SPILL PREVENTION REPORT (SPR) FOR HAZARDOUS SUBSTANCE STORAGE SYSTEMS

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1.0 INTRODUCTION

The New York State Department of Environmental Conservation (NYSDEC) has regulations regarding the bulk storage of chemicals or, as they are referred to in the regulations, hazardous substances. These regulations are known as the Chemical Bulk Storage (CBS) Regulations. These regulations set forth requirements for the following:

- Reporting of hazardous substance releases;
- Establishing a list of hazardous substances;
- Registering storage tanks which contain hazardous substances;
- Regulating the sale and delivery of hazardous substances;
- Regulating the handling and storage of hazardous substances to protect the public health, safety, welfare, and the environment of the state; and
- Establishing standards for all new storage CBS tank systems, and additions or replacements to existing storage tank systems.

1.1 Regulatory Authority

The CBS regulations are identified as Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Parts 595 through 599, as follows:

- 6 NYCRR Part 595: Releases of Hazardous Substances - Reporting, Response and Corrective Action
- 6 NYCRR Part 596: Hazardous Substances Bulk Storage Regulations
- 6 NYCRR Part 597: List of Hazardous Substances
- 6 NYCRR Part 598: Handling and Storage of Hazardous Substances
- 6 NYCRR Part 599: Standards for New or Substantially Modified Hazardous Substance Storage Facilities

In accordance with 6 NYCRR Parts 596.1(b) and 598.1(k), regulated hazardous substance storage facilities for which a Spill Prevention Report (SPR) must be prepared include those which have storage tanks that meet one or more of the following requirements:

- An aboveground storage tank with a capacity of 185 gallons or greater of hazardous substance(s) **or**
- Any underground storage tank of hazardous substance(s) or mixture thereof of any capacity **or**
- A non-stationary tank with a capacity of 2,200 pounds or greater of hazardous substance(s) or mixture thereof stored on-site for 90 consecutive days or more.

Cricket Valley Energy Center, LLC will own and operate the Cricket Valley Energy Center (CVEC), which will utilize aboveground storage tanks that are regulated by the NYSDEC pursuant to the CBS regulations. CVEC will not utilize underground storage tanks for hazardous substances or mixtures of any capacity.

1.2 Purpose

This SPR addresses the chemical bulk storage tanks and associated systems, and the spill prevention and spill response measures at the CVEC facility. The purposes of this SPR are to:

1. Summarize the programs implemented to prevent the discharge of hazardous substances to the environment; and,
2. Prepare for the response to any unplanned releases of hazardous substances.

In the event that spills or accidental discharges occur, this SPR provides procedures for reporting such spills and accidental discharges to state and local agencies, and presents the framework for a response program. CVEC's personnel will be trained and prepared to respond immediately to spills below the reportable quantity established in the CBS regulations which are contained. They will also receive training regarding the management of larger spills, for which CVEC will utilize a spill response contractor to secure the source, contain the spilled material, and if necessary, clean up the impacted areas.

Table 1 provides a cross-reference between the relevant 6 NYCRR 595-599 requirements and the content of this SPR.

Table 1: SPR Cross-Reference

Regulatory Reference 598.1	SPR Reference	Description
(k)(2)i	Appendices A and B	Current Registration Application and Certificate
(k)(2)ii	Section 2.1	Management Approval
(k)(2)iii	Figure 2	Site Plan
(k)(2)iv	Section 2.2	Name and Signature of the Professional Engineer Licensed in New York State who Prepared the Report
(k)(2)v	Section 3.4	Summary of Releases During Past 5 Years
(k)(2)vi	Section 4.0	Identification and Assessment of Causes of Releases
(k)(2)vii	Appendix D	Compliance Status
(k)(2)viii	Section 5.2 and Appendix G	Inspections
(k)(2)ix	Section 9.0	Financial Responsibility
(k)(2)x	Section 6.0	Spill Response Plan
(k)(3)	Not Applicable See Section 10.0	Discussion and Assessment of Equivalent Equipment, Method or Practice
(k)(4)	Not Applicable to Cricket Valley Energy Center	Site Assessment and Findings
598.4(b)(7)	Section 11.0	Written Procedures for the Prevention of Mixing of Incompatible Substances

2.0 SPR ADMINISTRATION

2.1 Management Approval and Designated Person (6 NYCRR 598.1(k)(2)(ii))

This SPR has been prepared in accordance with good engineering practices and has the full approval and support of CVEC management at a level of authority to commit the necessary resources as may be required to protect public health, safety and the environment.

CVEC's management acknowledges any compliance deficiencies identified in Section 5 of this report and is committed to taking immediate action to correct those deficiencies. The SPR has the full approval and support of the management of this facility and will be implemented as described herein.

Authorized CVEC Representative (Facility Manager):

Signature: _____ Name :_____

Title: Facility Manager Date: _____

2.2 Professional Engineer Certification (6 NYCRR 598.1(k)(2)(iv))

I certify that I have acquired through education and/or related practical experience, knowledge of the physical sciences, technology and principle of storing and handling hazardous substances as it relates to this facility.

I, being familiar with the provisions of 6 NYCRR Parts 595, 596, 597, 598 and 599, attest that this spill prevention report has been prepared in accordance with the requirements therein.

Professional Engineer's Name: _____ License No. _____

Signature _____ Date: _____

Seal:

This certification in no way relieves the owner or operator of the CVEC facility of his/her duty to prepare and fully implement this SPR in accordance with the requirements of 6 NYCRR 595-599.

2.3 SPR Review and Record of Amendments (6 NYCRR 598.1(k)(1))

This SPR has been reviewed and approved by CVEC management. The SPR will be reviewed at least annually, but also whenever a significant release occurs or there is a substantial modification to the facility that may affect the potential for a hazardous substance spill or release. SPR updates must be recorded in the List of Amendments to the Spill Prevention Report Form included below:

List of Amendments to the Spill Prevention Report

Cricket Valley Energy Center, CBS Number TBD

Chemical Spill Prevention Report
Review/Comment Form Page ___ of ___

Location: _____

SPR Revision Number	Date	Reviewed By (Management)	Reviewed By (Responsible Individual)	Approved By

Results of Review: No Changes Required _____

Comments/Changes Required _____

Section Number	**Revision Justification**

2.4 Location of SPR

A complete copy of this SPR is maintained at the CVEC facility and is available, 24 hours each day and 7 days each week. At least one Cricket Valley Energy Center, LLC employee or representative is always on-site.

2.5 Facilities, Procedures, Methods, or Equipment Not Yet Fully Operational

The CBS tank systems and their associated appurtenances have not been constructed to date and, therefore, are not fully operational at the CVEC facility. CBS tank systems to be constructed in the future are identified in Section 3.3.

3.0 FACILITY INFORMATION (6 NYCRR 598.1(k)(1))

The CVEC facility described in this SPR is under the primary responsibility of the "Operator" as indicated on this page. All questions relating to this SPR or the CVEC facility should be directed to the "Primary Contacts" listed below.

3.1 General Facility Information

Name:	Cricket Valley Energy Center, LLC
Address:	2241 Route 22 Dover, NY Fax: TBD
Primary Contacts:	TBD, Facility Manager Phone: TBD TBD, Deputy Facility Manager Phone: TBD
Type:	Natural Gas Powered Electric Generating Facility
Date of Initial Operations Of Oil Storage Systems:	(Anticipated) September 2015 (ASTs)
Owner/Operator:	Cricket Valley Energy, LLC 31 Milk Street, Suite 1001 Boston, MA 02109
Primary Contact:	Bob De Meyere Phone: 617-456-2200

3.2 Site Location

The CVEC site consists of approximately 131 acres and is bounded by a Consolidated Edison Company of New York 345-kilovolt transmission line right-of-way to the north, New York State Route 22 to the east, generally undeveloped property to the south and the Swamp River to the west. Construction of the CVEC is anticipated to commence at the end of 2012 and operation is anticipated to begin 36 months later at the end of 2015. The location of the site is shown on Figure 1- Project Location Map.

3.3 Site Description

The CVEC facility consists of the Administrative and Warehouse Building, Turbine Generator Building, Gas Insulated Switchgear (GIS) Switchyard Building, three air cooled condensers (ACCs), Water Treatment Building, and fin fan cooler. The majority of the chemicals stored at the site which are subject to the CBS regulations are used to support the pollution reduction and environmental controls at the CVEC facility. The stored materials are components of facility systems which treat raw water and airborne discharges, and address facility wastewaters to facilitate reuse and recycling without discharge. Bulk storage systems subject to the requirements of the SPR regulations include: two 30,000-gallon 19% aqueous ammonia tanks, three 200-gallon 19% aqueous ammonia totes, a 3,500 gallon 15% sodium hypochlorite tank, and a 3,500-gallon 37% hydrochloric acid tank. The facility also has storage for 3% potassium permanganate, 40% ferric chloride, and 25% sodium hydroxide. If these three chemicals are stored in four 55-gallon drums, the CBS regulations are not applicable. If they are stored in 200-gallon totes, the CBS regulations are applicable. For this SPR, they are assumed to be stored in 200-gallon totes. The facility will also use a corrosion inhibitor containing cyclohexylamine and hydrazine.

Aqueous ammonia, sodium hypochlorite, hydrochloric acid, potassium permanganate, ferric chloride, sodium hydroxide and two compounds in the corrosion inhibitor are listed in 6 NYCRR Part 597, "List of Hazardous Substances." CVEC will register the bulk storage systems with the NYSDEC using the application included in Appendix A. The NYSDEC's registration certificate, required under 6 NYCRR 596.2, is included as Appendix B. Registration is required prior to delivery of any chemicals or mixtures thereof to the bulk storage tank systems. This application will be completed submitted to the NYSDEC following the facility's design and construction phases.

3.4 Previous Operational Spills (6 NYCRR 598.1(k)(2)(v))

6 NYCRR Part 598.1(k)(2)(v) requires a summary description of releases occurring in the last five years which are required to be reported under state or federal law to be included in the SPR. Since this is a newly constructed facility, no previous reportable or non-reportable chemical spills or releases have occurred. A reportable quantity (RQ) is a spill

or release which exceeds the chemical-specific thresholds established by the NYSDEC. Thus, spills or releases in excess of this number must be reported to the NYSDEC. The RQs for chemical mixtures will vary depending upon the concentration of the regulated chemical in the mixture. The reportable quantities for the chemicals stored at the CVEC facility, as determined from 6 NYCRR 597, are identified in Table 2. Table 2 also identifies the calculated number of gallons of each chemical to be stored at the CVEC facility, at its actual concentration, which will equal the reportable quantity.

Table 2: NYSDEC Reportable Quantities for Hazardous Chemicals, Cricket Valley Energy Center

Chemical Name	**Chemical Abstract Service Number (CAS #)**	**Reportable Quantity (pounds of regulated chemical)**	**Gallons of the Mixture of the Chemical at the Concentration to be Stored at the CVEC Which Equal the RQ**
15% Sodium Hypochlorite	7681-52-9	100	66
37% Hydrochloric Acid	7647-01-0	100	27
19% Aqueous Ammonia	1336-21-6	100	69
3% Potassium Permanganate	7722-64-7	100	390
40% Ferric Chloride	7705-08-0	100	21
25% Sodium Hydroxide	1310-73-2	100	41
Corrosion Inhibitor: Cyclohexylamine Hydrazine	 108-91-8 302-01-2	1	1,388

In the event of a chemical release, spill response and countermeasures will be conducted by appropriate CVEC personnel if the release is below the RQ and contained in a containment structure. If the release is larger or requires environmental remediation, appropriate personnel will contact a nearby qualified spill response contractor retained to provide emergency response and remedial services.

