that the flowmeter is functioning within 2% deviation of the original test parameters.

Verification is traceable to National and International Standards.

Date and signature

2014.06.11  J. McFarland
**SIEMENS**

**Process Instrumentation and Analytics**

**RMA No:** 47006000583  
**Serial No:** 099631T462  
**Reference No:** 3900092250

**Reason for return:**  
VERIFICATOR CERTIFICATION

**VISUAL INSPECTION**

Does returned unit represent above model number?  
☐ YES  ☑ NO  
If not, list discrepancies:  
Select Condition:  ☑ OK  
Cracked  
Stained/Water Residue  
Display  
Electrical Terminals  
Burnt  
Process Threads  
Other:

Are Process Connections Clogged or Pneumatic Ports Dirty?  
☐ NO  ☑ YES  
Select the type of blockage:  
DEBRIS  FLUID

**FUNCTIONAL TESTS**

<table>
<thead>
<tr>
<th>Pass</th>
<th>Fail</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

- Mechanical Adjustments:  
- Power Up:  ☑
- Push Button:  ☑
- Menu Operation:  ☑
- Calibration/Verifier (mag): ☑
- Process Threads: ☐
- Input/Output signal response: ☑

**ANALYSIS**

All Device functions:

PERFORM CHECKS WITH OHM METER ON COIL AND ELECTRODES FOR READINGS AND SHORTS. OK
PERFORM VERIFICATOR TEST ON DANFOSS(08326985) UNIT PASSED WITH NO PROBLEMS. WILL
SUPPLY CERTIFICATE OF TEST RESULTS.

**CORRECTIVE ACTION**

No corrective action taken. Unit passed test

**ADDITIONAL COMMENTS**

Any additional problems, contact Tech Support.

Valid Warranty Claim:  ☑ NO  ☑ YES  Technician:  
SAFETY DATA SHEET

ECLIPSE NO. 285
Product ID: FP028500
Revised: 09-10-2013
Replaces: 11-10-2009

1. IDENTIFICATION

Product Name: ECLIPSE NO. 285
Synonyms: L0001563A
CAS Number: MIXTURE
Recommended Use: No data available.
Restrictions on Use: No data available.

Hydrite Chemical Co.
300 N. Patrick Blvd.
Brookfield, WI 53008-0948
(262) 792-1450

EMERGENCY RESPONSE NUMBERS:
24 Hour Emergency #: (414) 277-1311
CHEMTREC Emergency #: (800) 424-9300

2. HAZARD(S) IDENTIFICATION

Signal Word: Danger
GHS Classification: Substance or mixture corrosive to metals Category 1
Skin Corrosion/Irritation Category 1B
Serious Eye Damage/Eye Irritation Category 1
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1

Hazard Statements: May be corrosive to metals.
Causes severe skin burns and eye damage.
Causes damage to organs (respiratory system by inhalation).

Precautionary Statements:
Prevention: Keep only in original container.
Do not breathe dust, fume, gas, mist, vapours or spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear gloves, eye and face protection and protective clothing.

Response: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.
Specific treatment (see First Aid on SDS or on this label).
Wash contaminated clothing before reuse.
Absorb spillage to prevent material damage.

Storage: Store in a secure manner.

Page 1 of 7
ECLIPSE NO. 285  
Product ID: FP028500

Store in corrosive resistant container with a resistant inner liner.

Disposal: Dispose of in accordance with local, regional and international regulations.

Hazards Not Otherwise Classified: Reacts with most metals to form explosive/flammable hydrogen gas. May react violently with water. May react with various food sugars to form carbon monoxide.

Percentage of Components with Unknown Acute Toxicity:
Oral: 23.3 %  
Dermal: 20.5 %  
Inhalation Vapor: 34.6 %  
Inhalation Dust/Mist: 22.3 %

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>% by Wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>1310-73-2</td>
<td>&lt; 20 %</td>
</tr>
<tr>
<td>Tetrasodium EDTA</td>
<td>64-02-8</td>
<td>&lt; 15 %</td>
</tr>
<tr>
<td>Proprietary</td>
<td></td>
<td>&lt; 5 %</td>
</tr>
</tbody>
</table>

4. FIRST-AID MEASURES

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention. Washing eyes within several seconds is essential to achieve maximum effectiveness. Do not attempt to neutralize with chemical agents. Oils or ointments should not be used at this time. Remove contact lenses after the first 5 minutes and continue flushing.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Do not reuse clothing and shoes until cleaned. If skin feels slippery, caustic may still be present in sufficient quantities to cause rash or burn. Continue washing skin until slick feeling is gone. Do not apply oils or ointments unless ordered by the physician. Discard footwear which cannot be decontaminated. Discard contaminated leather articles such as shoes and belt.