All spills must be recorded in this SPR. For each spill event, a CVEC Spill Incident Form, contained in Appendix C, should be completed and a copy retained in Appendix C. Spills that meet or exceed the NYSDEC's reportable quantity must be reported to the NYSDEC and recorded in Table 3 – Table of Reportable Releases. If during the annual SPR review, it has been determined that there were no reportable releases during the prior 12 months, the reviewer must sign and date the certification statement provided on Table 3.

Table 3: Cricket Valley Energy Center Table of Reportable Releases

		NYSDEC Facility CBS No.TBD				
Date of Release	**Chemical Released**	**Estimated Quantity (Lbs. & Gallons)**	**Type of Release**	**Cause of Release**	**Corrective Actions**	**Signature of Facility Manager**

I certify that, to the best of my knowledge and belief, there are no reportable releases during the previous year.

Signature: _____

Printed Name: _____ Date: _____

Title: _____

Spills which are below the NYSDEC's RQs as defined in 6 NYCRR 597, known as non-reportable spills, should also be documented in the SPR to enable assessment of incident patterns to facilitate improvements in system management which may be appropriate for implementation . These should be recorded in Table 4 - Table of Non-Reportable Releases.

Table 4: Cricket Valley Energy Center Table of Non-Reportable Releases

		NYSDEC Facility CBS No.TBD				
Date of Release	**Chemical Released**	**Estimated Quantity (Lbs. & Gallons)**	**Type of Release**	**Cause of Release**	**Corrective Actions**	**Signature of Facility Manager**

3.5 Chemical Bulk Storage Tanks (6 NYCRR 599.8, 599.11, and 599.18)

The chemical bulk storage tanks located at the CVEC facility conform to applicable design requirements set forth in 6 NYCRR Part 599.8. Installation of these tanks shall conform to applicable requirements set forth in 6 NYCRR Part 599.11. Compliance checklists for the bulk storage tank systems are included as Appendix D.

The CBS tanks that will be utilized for the storage of regulated hazardous substances are located aboveground and within secondary containment structures. The tanks will be equipped with high level alarms, level gauges, and secondary containment leak detection. Storage tanks will also be equipped with appropriate venting, pressure, vacuum, and thermal monitoring in accordance with 6 NYCRR Part 599.18. When construction is completed, the tanks will be inspected by a qualified inspector as required in 6 NYCRR 599.11(f).

Table 5 summarizes the characteristics of the chemical bulk storage tanks located at the facility. Figure 2 - Site Plan shows the layout of the facility and details of the storage tank systems.

Table 5: Summary of Chemical Bulk Storage Tanks, Cricket Valley Energy Center

Tank /Tote No.	Registration No.	Location	Contents	Capacity (gallons)	Material	Orientation	In Service?
TBD	TBD	One aboveground tank, south side of facility	19% aqueous ammonia tank	30,000	Steel	TBD	No
TBD	TBD	One aboveground tank, south side of facility	19% aqueous ammonia tank	30,000	Steel	TBD	No
TBD	TBD	Three aboveground totes, west of Turbine Generator Building	19% aqueous ammonia totes	200 each	TBD	TBD	No
TBD	TBD	One aboveground tank, Water Treatment Building	15% sodium hypochlorite tank	3, 500	TBD	TBD	No
TBD	TBD	One aboveground tank, Water Treatment Building	37% hydrochloric acid tank	3,500	TBD	TBD	No
TBD	TBD	Three aboveground totes, Turbine Generator Building	3% potassium permanganate totes	200 each	TBD	TBD	No
TBD	TBD	One aboveground tote, Water Treatment Building	40% ferric chloride tote	200	TBD	TBD	No
TBD	TBD	Three aboveground totes, Turbine Generator Building	25% sodium hydroxide totes	200 each	TBD	TBD	No
TBD	TBD	aboveground	Corrosion inhibitor tote	200	TBD	TBD	No

3.6 Piping Systems (6 NYCRR 599.13 and 599.16)

Piping systems that transport chemicals throughout the CVEC facility will comply with applicable design requirements set forth in 6 NYCRR Part 599.13 and installation requirements set forth in 6 NYCRR Part 599.16. When construction is completed, the system will be inspected by a qualified inspector in accordance with 6 NYCRR Part 599.16.

3.7 Spill Containment (6 NYCRR 599.9)

Secondary containment for the chemical storage tanks located at the CVEC facility is provided through concrete containment curbs and dikes and conform to applicable design requirements set forth in 6 NYCRR Part 599.9.

4.0 SPILL POTENTIAL

4.1 Tank Failure/Spill Scenarios (6 NYCRR 598.1(k)(2)(x))

The potential spill pathway for the hazardous substance tanks and loading areas at the CVEC facility have been evaluated in accordance with the requirements of 6 NYCRR 598.1(k)(2)(x).

This evaluation predicts the possible spill pathways in the event of a chemical spill, if left uncontrolled, emanating from a tank leak or occurring during tank filling operations. Engineered spill countermeasures are described where present. Figure 3 - Predicted Direction of Potential Spills depicts the predicted spill directions for the hazardous substance storage tanks.

The potential causes of spills, the volume of material likely to be spilled, and the probability occurrence for a specific spill mechanism are variable. The most common types of chemical spills are small (less than the NYSDEC reportable quantity. These types of spills would be contained by secondary containment equipment and structures.

The layout of the CVEC facility is such that any spills resulting from tank filling will be contained within transfer station or tank secondary containment structures.

Technical guidance and recommended practices for proper handling and storage, included on Material Safety Data Sheets (MSDSs) provided by the chemical manufacturer are provided in Appendix E for the hazardous substances stored at the CVEC facility.

Table 6 summarizes predicted spill mechanisms and the procedures that are to be implemented to minimize the possibility of a discharge to the environment resulting from an uncontrolled spill.

Table 6: Cricket Valley Energy Center Potential Spills - Prediction and Control

Source	Major Type of Failure	Total Quantity of Potential Spill (gals)	Direction of Flow	Secondary Containment/ Other Controls
19% Aqueous Ammonia Storage Tanks	Tank overfill or rupture	30,000	Contained in concrete containment area.	Routine inspections. Tanks are located within concrete containment area. Tank level gauge. High-level alarms.
	Hose rupture	Dependent on flow	Contained in concrete containment area.	Routine inspections. Minor leak/spill at fill connection contained within secondary containment.
	Delivery truck rupture	3,000	Contained in containment area.	Supervised filling.
Aqueous Ammonia, Potassium Permanganate, Ferric Chloride, Sodium Hydroxide and Corrosion Inhibitor Storage Totes	Tote overfill or rupture	200	Contained in concrete containment area.	Routine inspections. Totes are located within concrete containment area. Level gauge.
	Hose rupture	Dependent on flow	Contained in concrete containment area.	Routine inspections. Minor leak/spill at fill connection contained within secondary

Source	Major Type of Failure	Total Quantity of Potential Spill (gals)	Direction of Flow	Secondary Containment/ Other Controls
				containment.
	Delivery truck rupture	3,000	Contained in containment area.	Supervised filling.
15% Hypochlorite	Tank overfill or rupture	3,500	Contained in concrete containment area.	Routine inspections. Tanks are located within concrete containment area. Tank level gauge. High-level alarms.
	Hose rupture	Dependent on flow	Contained in concrete containment area.	Routine inspections. Minor leak/spill at fill connection contained within secondary containment.
	Delivery truck rupture	3,000	Contained in containment area.	Supervised filling.
37% Hydrochloric Acid	Tank overfill or rupture	3,500	Contained in concrete containment area.	Routine inspections. Tanks are located within concrete containment area. Tank level gauge. High-level alarms.
	Hose rupture	Dependent on flow	Contained in concrete containment area.	Routine inspections. Minor leak/spill at fill connection contained within secondary containment.

Source	Major Type of Failure	Total Quantity of Potential Spill (gals)	Direction of Flow	Secondary Containment/ Other Controls
	Delivery truck rupture	3,000	Contained in containment area.	Supervised filling.
Piping	Leaking Joints	Dependent on flow	Secondary containment provided by containment structures, building floor or double walled containment piping.	Routine inspections. Secondary containment.
Pumps	Leak	Dependent on flow	Secondary containment provided by containment structures or building floor.	Routine inspections. Secondary containment.

4.2 Surface Drainage

The CVEC facility utilizes a system of secondary containment structures to prevent any liquid runoff from areas with chemical bulk storage or handling from leaving the site. All liquid from areas with chemical bulk storage or chemical handling is collected in secondary containment structures and either removed by a response contractor or piped to an oil/water separator. Captured oil and chemicals from the separator are disposed of at a permitted off-site disposal facility, and the water is recycled to the facility's raw water system. No uncontrolled flow of contaminated water will leave the facility.

4.3 Overfill Protection

All ASTs are equipped with overfill prevention valves, level alarms and tank level gauges.

5.0 SPILL PREVENTION

5.1 Tank Truck Loading/Unloading Areas (6 NYCRR 598.1(k)(2)(x))

The layout of the facility is such that any spills resulting from tank filling will either be contained within loading area secondary containment structures or tank secondary containment structures. The product transfer protocols are provided in Appendix F**.**

5.2 Inspections (6 NYCRR 598.7)

6 NYCRR 598.7 requires routine inspections of aboveground storage tank systems in order to detect any leaks or malfunctions as soon as possible. The regulations outline daily, monthly, annual and 5-year inspection requirements. As per 6 NYCRR 599.10, visual inspections may also serve as the system for monitoring leakage between the tank bottom and the secondary containment system. These inspections are performed at the CVEC facility. Inspection forms and a copy of the NYSDEC's CBS Inspection Checklist are included in Appendix G.

5.2.1 Daily Inspections (6 NYCRR 598.7(a))

Daily visual inspections are conducted by the operator of the systems containing the chemical bulk storage tanks to detect any spills and leaks, to confirm that all drain valves are closed (if present and not in use) and to ensure that there are not any unpermitted discharges. All problems or deficiencies discovered during daily inspections should be corrected at that time (if it is safe and possible to do so) and reported to the Facility Manager for his information, records and further action, if required.

5.2.2 Monthly Inspections (6 NYCRR 598.7(b))

Monthly release detection inspections are required for any aboveground tank or combination of aboveground tanks, whose volume of which is ten percent or more beneath the surface of the ground and any aboveground tank with cathodic protection systems. There are no components of the systems at the CVEC facility that meet these criteria; therefore, monthly inspections are not required.

5.2.3 Annual Inspections (6 NYCRR 598.7(c))

A comprehensive annual inspection of each chemical bulk storage tank system is required to be performed. Completed annual inspection forms are maintained by the owner and are to be included in Appendix G of the SPR.

5.2.4 Five-Year Inspections (6 NYCRR 598.7(d))

Five-year inspections are performed in accordance with recognized industry standards for aboveground piping systems and aboveground tanks. Inspections are conducted by qualified personnel in a manner that is consistent with the appropriate standards. Completed five-year inspection forms are maintained by the owner and are to be included in Appendix G of the SPR.

5.3 Record Keeping (6 NYCRR 598.8)

Reports of the annual inspections are maintained for five years. Reports of the five year inspections are to be kept for ten years. Records of visual inspections are maintained by CVEC personnel on-site. All inspection reports must include the following information, as required by 6 NYCRR Part 598.8:

- Facility registration number;
- Identification number for equipment tested or inspected;
- Date of test or inspection;
- Results of test or inspection, including report on the condition of piping, tanks, and ancillary equipment, including expected life of service and need for repair;
- Test and inspection method used (e.g., visual inspection, dye penetration, x-ray);
- Certification by the inspector that the inspection was performed in accordance with the regulatory requirements of Part 598;
- Statement of the inspector's qualifications; and
- Name, business address and signature of the engineer or technician.

5.4 Personnel Training and Discharge Prevention Procedures (6 NYCRR 598.1 (k))

In accordance with 6 NYCRR Part 598.1 (k)(2)(x), annual drills are required for spill response. Drills for response to reasonably spills of less than the RQ are conducted at the

CVEC facility by facility personnel. Annual drills will be coordinated with emergency responders as necessary

Chemical-handling personnel receive spill prevention and operations training upon hire. Training includes an overview 6 NYCRR Part 598 regulations and this SPR. Chemical-handling personal also receive an annual refresher course to assure adequate understanding of the SPR, and to discuss any changes to the SPR. Also, discharges or failures that have occurred, or issues with previously-malfunctioning components will be identified and discussed. Training records for facility personnel are maintained in Appendix H.

5.5 Maintenance and Repair of Facilities (6 NYCRR 598.9)

If an inspection indicates that the continuation of operations would result in a release or that the storage tank systems, or any portion thereof, are inadequate or not tight, then operations will be immediately modified or discontinued, until such inadequacy is rectified.

6.0 SPILL RESPONSE (6 NYCRR 598.1(k)(2)(x))

Releases are defined as any leaking, discharging or spilling. Releases associated with the chemical storage tanks will be contained in the secondary containment structures. Any releases less than reportable quantities, as identified in Section 3.4, will be managed by CVEC personnel. If a release exceeds the RQ quantity or is more complex than the CVEC personnel are equipped to manage, a local spill response contractor will be called. Released substances must be removed from secondary containment areas within 24 hours of the release event.

Some spill response equipment is present at strategic locations at the CVEC facility. A list of this equipment is included in Appendix I. This equipment may be deployed in response to releases from the CBS systems. Spill responders, such as the appropriate CVEC personnel or personnel from the spill response contractor that may be called on-site in response to a chemical spill, will use the appropriate spill response equipment to control and clean up released chemicals. Spill response materials will only be used under qualified supervision.

Notification and reporting procedures are outlined in Section 7.0.

7.0 SPILL REPORTING (6 NYCRR 598.1(k)(2)(x))

Employee Responsibilities

Any release from a regulated chemical bulk storage system must be immediately reported to:

- CVEC personnel or other that are or may be in immediate danger,
- Emergency 911, if the incident requires emergency responders, and
- The Facility Manager.

When a spill is reported to the Facility Manager and emergency responders, the following information should be given:

- Site where the release has occurred.
- Name, position and telephone number of the caller.
- The time of the release.
- The projected duration of the release.
- The estimated quantity of the release.
- Assessment of whether it will impact the surrounding community.
- Site weather conditions, including wind speed and direction.

Facility Manager's Responsibilities

The Facility Manager will then take the appropriate actions, including the following:

- Determine if the release is reportable and report the release within 2 hours to NYSDEC.
- Activate spill response resources through either facility personnel or a spill response contractor.
- Arrange for supervision of the spill response contractor on-site.
- Initiate investigation into the cause of the release (no later than 48 hours following the incident).

A Spill Incident Form, as contained in Appendix C, shall be prepared to document the event.

Emergency Responder's Information

In the event the emergency responders are contacted, the reporting individual will provide the following information to the Emergency Response Agency:

Entrance to Facility:	**2241 Route 22, Dover, NY**
Facility Phone Number:	**___-___-____ or appropriate call back number**
Nature of Business:	**Natural Gas Powered Electric Generating Facility**
Nature of Emergency:	**Provide a brief summary of what has happened and identify any known chemical releases, fires or injuries**
Acute or Chronic Health Risks:	**See Material Safety Data Sheets (MSDSs) in Appendix E.**
Incident Commander (IC):	**The IC's name, location, phone number, mobile phone number, pager number or radio frequency. The individual in charge of the incident is the IC.**

Emergency Phone Numbers

Name/Title	**Phone Number**
FACILITY MANAGERS CONTACTS	
TBD	TBD
OTHER CONTACTS	
NYSDEC Spill Hotline	(800) 457-7362
NRC (USEPA and US Coast Guard)	(800) 424-8802
Environmental Protection Agency, Region 2	(212) 637-3660
Fire/Police Department	911
Spill Contractor Name TBD	TBD

8.0 COMPLIANCE WITH 6 NYCRR PARTS 596, 598 AND 599 (6 NYCRR 598.1(k)(2)(vii))

Sub-section 598.1(k)(2)(vii) of the CBS regulations requires that the SPR includes an evaluation for compliance with 6 NYCRR Parts 596, 598 and 599.

A site review will be performed when construction of the CVEC facility is completed. This will include observations of chemical bulk storage tank systems in order to evaluate the compliance of the tanks with the regulations set forth by NYSDEC. The findings of this review and assessment for those applicable requirements of Parts 596, 598 and 599 will be provided in Appendix D. Any actions required at the CVEC facility to obtain full compliance with these regulations will be identified. A column is provided to allow for the responsible party to record when these actions have been completed.

Annual reviews of aboveground storage tank systems for compliance with Parts 598 and 599 are mandated in sub-section 598.7(c)(2)(v). Annual evaluations are in the form of the annual inspections, as discussed in Section 5 and provided in Appendix G.

Upon the CVEC facility's full compliance with the regulations, the box titled "DATE OF FULL COMPLIANCE WITH 6 NYCRR PARTS 596, 598 & 599" should be completed and signed.

9.0 FINANCIAL RESPONSIBILITY (6 NYCRR 598.1(k)(2)(ix))

Cricket Valley Energy Center, LLC will obtain insurance which meets the requirements for financial responsibility identified in 6 NYCRR Part 598.11. If requested by the NYSDEC, Cricket Valley Energy Center, LLC will demonstrate financial responsibility for corrective action and for operating, maintaining or closing storage tanks at the CVEC facility.

10.0 DISCUSSION AND ASSESSMENT OF EQUIVALENT EQUIPMENT, METHOD AND PRACTICE (6 NYCRR 598.1(l))

The chemical bulk storage tank systems at the CVEC facility have been designed and constructed in accordance with the regulatory requirements of 6 NYCRR Part 595-599. Since the systems are in compliance with these regulatory requirements, and equivalent equipment, methods or practices will not be utilized, demonstration or determination of equivalency for the systems, or components thereof, is not necessary. Therefore, discussion and assessment of equivalent equipment, methods or practices, is not required for the chemical bulk storage tank systems located at the CVEC facility.

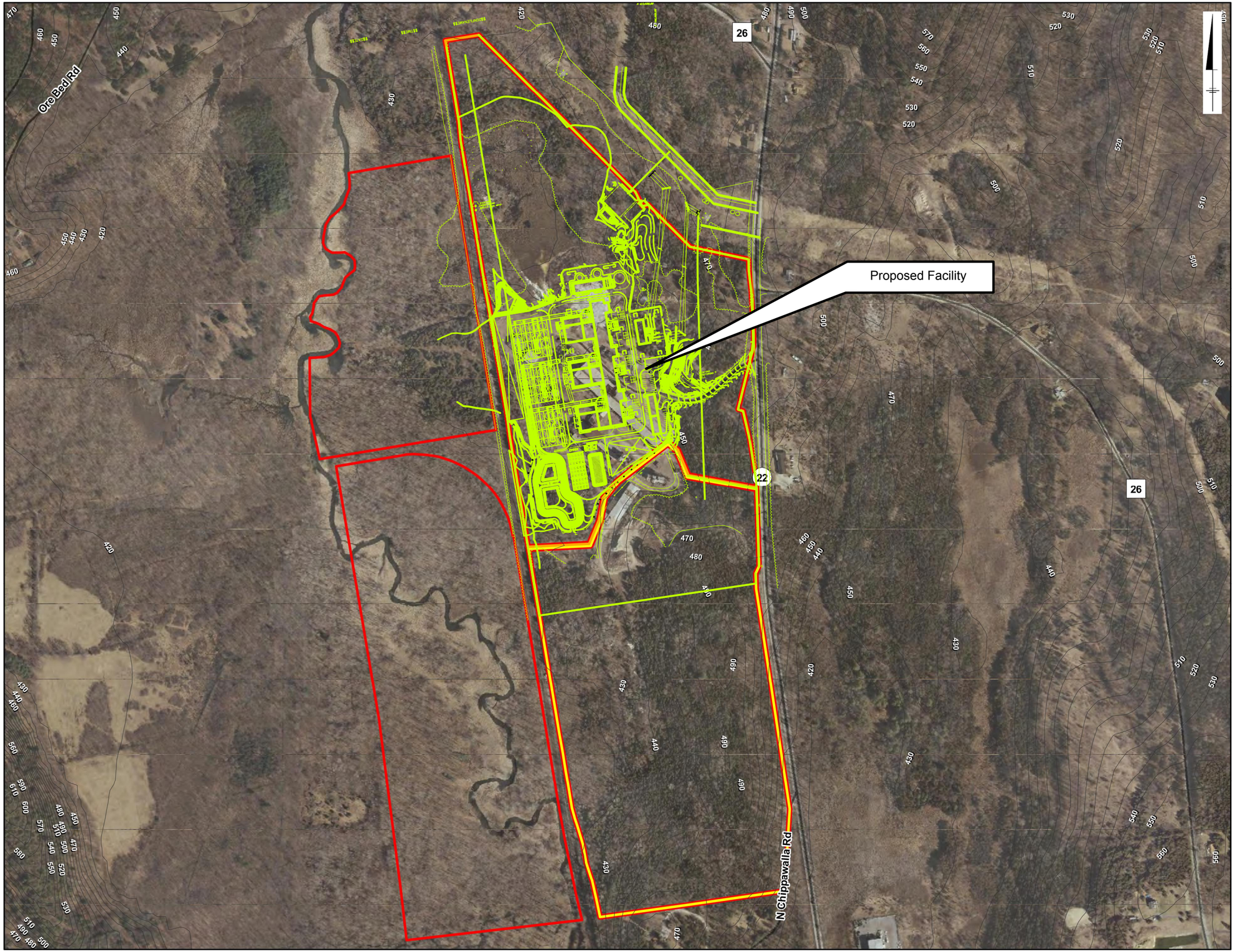
11.0 WRITTEN PROCEDURE FOR PREVENTING THE MIXING OF INCOMPATIBLE SUBSTANCES (6 NYCRR 598.4(b)(7))

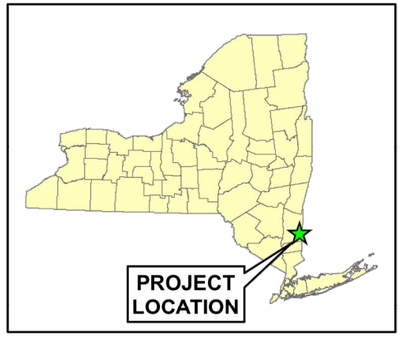
The CVEC facility has developed and implemented specific written procedures that dictate the appropriate action to be taken during the transfer of chemicals. These written procedures, which are provided in Appendix F, minimize the possibility of the transfer of a substance to the wrong tank.