Inhalation: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration, preferably mouth-to-mouth. GET MEDICAL ATTENTION IMMEDIATELY. Symptoms of pulmonary edema can be delayed up to 48 hours after exposure.

Ingestion: If fully conscious, drink a quart of water. DO NOT induce vomiting. CALL A PHYSICIAN IMMEDIATELY. If unconscious or in convulsions, take immediately to a hospital or a physician. NEVER induce vomiting or give anything by mouth to an unconscious victim. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. If vomiting occurs spontaneously, keep airway clear and give more water.

Note to Physicians:
The absence of visible signs or symptoms of burns does not reliably exclude the presence of actual tissue damage. Probable mucosal damage may contraindicate the use of gastric lavage. There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

Most Important Symptoms/Effects:
Eye Contact: CORROSIVE-Causes severe irritation and burns.
Skin Contact: CORROSIVE-Causes severe irritation and burns.
Inhalation: CORROSIVE-Causes severe irritation and burns.
Ingestion: CORROSIVE-Causes severe irritation and burns.

5. FIRE-FIGHTING MEASURES
Extinguishing Media: Not combustible. For fires in area use appropriate media. For example: Water spray. Dry chemical. Carbon dioxide. Foam.

Fire Fighting Methods: Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-Approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers, but avoid getting water into containers. Product generates heat upon addition of water, with possible spattering. Run-off from fire control may cause pollution.

Fire and Explosion Hazards: Product may react with some metals (ex.: Aluminum, Zinc, Tin, etc.) to release flammable hydrogen gas.


## 6. ACCIDENTAL RELEASE MEASURES

Spill Clean-Up Procedures: CORROSIVE MATERIAL. Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit. Contain spill, place into drums for proper disposal. Neutralize remaining residue with dilute Hydrochloric Acid solution and dispose of properly. Flush remaining area with water to remove trace residue and dispose of properly. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs. CAUTION: This product may react violently with acids and water.

## 7. HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. CORROSIVE MATERIAL. Avoid dust or mist formation. Add product very slowly while stirring constantly. If product is added too rapidly or without stirring and becomes concentrated at the bottom of the mixing vessel, excessive heat may be generated resulting in dangerous boiling and spattering and possible immediate violent eruption of highly caustic solution.

Storage: CORROSIVE MATERIAL. Store in a cool, well ventilated area, out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers. Highly corrosive to most metals with evolution of hydrogen gas. Do not freeze. Do not expose sealed containers to temperatures above 104 Deg. F. Deadly carbon monoxide gas can form in enclosed or poorly ventilated areas or tanks when alkaline products contact food, beverage, or dairy products. Do not enter such areas until they have been well ventilated and carbon monoxide and oxygen levels have been determined to be within OSHA acceptable limits. If carbon monoxide and oxygen levels cannot be measured, wear NIOSH-approved, self-contained breathing apparatus. See Section 10 for incompatible materials.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**OSHA Exposure Guidelines:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>2 mg/m3 TWA</td>
</tr>
</tbody>
</table>

**ACGIH Exposure Guidelines:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>2 mg/m3 Ceiling</td>
</tr>
</tbody>
</table>

**Engineering Controls:** General room ventilation and local exhaust are required. Avoid creating dust or mist. Maintain adequate ventilation. Do not use in closed or confined spaces. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly. NOTE: Where carbon monoxide may be generated, special ventilation may be required.

**Eye/Face Protection:** Wear chemical safety goggles and a full face shield while handling this product. Do not wear contact lenses.
Skin Protection: Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: Chemical-resistant. Impervious.

Respiratory Protection: Respiratory protection must be worn if ventilation does not eliminate symptoms or keep levels below recommended exposure limits. If exposure limits are exceeded, wear: NIOSH/MSHA-Approved organic vapor/mist respirator. NIOSH-Approved Supplied Air Respirator (SAR). NIOSH-Approved self-contained breathing apparatus. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

Other Protective Equipment: Eye-wash station. Safety shower. Rubber apron. Rubber boots. Protective clothing. NOTE: The above protective equipment is listed for exposure to this product at full strength. When using this product at the recommended use dilution of up to 4 oz/gal, wearing rubber gloves and safety glasses are acceptable precautionary measures.