Cricket Valley Energy Center
Dover, New York
Spill Prevention Control and Countermeasure Plan

Figures

User: Hausmann Spec: PIRNIE STANDARD File: G:\ACAD\PROJ\MA001146.0013\SPCC FIGURES\FIGURE 1.DWG Scale: 1:1 Date: 06/04/2012 Time: 14:57 Layout: Blank





Legend

- Project Development Area
- Former Rasco Property
- Property
- Elevation Contour - 10ft

SOURCE:
2009 Dutchess County Color Infrared Orthoimagery obtained from NYS GIS Clearinghouse.
http://www.nysgis.state.ny.us/gateway/mg/2004/dutchess/

0 500 1,000
Feet

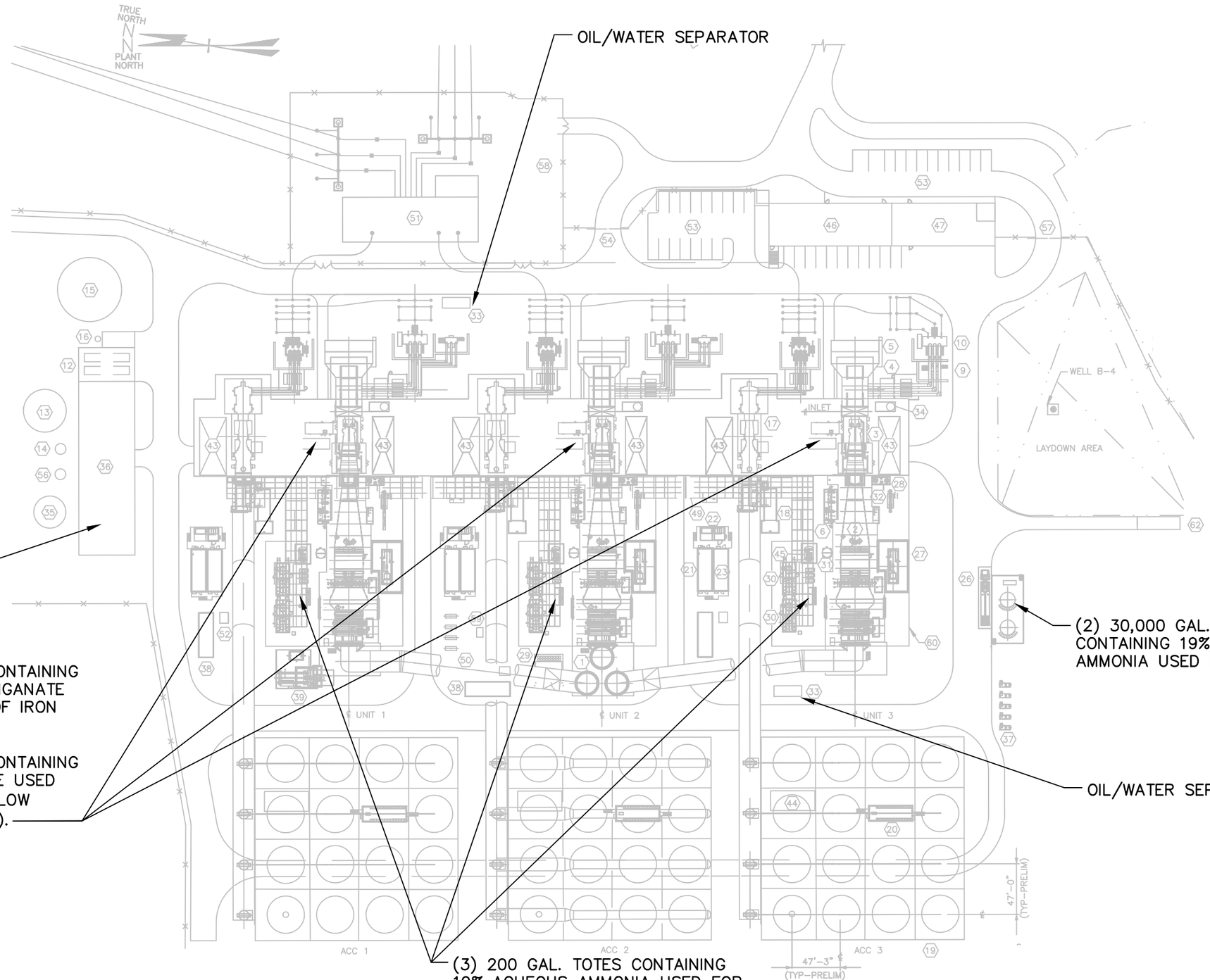
ARCADIS

CRICKET VALLEY ENERGY

FIGURE 1

PROJECT LOCATION MAP

Town of Dover, Dutchess County, New York



SOURCE: DRAWING M-210, GENERAL ARRANGEMENT POWER ISLAND PLANT CREATED BY BURNS & ROE ENTERPRISES, INC. 8-4-10

ARCADIS Infrastructure · Water · Environment · Buildings

CRICKET VALLEY ENERGY
TOWN OF DOVER, DUTCHESS COUNTY, NEW YORK
SPILL PREVENTION REPORT (SPR)

SITE PLAN

SCALE: 1"=100'

JUNE 2012

FIGURE 2

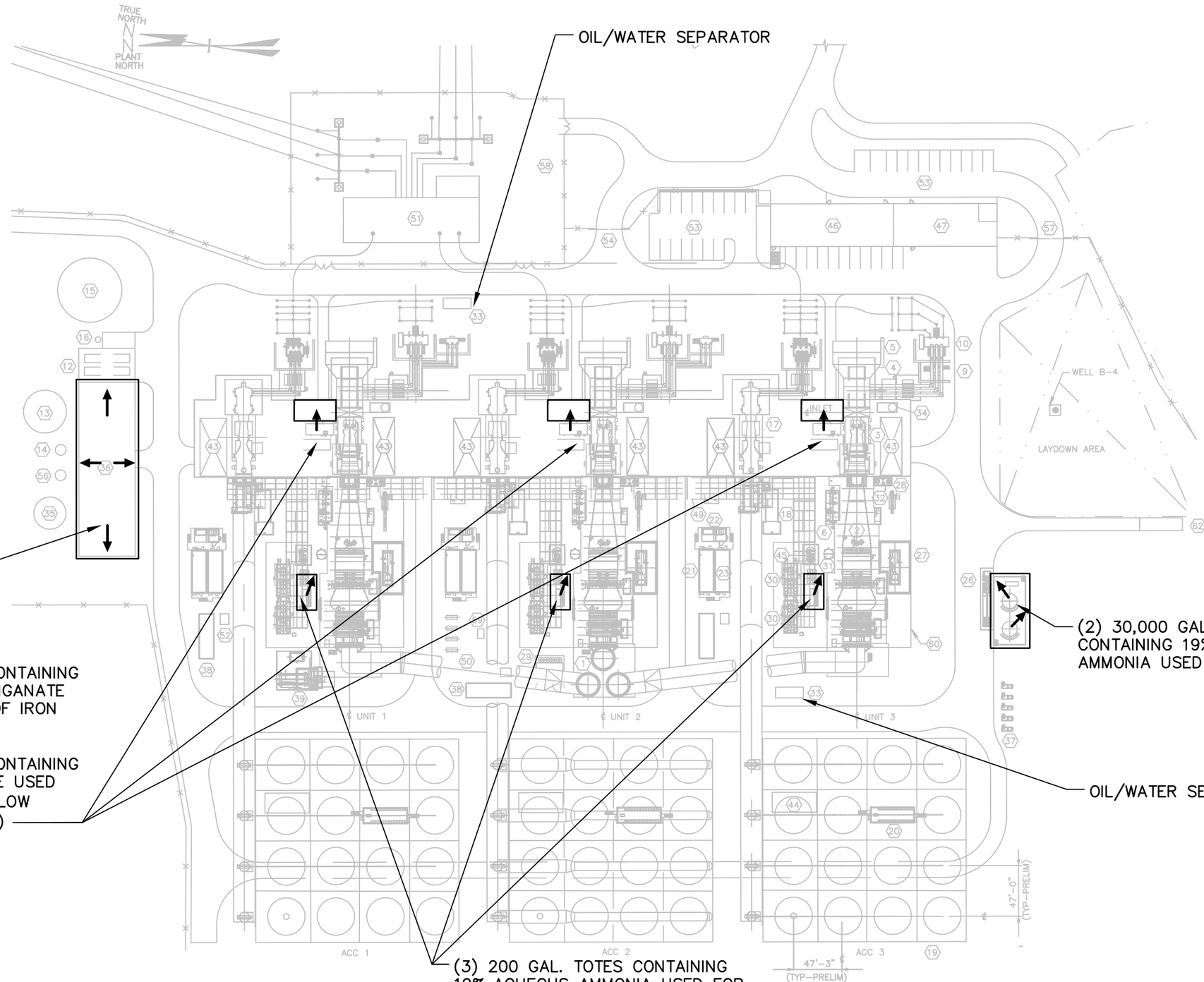
XREFS: G:\ACAD\PROJ\MA001146.0013\XREF\M210_k-MPI.dwg IMAGES: None
User: Hausmann Spec: PIRNIE STANDARD File: G:\ACAD\PROJ\MA001146.0013\SPR FIGURES\FIGURE 2.DWG Scale: 1:1 Date: 06/07/2012 Time: 11:10 Layout: Blank

XREFS: G:\ACAD\PROJ\MA001146.0013\XREF\M210_k-MPI.dwg IMAGES: None
User: Hausmann Spec: PIRNIE STANDARD File: G:\ACAD\PROJ\MA001146.0013\SPR FIGURES\FIGURE 3.DWG Scale: 1:1 Date: 06/07/2012 Time: 11:12 Layout: Blank

LEGEND

INDICATED SPILL DIRECTION

SECONDARY CONTAINMENT



(1) 3,500 GAL. TANK CONTAINING 15% SODIUM HYPOCHLORITE USED AS BIOCIDE AND FOR MICROFILTER CLEANING

(1) 3,500 GAL. TANK CONTAINING 37% HYDROCHLORIC ACID USED FOR PH ADJUSTMENT AND FOR CATION BED REGENERATION.

(4) 55 GAL. DRUMS OR (1) 200 GAL. TOTE CONTAINING 40% FERRIC CHLORIDE USED AS COAGULENT/SETTLING AID

(3) 200 GAL. TOTES CONTAINING 3% POTASSIUM PERMANGANATE USED FOR OXIDATION OF IRON AND MANGANESE.

(3) 200 GAL. TOTES CONTAINING 25% SODIUM HYDROXIDE USED FOR PH ADJUSTMENT (LOW FREEZE POINT CAUSTIC)

(2) 30,000 GAL. TANKS CONTAINING 19% AQUEOUS AMMONIA USED FOR SCR SYSTEM

OIL/WATER SEPARATOR

(3) 200 GAL. TOTES CONTAINING 19% AQUEOUS AMMONIA USED FOR CORROSION CONTROL.

SOURCE: DRAWING M-210, GENERAL ARRANGEMENT POWER ISLAND PLANT CREATED BY BURNS & ROE ENTERPRISES, INC. 8-4-10

ARCADIS Infrastructure · Water · Environment · Buildings

CRICKET VALLEY ENERGY
TOWN OF DOVER, DUTCHESS COUNTY, NEW YORK
SPILL PREVENTION REPORT (SPR)

PREDICTED DIRECTION OF POTENTIAL SPILLS

SCALE: 1"=100'

JUNE 2012

FIGURE 3

Cricket Valley Energy Center
Dover, New York
Spill Prevention Report

Appendix A – NYSDEC Hazardous Substance Storage Tank Registration Application

(cbsapplicationA-march05)

New York State Department of Environmental Conservation
Division of Environmental Remediation

Hazardous Substance Bulk Storage Application

Pursuant to the Hazardous Substance Bulk Storage Law, Article 40 of ECL and 6 NYCRR 595-599

Return Completed Form & Fees To:

NYSDEC
Spill Prevention &Bulk Storage Section
625 Broadway, 11th Floor
Albany, NY 12233-7020

Please Type or Print Clearly and Complete All Items

Section A

(See enclosed instructions and please be sure to complete Sections A & B)

Expiration Date:

CBS Number

DEC PBS Number: (If applicable)

DEC MOSF Number: (If applicable)

DEC SPDES Number: (If applicable)

Transaction Type

(Check all that apply)
NOTE: Transaction Types 1, 2 and 5 require a fee

- ☐ 1)Initial/ New Facility
- ☐ 2)Change of Ownership
- ☐ 3)Substantial Tank Modification
- ☐ 4)Information Correction
- ☐ 5) Renewal

FACILITY

Facility Name:

Location (Not P.O. Boxes)

Location (cont.):

City: | State: **NY** | Zip Code:

County: | Township or City:

Name of Operator at Facility: | Facility Telephone Number:

Emergency Contact Name: | Emergency Telephone Number:

OWNER

Owner Name:

Address (Street and/or P.O.):

City: | State: | Zip Code:

Federal Tax ID Number: | Owner Telephone Number:

Type of Owner:
1 ☐ Private Resident
2 ☐ State Government
3 ☐ Local Government
4 ☐ Federal Government
5 ☐ Corporate/Commercial

TYPE OF CHEMICAL FACILITY (Check only one)

- ☐ 01=Storage Terminal
- ☐ 02=Retail Gasoline Sales
- ☐ 04=Manufacturing(Other Than Chemical)/Processing
- ☐ 06=Trucking/Transportation /Fleet Operation
- ☐ 08=School
- ☐ 10=Private Residence
- ☐ 12=Chemical Distributor
- ☐ 15=Railroad
- ☐ 20=Chemical Manufacturing
- ☐ 03=Other Wholesale/Retail Sales
- ☐ 05=Utility (Other Than Municipal)
- ☐ 07=Apartment Building
- ☐ 09=Farm
- ☐ 11=Airline/Air Taxi
- ☐ 13=Municipality (Incl. Waste Water Treatment Plants, Utilities, Swimming Pools,etc.)
- ☐ 21=Swimming Pools (Other than Municipal)
- ☐ 99=Other (Specify)_____

I hereby certify that the information on this form is true and correct. False statements made herein may be punishable as a criminal offense in accordance with applicable State and federal law. The facility has maintained its requirements relating to daily, monthly, annual and five year inspections as required by Part 598.7 and has had its SPR annually updated as required by Part 598.1(k).

Name of Owner or Authorized Representative: | Amount Enclosed: $

Title:

Signature: | Date:

Spill Prevention Report

In addition, a copy of the Spill Prevention Report (SPR)'s cover page, table of contents and signature page is submitted.

SPR: YES ☐ NO ☐

CORRESPONDENCE

(Please keep up to date - this information is used for mailing and contact purposes)

Attention:

Name of Company:

Address:

Address:

City/State/Zip Code:

Telephone Number: | E-Mail Address:

OFFICIAL USE ONLY

Page_____ of _____

Date Received ___ ___ ___

Date Processed ___ ___ ___

Amount Received $ _____

Reviewed by _____

CBS Number:

Section B - Tank Information

(See enclosed instructions and *use the key located on the bottom of this sheet to complete each item/column)*

Registration Expiration Date:

(1) Action	(2) IMPORTANT: Tank number is required. If tank and piping models are entered then the shaded columns DO NOT have to be supplied. Tank and piping model codes are on the CBS instruction sheet provided. Tank Model	Piping Model	Tank Number	(3) Tank Location	(4) Status	(5) Installation or Permanent Closure Date (Month/ Day/Year)	(6) Capacity (Gallons	(8) Tank Type	(9) Tank Internal Protection	(10) Tank External Protection	(11) Tank Secondary Containment	(12) Tank Leak Detection	(13) Tank Overfill Prevention	(14) Spill Prevention	(16) Piping Location	(17) Piping Type	(18) Piping External Protection	(19) Piping Sec Containment	(20) Piping Leak Detection	Hazardous Substance Name (List all Part 597 Substances, if more than 3 please list on separate sheet)	CAS Number	% of Haz Sub	Tank Fee $
. .																				1) 2) 3)			
																				1) 2) 3)			
																				1) 2) 3)			
																				1) 2) 3)			
																				1) 2) 3)			

Action (1)
1. Initial Listing
2.Add Tank
3. Close/Remove Tank
4. Information Correction
5. Recondition/Repair/ Reline Tank

Status (4)
1. In-service
2. Temporarily out-of-service
3. Closed-Removed
4. Closed- In Place
5. Tank converted to Non-Regulated use

Tank Location (3)
1. Aboveground-contact w/soil
2. Aboveground-contact w/ impervious barrier
3.Aboveground on saddles, legs, stilts, rack, or cradle
4. Aboveground with 10% or more below ground
5. Underground
6. Underground, vaulted, with access

Tank Type (8)
01. Steel/Carbon Steel/Iron
02. Galvanized Steel Alloy
03. Stainless Steel Alloy
04. Fiberglass Coated Steel
05. Steel Tank in Concrete
06. Fiberglass Reinforced Plastic (FRP)
07. Plastic
08. Equivalent Technology
09. Concrete
10. Urethane Clad Steel
99. Other-please list:*

Internal Protection (9)
00. None
01. Epoxy Liner
02. Rubber Liner
03. Fiberglass Liner (FRP)
04. Glass Liner
99. Other-please list:*

External Protection (10/18)
00. None
01. Painted/Asphalt Coating
02. Original Sacrificial Anode
03. Original Impressed Current
04. Fiberglass
05. Jacketed
06. Wrapped (Piping)
07. Retrofitted Sacrificial Anode
08. Retrofitted Impressed Current
09. Urethane
99. Other-please list:*

Tank Leak Detection (12)
00 None
01.Interstitial Electronic Monitoring
02. Interstitial Manual Monitoring
03.Vapor Well
04. Groundwater Well
05. In-Tank System (ATG)
06. Impervious Barrier/Concrete Pad (A/G)
99. Other-please list:*

Piping Type (17)
00. None
01. Steel/Carbon Steel/Iron
02. Galvanized Steel
03. Stainless Steel Alloy
04. Fiberglass Coated Steel
05. Steel Encased in Concrete
06. Fiberglass Reinforced Plastic (FRP)
07. Plastic
08. Equivalent Technology
09. Concrete
10. Copper
11. Flexible Piping
99. Other-please list:*

Overfill Prevention(13)
00. None
01. Float Vent Valve
02.High Level Alarm
03. Automatic Shut-off
04. Product Level Gauge(A/G)
05. Vent Whistle
99. Other-please list:*

Secondary Containment (11/19)
00. None
01. Diking (A/G)
02. Vault (w/access)
03. Vault (w/o access)
04. Double-Walled (U/G)
05. Synthetic Liner
06. Remote Impounding Area
07. Excavation/Trench Liner System
08. Flexible Internal Liner (Bladder)
09. Modified Double-Walled (A/G)
10. Impervious Underlayment
11. Double Bottom (A/G)
99. Other-please list:*

Spill Prevention (14)
00. None
01. Catch Basin
02. Transfer Station Containment
99. Other - Please list*

Piping Location (16)
00. No Piping
01. Aboveground
02. Underground/On-ground
03. Aboveground/Underground Combination

Pipe Leak Detection (20)
00. None
01. Interstitial Electronic Monitoring
02. Interstitial Manual Monitoring
03. Vapor Well
04. Groundwater Well
07. Pressurized Piping Leak Detector
08. Tank Top Sump (Piping)
09. Exempt Suction Piping
99. Other-please list:*

*** If other, please list on a separate sheet including Tank Number**

Cricket Valley Energy Center
Dover, New York
Spill Prevention Report

Appendix B – NYSDEC Hazardous Substance Storage Tank Registration Certificate

To Be Added Upon Receipt From the NYSDEC

Cricket Valley Energy Center
Dover, New York
Spill Prevention Report

Appendix C – Spill Incident Form

CVEC DISCHARGE INCIDENT FORM

Cricket Valley Energy Center
2241 Route 22, Dover, New York

1. Time Discharge Discovered _____ Date _____

2. Time Discharge Contained _____ Date _____

3. Location of Discharge _____

4. Material Discharged _____

5. Approximate Quantity _____

6. Did Discharge Enter Storm Water Collection System? _____

   If yes, approximate quantity _____ gallons.

7. Did Discharge Leave Facility Boundaries? _____

   If yes, approximate quantity _____ gallons.

8. Corrective Action(s) Taken to Contain Discharge: _____
   _____
   _____

9. Cause and Type of Discharge (Comments) _____
   _____
   _____

10. Estimated Amount of Material Recovered _____

11. Describe Damage to the Environment or Physical Facilities_____

    _____

12. Corrective Action(s) Taken or to be Taken to Prevent Future Discharge: _____
    _____
    _____

13. Name of Discharge "Discoverer" _____

14. Supervisor _____

15. Notifications:

Agency	Person	Contact Number	Date	Time

NOTE: A discharge must be reported within 2 hours to the New York State Department of Environmental Conservation. Return this completed form to the CVEC Facility Manager in the event of a discharge.