General Hygiene Conditions: Wash with soap and water before meal times and at the end of each work shift.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid.
Color: Clear. Light yellow.
Odor: Sharp odor.
Odor Threshold: N.D.

pH: 13.20 (as is)
Freezing Point (deg. F): N.D.
Melting Point (deg. F): N.D.
Initial Boiling Point or Boiling Range: N.D.
Flash Point: NONE.
Flash Point Method: N.A.
Evaporation Rate (nBuAc = 1): N.D.
Flammability (solid, gas): N.D.
Lower Explosion Limit: N.D.
Upper Explosion Limit: N.D.
Vapor Pressure (mm Hg): N.D.
Vapor Density (air=1): N.D.
Specific Gravity or Relative Density: 1.3008 @ 25C
Solubility in Water: Soluble
Partition Coefficient (n-octanol/water): N.D.
Autoignition Temperature: No Data
Decomposition Temperature: N.D.
Viscosity: N.D.
% Volatile (wt%): N.D.
VOC (wt%): N.D.
VOC (lbs/gal): N.D.
Fire Point: N.D.

### 10. STABILITY AND REACTIVITY

Reactivity: No data available.

Chemical Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur under normal conditions.
Sodium hydroxide can induce hazardous polymerization of acetaldehyde, acrolein, and acrylonitrile. Contact with water may cause violent reaction with evolution of heat. To dilute: Add product slowly to lukewarm water; not water to product. Contact with acid or incompatible materials may cause a violent reaction with evolution of heat. May react with certain metals to produce flammable hydrogen gas. Contact with acids, halogenated organics, organic nitro compounds, glycols, or sodium tetrahydroborate may produce flammable hydrogen gas. Contact
ECLIPSE NO. 285
Product ID: FP028500

with 1,2-dichloroethylene, trichloroethylene, tetrachloroethane, or phosphorous can form spontaneously flammable chemicals. Reactions with various food sugars may form carbon monoxide.

Conditions to Avoid: Avoid moisture. Avoid extreme temperatures. Keep away from incompatibles.


11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Component</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>No Data</td>
<td>Rabbit: 1350 mg/kg</td>
<td>No Data</td>
</tr>
</tbody>
</table>

**Acute Toxicity Estimate (ATE):**

- **Oral:** 3,120 mg/kg
- **Dermal:** 7,123 mg/kg
- **Inhalation Vapor:** 20.9408 mg/L
- **Inhalation Dust/Mist:** 5.0399 mg/L

**Routes of Exposure:** Eyes. Skin. Inhalation. Ingestion.

**Eye Contact:** CORROSIVE-Causes severe irritation and burns. Small amounts may cause: blistering, disintegration, scarring, clouding, ulcerations, permanent eye damage. Blindness. Corneal damage. Mist may cause: irritation. High mist concentrations may cause: tissue destruction. Glaucoma and cataracts are possible late developments. Effects may vary depending on length of exposure, solution concentration and first aid measures.

**Skin Contact:** CORROSIVE-Causes severe irritation and burns. Corrosive action causes burns and frequently deep ulceration with ultimate scarring. Note that irritation may follow an initial latency. The latency may vary as much as hours for dilute solutions to minutes for more concentrated solutions. Prolonged contact, even with dilute concentrations, can cause tissue destruction and permanent skin damage.

**Skin Absorption:** No data available.

**Inhalation:** CORROSIVE-Causes severe irritation and burns. Dusts or mists may irritate: nose. mouth. throat. respiratory tract. Dusts or mists may cause damage to the: upper respiratory tract. lungs. May cause: coughing, sneezing. running nose. sore throat. shortness of breath. wheezing. tightness of the chest. chest pain. choking. impaired lung function. pneumonia. pulmonary edema. Effects may be delayed.

**Ingestion:** CORROSIVE-Causes severe irritation and burns. May cause damage to the: mouth. throat. stomach. esophagus. gastrointestinal tract. Ingestion can cause severe burns and complete tissue perforation of the mucous membranes of the mouth, throat and stomach. May be fatal if swallowed. May cause: abdominal pain. nausea. vomiting. diarrhea. bleeding. fall in blood pressure. shock. collapse. gastrointestinal ulceration. Damage may appear days after exposure. Aspiration into the lungs may occur during ingestion or vomiting resulting in mild to severe pulmonary injury and possibly death.

**Medical Conditions Aggravated by Exposure to Product:** Skin disorders. Lung disorders. Cardiovascular disorders. Eye disorders. Respiratory system disorders.

**Other:** Birth Defects/Developmental Effects: EDTA and its sodium salts have been reported to cause birth defects in laboratory animals only at exaggerated doses that were toxic to the mother. These effects are likely associated with zinc deficiency due to chelation.
12. ECOLOGICAL INFORMATION

Ecotoxicological Information: No data available.
Chemical Fate Information: No data available.