Authorized Facility Representative:

Signature: _____ Name: _____
Title: _____ Date: _____

Cricket Valley Energy Center
Dover, New York
Spill Prevention Report

Appendix D – CVEC Compliance Checklists

Cricket Valley Energy Center Compliance with Parts 596, 598 and 599

(Summary of Findings – 19% Aqueous Ammonia Tanks)

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 596.2	Registration of stationary storage tanks	Appendix A; Appendix B			
Part 596.6	Spill response, investigation and corrective action	Section 6			
Part 598.4	Hazardous substance transfers	Section 5; Appendix F			
Part 598.7	Aboveground storage tank systems- inspection	Section 5; Appendix G		Tank(s) will require daily, annual and 5-year inspections. Forms for the annual and 5-year inspections are provided in Appendix G.	
Part 598.8	Recordkeeping	Section 5; Appendix G		Copies of annual and 5-year inspections must be kept in the SPR.	
Part 598.9	Maintenance and repair of facilities	Section 5			
Part 598.10	Closure and change-in-service	Section 2			
Part 598.11	Financial responsibility	Section 9			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.7	General requirements for aboveground storage tanks	Section 3			
Part 599.8	New aboveground tanks	Section 3			
Part 599.9	Secondary containment for aboveground tanks	Section 3; Section 4			
Part 599.10	Monitoring systems for new aboveground tanks	Section 3; Section 4			
Part 599.11	Installation of aboveground tanks	Section 3		Prior to placing tank(s) in service, a statement from the inspector indicating compliance with section (f) of this part is required. Insert a copy of this record into Appendix D. This must be kept on file for five years following date of in-service.	
Part 599.12	General requirements for piping systems	Section 3		Prior to placing tank(s) in service, all new piping must pass an inspection as described in 599.16(e).	
Part 599.13	New piping systems	Section 3			
Part 599.16	Installation of piping systems	Section 3			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.17	Spill and overfill prevention	Sections 3; Section 4; Appendix F			
Part 599.18	Venting, and pressure, vacuum, thermal monitoring	Section 3			

Cricket Valley Energy Center Compliance with Parts 596, 598 and 599

(Summary of Findings – 15% Sodium Hypochlorite Tank)

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 596.2	Registration of stationary storage tanks	Appendix A; Appendix B			
Part 596.6	Spill response, investigation and corrective action	Section 6			
Part 598.4	Hazardous substance transfers	Section 5; Appendix F			
Part 598.7	Aboveground storage tank systems- inspection	Section 5; Appendix G		Tank(s) will require daily, annual and 5-year inspections. Forms for the annual and 5-year inspections are provided in Appendix G.	
Part 598.8	Recordkeeping	Section 5; Appendix G		Copies of annual and 5-year inspections must be kept in the SPR.	
Part 598.9	Maintenance and repair of facilities	Section 5			
Part 598.10	Closure and change-in-service	Section 2			
Part 598.11	Financial responsibility	Section 9			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.7	General requirements for aboveground storage tanks	Section 3			
Part 599.8	New aboveground tanks	Section 3			
Part 599.9	Secondary containment for aboveground tanks	Section 3; Section 4			
Part 599.10	Monitoring systems for new aboveground tanks	Section 3; Section 4			
Part 599.11	Installation of aboveground tanks	Section 3		Prior to placing tank(s) in service, a statement from the inspector indicating compliance with section (f) of this part is required. Insert a copy of this record into Appendix D. This must be kept on file for five years following date of in-service.	
Part 599.12	General requirements for piping systems	Section 3		Prior to placing tank(s) in service, all new piping must pass an inspection as described in 599.16(e).	
Part 599.13	New piping systems	Section 3			
Part 599.16	Installation of piping systems	Section 3			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.17	Spill and overfill prevention	Sections 3; Section 4; Appendix F			
Part 599.18	Venting, and pressure, vacuum, thermal monitoring	Section 3			

Cricket Valley Energy Center Compliance with Parts 596, 598 and 599

(Summary of Findings – 37% Hydrochloric Acid Tank)

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 596.2	Registration of stationary storage tanks	Appendix A; Appendix B			
Part 596.6	Spill response, investigation and corrective action	Section 6			
Part 598.4	Hazardous substance transfers	Section 5; Appendix F			
Part 598.7	Aboveground storage tank systems- inspection	Section 5; Appendix G		Tank(s) will require daily, annual and 5-year inspections. Forms for the annual and 5-year inspections are provided in Appendix G.	
Part 598.8	Recordkeeping	Section 5; Appendix G		Copies of annual and 5-year inspections must be kept in the SPR.	
Part 598.9	Maintenance and repair of facilities	Section 5			
Part 598.10	Closure and change-in-service	Section 2			
Part 598.11	Financial responsibility	Section 9			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.7	General requirements for aboveground storage tanks	Section 3			
Part 599.8	New aboveground tanks	Section 3			
Part 599.9	Secondary containment for aboveground tanks	Section 3; Section 4			
Part 599.10	Monitoring systems for new aboveground tanks	Section 3; Section 4			
Part 599.11	Installation of aboveground tanks	Section 3		Prior to placing tank(s) in service, a statement from the inspector indicating compliance with section (f) of this part is required. Insert a copy of this record into Appendix D. This must be kept on file for five years following date of in-service.	
Part 599.12	General requirements for piping systems	Section 3		Prior to placing tank(s) in service, all new piping must pass an inspection as described in 599.16(e).	
Part 599.13	New piping systems	Section 3			
Part 599.16	Installation of piping systems	Section 3			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.17	Spill and overfill prevention	Sections 3; Section 4; Appendix F			
Part 599.18	Venting, and pressure, vacuum, thermal monitoring	Section 3			

Cricket Valley Energy Center Compliance with Parts 596, 598 and 599

(Summary of Findings – 19% Aqueous Ammonia Totes)

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 596.2	Registration of stationary storage tanks	Appendix A; Appendix B			
Part 596.6	Spill response, investigation and corrective action	Section 6			
Part 598.4	Hazardous substance transfers	Section 5; Appendix F			
Part 598.7	Aboveground storage tank systems- inspection	Section 5; Appendix G		Tank(s) will require daily, annual and 5-year inspections. Forms for the annual and 5-year inspections are provided in Appendix G.	
Part 598.8	Recordkeeping	Section 5; Appendix G		Copies of annual and 5-year inspections must be kept in the SPR.	
Part 598.9	Maintenance and repair of facilities	Section 5			
Part 598.10	Closure and change-in-service	Section 2			
Part 598.11	Financial responsibility	Section 9			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.7	General requirements for aboveground storage tanks	Section 3			
Part 599.8	New aboveground tanks	Section 3			
Part 599.9	Secondary containment for aboveground tanks	Section 3; Section 4			
Part 599.10	Monitoring systems for new aboveground tanks	Section 3; Section 4			
Part 599.11	Installation of aboveground tanks	Section 3		Prior to placing tank(s) in service, a statement from the inspector indicating compliance with section (f) of this part is required. Insert a copy of this record into Appendix G. This must be kept on file for five years following date of in-service.	
Part 599.12	General requirements for piping systems	Section 3		Prior to placing tank(s) in service, all new piping must pass an inspection as described in 599.16(e).	
Part 599.13	New piping systems	Section 3			
Part 599.16	Installation of piping systems	Section 3			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.17	Spill and overfill prevention	Sections 3; Section 4; Appendix F			
Part 599.18	Venting, and pressure, vacuum, thermal monitoring	Section 3			

Cricket Valley Energy Center Compliance with Parts 596, 598 and 599

(Summary of Findings – 3% Potassium Permanganate Totes)

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 596.2	Registration of stationary storage tanks	Appendix A; Appendix B			
Part 596.6	Spill response, investigation and corrective action	Section 6			
Part 598.4	Hazardous substance transfers	Section 5; Appendix F			
Part 598.7	Aboveground storage tank systems- inspection	Section 5; Appendix G		Tank(s) will require daily, annual and 5-year inspections. Forms for the annual and 5-year inspections are provided in Appendix G.	
Part 598.8	Recordkeeping	Section 5; Appendix G		Copies of annual and 5-year inspections must be kept in the SPR.	
Part 598.9	Maintenance and repair of facilities	Section 5			
Part 598.10	Closure and change-in-service	Section 2			
Part 598.11	Financial responsibility	Section 9			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.7	General requirements for aboveground storage tanks	Section 3			
Part 599.8	New aboveground tanks	Section 3			
Part 599.9	Secondary containment for aboveground tanks	Section 3; Section 4			
Part 599.10	Monitoring systems for new aboveground tanks	Section 3; Section 4			
Part 599.11	Installation of aboveground tanks	Section 3		Prior to placing tank(s) in service, a statement from the inspector indicating compliance with section (f) of this part is required. Insert a copy of this record into Appendix D. This must be kept on file for five years following date of in-service.	
Part 599.12	General requirements for piping systems	Section 3		Prior to placing tank(s) in service, all new piping must pass an inspection as described in 599.16(e).	
Part 599.13	New piping systems	Section 3			
Part 599.16	Installation of piping systems	Section 3			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.17	Spill and overfill prevention	Sections 3; Section 4; Appendix F			
Part 599.18	Venting, and pressure, vacuum, thermal monitoring	Section 3			

Cricket Valley Energy Center Compliance with Parts 596, 598 and 599

(Summary of Findings – 25% Sodium Hydroxide Totes)

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 596.2	Registration of stationary storage tanks	Appendix A; Appendix B			
Part 596.6	Spill response, investigation and corrective action	Section 6			
Part 598.4	Hazardous substance transfers	Section 5; Appendix F			
Part 598.7	Aboveground storage tank systems- inspection	Section 5; Appendix G		Tank(s) will require daily, annual and 5-year inspections. Forms for the annual and 5-year inspections are provided in Appendix G.	
Part 598.8	Recordkeeping	Section 5; Appendix G		Copies of annual and 5-year inspections must be kept in the SPR.	
Part 598.9	Maintenance and repair of facilities	Section 5			
Part 598.10	Closure and change-in-service	Section 2			
Part 598.11	Financial responsibility	Section 9			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.7	General requirements for aboveground storage tanks	Section 3			
Part 599.8	New aboveground tanks	Section 3			
Part 599.9	Secondary containment for aboveground tanks	Section 3; Section 4			
Part 599.10	Monitoring systems for new aboveground tanks	Section 3; Section 4			
Part 599.11	Installation of aboveground tanks	Section 3		Prior to placing tank(s) in service, a statement from the inspector indicating compliance with section (f) of this part is required. Insert a copy of this record into Appendix D. This must be kept on file for five years following date of in-service.	
Part 599.12	General requirements for piping systems	Section 3		Prior to placing tank(s) in service, all new piping must pass an inspection as described in 599.16(e).	
Part 599.13	New piping systems	Section 3			
Part 599.16	Installation of piping systems	Section 3			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.17	Spill and overfill prevention	Sections 3; Section 4; Appendix F			
Part 599.18	Venting, and pressure, vacuum, thermal monitoring	Section 3			

Cricket Valley Energy Center Compliance with Parts 596, 598 and 599

(Summary of Findings – 40% Ferric Chloride Totes)

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 596.2	Registration of stationary storage tanks	Appendix A; Appendix B			
Part 596.6	Spill response, investigation and corrective action	Section 6			
Part 598.4	Hazardous substance transfers	Section 5; Appendix F			
Part 598.7	Aboveground storage tank systems- inspection	Section 5; Appendix G		Tank(s) will require daily, annual and 5-year inspections. Forms for the annual and 5-year inspections are provided in Appendix G.	
Part 598.8	Recordkeeping	Section 5; Appendix G		Copies of annual and 5-year inspections must be kept in the SPR.	
Part 598.9	Maintenance and repair of facilities	Section 5			
Part 598.10	Closure and change-in-service	Section 2			
Part 598.11	Financial responsibility	Section 9			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.7	General requirements for aboveground storage tanks	Section 3			
Part 599.8	New aboveground tanks	Section 3			
Part 599.9	Secondary containment for aboveground tanks	Section 3; Section 4			
Part 599.10	Monitoring systems for new aboveground tanks	Section 3; Section 4			
Part 599.11	Installation of aboveground tanks	Section 3		Prior to placing tank(s) in service, a statement from the inspector indicating compliance with section (f) of this part is required. Insert a copy of this record into Appendix D. This must be kept on file for five years following date of in-service.	
Part 599.12	General requirements for piping systems	Section 3		Prior to placing tank(s) in service, all new piping must pass an inspection as described in 599.16(e).	
Part 599.13	New piping systems	Section 3			
Part 599.16	Installation of piping systems	Section 3			

Regulatory Reference (6 NYCRR)	Description	SPR Reference	In Compliance? (Y/N)	Required Action	Completed? (Date/Initials)
Part 599.17	Spill and overfill prevention	Sections 3; Section 4; Appendix F			
Part 599.18	Venting, and pressure, vacuum, thermal monitoring	Section 3			

Cricket Valley Energy Center
Dover, New York
Spill Prevention Report

Appendix E – MSDSs for Stored Materials

CLEARTECH

MATERIAL SAFETY DATA SHEET

Sodium Hypochlorite 5-15%

Section 01 - Chemical And Product And Company Information

Product Identifier …….. Sodium Hypochlorite (5-15%)

Product Use …….... Disinfectant, bleaching agent, source of available chlorine, deodorizer.

Supplier Name…….…. ClearTech Industries Inc.
2303 Hanselman Avenue
Saskatoon, SK. Canada
S7L 5Z3

Prepared By.....……..….. ClearTech Industries Inc. Technical Department
Phone: (306)664-2522

Preparation Date.....…….…... November 28, 2005

24-Hour Emergency Phone……... 306-664-2522

Section 02 - Composition / Information on Ingredients

Hazardous Ingredients....…….....	Sodium Hypochlorite	5.4-13.2
	Sodium Hydroxide	0.1-0.5
	Sodium Chloride	4-12
CAS Number.....…….…….….....	Sodium Hypochlorite	7681-52-9
	Sodium Hydroxide	1310-73-2
	Sodium Chloride	7647-14-5

Synonym (s).....……...Industrial bleach, hypo, bleach, Javel water, household bleach

Section 03 - Hazard Identification

Inhalation..... Irritant of the nose and throat, causing coughing, difficulty breathing, and pulmonary edema.

Skin Contact / Absorption..... Causes severe skin irritation with blistering and ulceration.

Eye Contact..... Causes severe irritation of the mucous membranes of the eyes. May cause severe eye damage.

Ingestion..... Burning of the mouth and throat, abdominal cramps, nausea, vomiting, diarrhea, shock. May lead to convulsions, coma, and even death.

Exposure Limits..... None established.
ACGIH/TLV-TWA= 1ppm (chlorine)

Section 04 - First Aid Measures

Inhalation..... Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek immediate medical attention.

Skin Contact / Absorption..... Remove contaminated clothing. Wash affected area with soap and water. Seek medical attention if irritation occurs or persists.

Eye Contact..... Flush immediately with water for at least 20 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye tissue. Seek immediate medical attention.

Ingestion..... Do not induce vomiting. If vomiting occurs, lean victim forward to prevent breathing in vomitus. Give large amounts of water. Do not give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention.

Additional Information..... Not available

Section 05 - Fire Fighting

Conditions of Flammability..... Non-flammable

Means of Extinction..... Product does not burn. Use appropriate extinguishing media for material that is supplying the fuel to the fire.

Flash Point..... Not applicable

Auto-ignition Temperature..... Not applicable

Upper Flammable Limit ..... Not applicable

Lower Flammable Limit..... Not applicable

Hazardous Combustible Products... Decomposition may produce chlorine gas and/or hydrogen chloride gas.

Special Fire Fighting Procedures..... Wear NIOSH-approved self-contained breathing apparatus and protective clothing.

Explosion Hazards..... Pressure buildup in containers could result in an explosion when heated or in contact with acidic fumes. Vigorous reaction with oxidizable organic materials may result in a fire.

Section 06 - Accidental Release Measures

Leak / Spill..... Wear appropriate personal protective equipment. Ventilate area. Only enter area with PPE. Stop or reduce leak if safe to do so. Prevent material from entering sewers. Flush with water to remove any residue.

Deactivating Materials..... Neutralize first with sodium sulphite, sodium metabisulphite or other dechlorination agent for no chlorine residual, then with hydrochloric acid until the pH is 7.

Section 07 - Handling and Storage

Handling Procedures..... Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure.

Storage Requirements..... Store in a cool, dry, well-ventilated place. Keep container tightly closed, and away from incompatible materials. Venting of containers is advisable.

Section 08 - Personal Protection and Exposure Controls

Protective Equipment

Eyes..... Chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should not be worn; they may contribute to severe eye injury.

Respiratory……..... A NIOSH-approved respirator suitable for chlorine is recommended. Where a higher level of protection is required, use a self-contained breathing apparatus.

Gloves…….……..... Impervious gloves of chemically resistant material (rubber or PVC) should be worn at all times. Wash contaminated clothing with soap and water, dry thoroughly before reuse.

Clothing……..……..... Body suits, aprons, and/or coveralls of chemical resistant material should be worn at all times. Wash contaminated clothing with soap and water, dry thoroughly before reuse.

Footwear……..... Impervious boots of chemically resistant material should be worn at all times

Engineering Controls

Ventilation Requirements……..... Mechanical ventilation (dilution or local exhaust), process or personnel enclosure, and control of process conditions. Supply sufficient replacement air to make up for air removed by exhaust systems.

Other……..... Emergency shower and eyewash should be in close proximity.

Section 09 - Physical and Chemical Properties

Physical State.....……...……..... Liquid

Odor and Appearance…..……..... Strong chlorine odour. Clear, greenish-yellow solution.

Odor Threshold...……..... Not available

Specific Gravity (Water=1)…….. 1.17 at 20°C (12% trade)

Vapor Pressure (mm Hg, 20C)…….. 12.1mm Hg at 20°C (12.5 wt %)

Vapor Density (Air=1)..……..... Not available

Evaporation Rate.....……..……..…….. Not available

Boiling Point.....…….…..... Slowly decomposes above 40ºC.

Freeze/Melting Point...……..... ~ -15°C (12% trade)

pH.....…….…….. < 12

Water/Oil Distribution Coefficient.... Not available

Bulk Density.....……..... Not available

% Volatiles by Volume……..……... Not available

Solubility in Water...……..... Complete

Molecular Formula.....…….…..... NaOCl

Molecular Weight.....……..... 74.44

Section 10 - Stability and Reactivity

Stability.....……...……. Unstable at temperatures above 40°C, in sunlight, and in contact with acid.

Incompatibility.....……..…….. Incompatible with strong acids, ammonia, oxidizable materials, nickel, copper, tin, manganese, and iron.

Hazardous Products of Decomposition.. Chlorine (by reaction with acids), oxygen (by reaction with nickel, copper, tin, manganese, iron), sodium chloride, sodium chlorate, with increased temperature.

Polymerization.....…….…… Will not occur

Section 11 - Toxicological Information

Irritancy.....……..……. Strong irritant

Sensitization.....…….....……. Not available

Chronic/Acute Effects……...…….. If over-exposed to the solution, there will be constant irritation of the eyes, nose, and throat.

Synergistic Materials...……...……... Not available

Animal Toxicity Data.....…..…….. LD_{50}(oral,rat) = 8910mg/kg (100% sodium hypochlorite)

Carcinogenicity.....…….....…….. Not considered to be carcinogenic (IARC and ACGIH).

Reproductive Toxicity.……...……... Not available

Teratogenicity.....…....…….. Not available

Mutagenicity.....……....……. Not available

Section 12 - Ecological Information

Fish Toxicity.....……... Not available

Biodegradability.....…….... Not available

Environmental Effects……. Not available

Section 13 - Disposal Consideration

Waste Disposal.....…...……...Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 14 - Transportation Information

TDG Classification

Class……..……..…... 8

Group.....…….....……... III

PIN Number.....……..……... UN 1791

Other……..... Secure containers (full and/or empty) with suitable hold down devises during shipment.

Section 15 - Regulatory Information

WHMIS Classification.....……....E

NOTE: THE PRODUCT LISTED ON THIS MSDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS MSDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

NSF Certification.....Product is certified under ANSI/NSF Standard 60 for disinfection and oxidation at a maximum dosage for the following:

sodium hypochlorite 6%: 175mg/L
sodium hypochlorite 12%: 87mg/L
sodium hypochlorite 15%: 70mg/L

Section 16 - Other Information

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions

required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

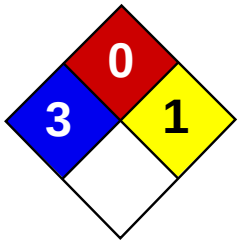
ClearTech Industries Inc. - Locations

Corporate Head Office: 2302 Hanselman Avenue, Saskatoon, SK, S7L 5Z3
Phone: 306-664-2522
Fax: 306-665-6216

www.ClearTech.ca

Location	Address	Postal Code	Phone Number	Fax Number
Richmond, B.C.	12431 Horseshoe way	V7A 4X6	604-272-4000	604-272-4596
Calgary, AB	5516E - 40th St. S.E.	T2C 2A1	403-279-1096	403-236-0989
Edmonton, AB	11750 - 180th Street	T5S 1N7	780-452-6000	780-452-4600
Saskatoon, SK	2302 Hanselman Avenue	S7L 5Z3	306-933-0177	306-933-3282
Regina, SK	555 Henderson Drive	S42 5X2	306-721-7737	306-721-8611
Winnipeg, MB	340 Saulteaux Crescent	R3J 3T2	204-987-9777	204-987-9770
Mississauga, ON	7480 Bath Road	L4T 1L2	905-612-0566	905-612-0575

24 Hour Emergency Number - All Locations - 306-664-2522



Health	3
Fire	0
Reactivity	1
Personal Protection	

Material Safety Data Sheet
Hydrochloric acid, 37% MSDS

Section 1: Chemical Product and Company Identification

Product Name: Hydrochloric acid, 37%

Catalog Codes: SLH1360, SLH2206, SLH3052

CAS#: Mixture.

RTECS: MW4025000

TSCA: TSCA 8(b) inventory: Hydrochloric acid

CI#: Not applicable.

Synonym: Hydrochloric Acid; Muriatic Acid; Hydrochloric Acid 37% N.F, F.C.C., Electronic/Cleanroom grades

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Hydrogen chloride	7647-01-0	37
Water	7732-18-5	63

Toxicological Data on Ingredients: Hydrogen chloride: GAS (LC50): Acute: 4701 ppm 0.5 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, . Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, mucous membranes, upper

respiratory tract, skin, eyes, Circulatory System, teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: of metals

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Non combustible. Calcium carbide reacts with hydrogen chloride gas with incandescence. Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine. Rubidium acetylene carbides burns with slightly warm hydrochloric acid. Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is used, gas spontaneously flammable in air is evolved. Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammble gas. Cesium acetylene carbide burns hydrogen chloride gas. Cesium carbide ignites in contact with hydrochloric acid unless acid is dilute. Reacts with most metals to produce flammable Hydrodgen gas.

Special Remarks on Explosion Hazards:
Hydrogen chloride in contact with the following can cause an explosion, ignition on contact, or other violent/vigorous reaction: Acetic anhydride AgClO + CCl4 Alcohols + hydrogen cyanide, Aluminum Aluminum-titanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium hydroxide, Calcium carbide Ca3P2 Chlorine + dinitroanilines (evolves gas), Chlorosulfonic acid Cesium carbide Cesium acetylene carbide, 1,1-Difluoroethylene Ethylene diamine Ethylene imine, Fluorine, HClO4 Hexalithium disilicide H2SO4 Metal acetylides or carbides, Magnesium boride, Mercuric sulfate, Oleum, Potassium permanganate, beta-Propiolactone Propylene oxide Rubidium carbide, Rubidium, acetylene carbide Sodium (with aqueous HCl), Sodium hydroxide Sodium tetraselenium, Sulfonic acid, Tetraselenium tetranitride, U3P4 , Vinyl acetate. Silver perchlorate with carbon tetrachloride in the presence of hydrochloric acid produces trichloromethyl perchlorate which detonates at 40 deg. C.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:
Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, organic materials, metals, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m3) from OSHA (PEL) [United States] CEIL: 5 from NIOSH CEIL: 7 (mg/m3) from NIOSH TWA: 1 STEL: 5 (ppm) [United Kingdom (UK)] TWA: 2 STEL: 8 (mg/m3) [United Kingdom (UK)]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Pungent. Irritating (Strong.)