13. DISPOSAL CONSIDERATIONS

Hazardous Waste Number: D002
Disposal Method: Dispose of in a permitted hazardous waste management facility following all local, state and federal regulations. DO NOT pressurize, cut, weld, solder, drill, grind or expose empty containers to heat, flame, sparks or other sources of ignition. Since emptied containers retain product residue, follow label warnings even after container is emptied. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

14. TRANSPORT INFORMATION

DOT (Department of Transportation):
Identification Number: UN3266
Proper Shipping Name: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (CONTAINS SODIUM HYDROXIDE)
Hazard Class: 8
Packing Group: II
Label Required: CORROSIVE
Reportable Quantity (RQ): 1000# (Sodium Hydroxide).

15. REGULATORY INFORMATION

TSCA Inventory Status: All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

SARA Title III Section 311/312 Category Hazards:
<table>
<thead>
<tr>
<th>Immediate (Acute)</th>
<th>Delayed (Chronic)</th>
<th>Fire Hazard</th>
<th>Pressure Release</th>
<th>Reactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Regulated Components: | CAS | CERCLA | SARA | SARA | U.S. | WI | Prop |
----------------------|-----|--------|------|------|------|----|------|
Hydroxide             | 1310-73-2 | Yes | No | No | No | Yes | No |

*Prop 65 - May Contain the Following Trace Components:
Nickel
Arsenic
Mercury
Lead
1,4-Dioxane
Propylene Oxide
Ethylene Oxide
This product may contain other chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

16. OTHER INFORMATION

Hazard Rating System
The data in this Material Safety Data Sheet relates to the specific material designated and does not relate to its use in combination with any other material or process. The data contained is believed to be correct. However, since conditions of use are outside our control it should not be taken as warranty or representation for which HYDRITE CHEMICAL CO. assumes legal responsibility. This information is provided solely for your consideration, investigation, and verification.
GENERAL IDP INSPECTION-CHECKLIST
May 2015

Auditor: Kim B. Watson, RQAP-GLP, Professional Engineer: Julie Moore, P.E. Stone Environmental, Inc.

Audit Date: May 29, 2015

Agri-Mark, Inc. dba Cabot Creamery, Cabot Creamery Facility, Cabot Vermont
Indirect Discharge Permit Inspection

Personnel Interviewed:

Peter Rahn  Rejean Pion
Franz Hislop  Marvin Colburn

Regulatory Documents Compliance: IDP Permit No. ID-9-0043-4A: March 9, 2011
VT Guidelines for Land Application of Dairy Processing Wastes
Others:

WASTE PROCESS OPERATIONS – INDIRECT DISCHARGE OF DAIRY PROCESSING WASTEWATER PROCESSING

PART II, III – Type of Waste- Dairy Processing water: may contain, whey spillage, cottage (acid)whey, cottage rinse water, water used to clean the lines and equipment.

<table>
<thead>
<tr>
<th>Indirect Discharge Permit Inspection Item</th>
<th>REF/Other</th>
<th>Y/N</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. examination of the collection system and pump station(s) used to convey the dairy processing wastewater from the production are to the storage tanks;</td>
<td>Section D4</td>
<td>Y</td>
<td>Check all drains in Processing plant &amp; Cured Wrap</td>
</tr>
<tr>
<td>b. verification of the proper operation of the pump(s) and, if applicable, any alarm systems;</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>c. examination of the tanks and containment structures as well as any leakage detection systems;</td>
<td></td>
<td>Y</td>
<td>Cust.</td>
</tr>
<tr>
<td>d. checking the calibration of flow meters used to determine the volume of dairy processing wastewater stored in the tanks or verifying, by the review of recent documentation (within the past two years), that the meters are properly calibrated within a 10%</td>
<td></td>
<td>Y</td>
<td>Metro Calibrations attached</td>
</tr>
<tr>
<td>Question</td>
<td>REF/Other</td>
<td>Y/N</td>
<td>Comments</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-----------</td>
<td>-----</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>tolerance:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. checking the equipment utilized to fill the spray trucks and observing the procedure utilized to fill the trucks:</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>f. observing the land application of dairy processing wastewater on disposal fields, and checking the proper operation of the each truck's spray nozzle;</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>g. checking each vehicle's daily journal for compliance with the requirements of Condition E7, (Daily Journal).</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>h. noting any necessary repairs and maintenance and/or improvements that should be made to the land application system.</td>
<td></td>
<td>Y</td>
<td>NEW cleaning Chemical ECLIPSE</td>
</tr>
</tbody>
</table>

Note: New Route Plan. CAPA & improvements noted for violations. Recommend replacing bound daily logs w/ daily Route Plans - Can be scanned printed electronically.