Taste: Not available.

Molecular Weight: Not applicable.

Color: Colorless to light yellow.

pH (1% soln/water): Acidic.

Boiling Point: 50.5°C (122.9°F)

Melting Point: -46.2°C (-51.2°F) to -25.4 C

Critical Temperature: Not available.

Specific Gravity: 1.19 (Water = 1)

Vapor Pressure: 16 kPa (@ 20°C) average

Vapor Density: 1.267 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.25 to 10 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility: Soluble in cold water, hot water, diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, water

Incompatibility with various substances:
Highly reactive with metals. Reactive with oxidizing agents, organic materials, alkalis, water.

Corrosivity:
Extremely corrosive in presence of aluminum, of copper, of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Reacts with water especially when water is added to the product. Absorption of gaseous hydrogen chloride on mercuric sulfate becomes violent @ 125 deg. C. Sodium reacts very violently with gaseous hydrogen chloride. Calcium phosphide and hydrochloric acid undergo very energetic reaction. It reacts with oxidizers releasing chlorine gas. Incompatible with, alkali metals, carbides, borides, metal oxides, vinyl acetate, acetylides, sulphides, phosphides, cyanides, carbonates. Reacts with most metals to produce flammable Hydrogen gas. Reacts violently (moderate reaction with heat of evolution) with water especially when water is added to the product. Isolate hydrogen chloride from heat, direct, alkalies (reacts vigorously), organic materials, and oxidizers (especially nitric acid and chlorates), amines, metals, copper and alloys (e.g. brass), hydroxides, zinc (galvanized materials), lithium silicide (incandescence), sulfuric acid(increase in temperature and pressure) Hydrogen chloride gas is emitted when this product is in contact with sulfuric acid. Adsorption of Hydrochloric Acid onto silicon dioxide results in exothmeric reaction. Hydrogen chloride causes aldehydes and epoxides to violently polymerize. Hydrogen chloride or Hydrochloric Acid in contact with the folloiwng can cause explosion or ignition on contact or other violent/vigorous reaction: Acetic anhydride, Alcohols + hydrogen cyanide, Aluminum, Aluminum phosphide, Aluminum-titanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium, Ammonium hydroxide, 1,4-Benzoquinone diimine, Calcium acetylide (incandescence upon warming), Calcium carbide, Calcium phosphide, Carbon tetrachloride + silver perchlorate (produce trichlormethyl

perchlorate), Cesium acetylene carbide, Cesium carbide, Cesium telluroacylates, Chlorine + dinitroanilines (evolves gas), Chloroacetaldehyde oxime, Chlorosulfonic acid, Cyanogen chloride (when catalyzed by HCl), 1,1-Difluoroethylene, Dinitroanilines, Ethylene, Ethylene diamine, Ethyl 2-formylpropionate oxime (when generated by using HCl as a catalyst),

Special Remarks on Corrosivity:
Highly corrosive. Incompatible with copper and copper alloys. It attacks nearly all metals (mercury, gold, platinium, tantalum, silver, and certain alloys are exceptions). It is one of the most corrosive of the nonoxidizing acids in contact with copper alloys. No corrosivity data on zinc, steel. Severe Corrosive effect on brass and bronze

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:
Acute oral toxicity (LD50): 900 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 1108 ppm, 1 hours [Mouse]. Acute toxicity of the vapor (LC50): 3124 ppm, 1 hours [Rat]. (Hydrochloric Acid)

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. May cause damage to the following organs: kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (corrosive, irritant, permeator), of ingestion, . Hazardous in case of eye contact (corrosive), of inhalation (lung corrosive).

Special Remarks on Toxicity to Animals:
Lowest Published Lethal Doses (LDL/LCL) LDL [Man] -Route: Oral; 2857 ug/kg LCL [Human] - Route: Inhalation; Dose: 1300 ppm/30M LCL [Rabbit] - Route: Inhalation; Dose: 4413 ppm/30M

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects (fetoxicity). May affect genetic material.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Corrosive. Causes severe skin irritation and burns. Eyes: Corrosive. Causes severe eye irritation/conjuntivitis, burns, corneal necrosis. Inhalation: May be fatal if inhaled. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation of hydrochloric acid fumes produces nose, throat, and larryngeal burning, and irritation, pain and inflammation, coughing, sneezing, choking sensation, hoarseness, laryngeal spasms, upper respiratory tract edema, chest pains, as well has headache, and palpitations. Inhalation of high concentrations can result in corrosive burns, necrosis of bronchial epithelium, constriction of the larynx and bronchi, nasospetal perforation, glottal closure, occur, particularly if exposure is prolonged. May affect the liver. Ingestion: May be fatal if swallowed. Causes irritation and burning, ulceration, or perforation of the gastrointestinal tract and resultant peritonitis, gastric hemorrhage and infection. Can also cause nausea, vomitting (with "coffee ground" emesis), diarrhea, thirst, difficulty swallowing, salivation, chills, fever, uneasiness, shock, strictures and stenosis (esophogeal, gastric, pyloric). May affect behavior (excitement), the cardiovascular system (weak rapid pulse, tachycardia), respiration (shallow respiration), and urinary system (kidneys-renal failure, nephritis). Acute exposure via inhalation or ingestion can also cause erosion of tooth enamel. Chronic Potential Health Effects: Prolonged or repeated inhalation and/or ingestion may affect liver, bleeding of nose and gums, nasal and oral mucosal ulceration, conjunctivitis, respiratory tract (changes in pulmonary function, chronic bronchitis, overt respiratory tract abnormalities), teeth (yellowing of teethand erosion of tooth enamel), kidneys, and behavior (muscle contraction or spasticity). Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated eye contact with vapor/mist can cause conjunctivitis dyspnea, bronchitis. Chemical pneumonitis and pulmonary edema can also

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Hydrochloric acid, solution UNNA: 1789 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Hydrochloric acid Illinois toxic substances disclosure to employee act: Hydrochloric acid Illinois chemical safety act: Hydrochloric acid New York release reporting list: Hydrochloric acid Rhode Island RTK hazardous substances: Hydrochloric acid Pennsylvania RTK: Hydrochloric acid Minnesota: Hydrochloric acid Massachusetts RTK: Hydrochloric acid Massachusetts spill list: Hydrochloric acid New Jersey: Hydrochloric acid New Jersey spill list: Hydrochloric acid Louisiana RTK reporting list: Hydrochloric acid Louisiana spill reporting: Hydrochloric acid California Director's List of Hazardous Substances: Hydrochloric acid TSCA 8(b) inventory: Hydrochloric acid TSCA 4(a) proposed test rules: Hydrochloric acid SARA 302/304/311/312 extremely hazardous substances: Hydrochloric acid SARA 313 toxic chemical notification and release reporting: Hydrochloric acid CERCLA: Hazardous substances.: Hydrochloric acid: 5000 lbs. (2268 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC):
R25- Toxic if swallowed. R26- Very toxic by inhalation. R34- Causes burns. S1/2- Keep locked up and out of the reach of children. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28- After contact with skin, wash immediately with plenty of [***] S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 1

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangeureuses au canada. Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

Created: 10/09/2005 05:45 PM

Last Updated: 11/01/2010 12:00 PM

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MSDS *Material Safety Data Sheet*

International Chemical Industries, Inc
Km. 32 Bo. Tuktukan, Guiguinto, Bulacan
Philippines

24 Hour Emergency Telephone: 1-800-1-888-6800

All non-emergency calls should be directed to Customer Service (1-800-1-888-6800 x501)

Ferric Chloride Solution

Section 1 – Product Identification

Name: Ferric Chloride Solution
Synonyms: Iron chloride, Iron III Chloride, Iron Tri Chloride
CAS No.: 7705-08-0
Formula: FeCl3
Molecular Weight: 162.2 (100% Basis)
Chemical Classification: Inorganic Acidic Salt, Solution

Section 2 – Composition/Information on Ingredients

Ingredient	CAS No.	Percent	Hazardous
Water	7732-18-5	60 – 65	No
Ferric Chloride	7705-08-0	35 – 40	Yes
Ferrous Chloride	7758-94-3	0.1 – 0.7	Yes

Section 3 – Hazards Identification

Potential Health Effects

Routes of Exposure: Ferric Chloride can affect the body if it is ingested or if it comes in contact with the eyes or skin.
Inhalation: Avoid inhaling concentrated vapor or mist, may cause irritation of the upper respiratory tract.
Ingestion: This material is toxic by ingestion. Symptoms may include nausea, vomiting, gastrointestinal irritation, burns to mouth and throat. Repeated ingestion of sublethal doses may lead to excessive deposition in the tissues accompanied by pancreatic and liver damage.

Skin Contact: may cause skin irritation with discomfort or rash, skin burns, or ulceration. Ferric chloride has been infrequently associated with skin sensitization in humans.
Eye Contact: This product may cause irritation. Human health effects of overexposure by eye contact may include discoloration of eye tissues, eye irritation and discomfort, tearing and blurring of vision or eye corrosion with corneal or conjunctival ulceration.
Effects of Overexposure: Ingestion in higher doses may lead to abnormal liver function with nausea or vomiting, reduced appetite, abdominal pain, lethargy, tarry stools, diarrhea, fast and weak pulse, hypertension, dehydration, acidosis, and coma. Temporary alteration of the heart's electrical activity may result in irregular pulse, palpitations, or inadequate circulation. If death does not occur immediately, symptoms may clear in a few hours but return within a day with cyanosis, pulmonary edema, shock, convulsions, acidosis, fever, and death. Individuals with pre-existing diseases of the liver may have increased susceptibility to the toxicity of repeated exposures.

Section 4 – First Aid Measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion: DO NOT INDUCE VOMITING. Give large quantities of water, then an antidote, such as sodium bicarbonate or anti acid tablets to neutralize the acidity of Ferric Chloride. Never give anything by mouth to an unconscious individual. Get medical attention immediately.
Skin Contact: Flush skin with water. Remove contaminated clothing; wash before reuse. If there is skin irritation, get medical attention.
Eye Contact: Immediately, flush with large amounts of water for at least 15 minutes while holding eyelids apart. Washing within one minute is essential to achieve maximum effectiveness. Get medical attention after flushing.

Section 5 – Fire Fighting Measures

Flash Point: N/A
Autoignition Temperature: N/A
Lower Explosive Limit: N/A
Upper Explosive Limit: N/A
Unusual Fire and Explosion Hazards: Closed containers exposed to heat may explode.
Extinguishing Media: Use extinguishing media appropriate for surrounding fire.
Special Firefighting Procedures: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in a positive pressure mode. Move exposed containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool.

Section 6 – Accidental Release Measures

Review safety precautions before proceeding with cleanup. Use appropriate personal protection equipment.
Neutralize spill with lime (calcium hydroxide), limestone (calcium carbonate), or soda ash (sodium carbonate). CAUTION: limestone and soda ash will evolve CO_2; ventilation should be provided in enclosed areas. Dike area around spills to prevent spreading, and use absorbent material to pick up spill.

Section 7 – Handling and Storage

Keep container tightly closed. Store in corrosion-proof area. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (vapor, liquid); observe all warnings and precautions listed for the product.

Section 8 – Exposure Controls/Personal Protection

Respiratory Protection: NIOSH/MSHA approved respirator if exposure may, or does exceed occupational exposure limits. Generally, a dust/mist respirator may be worn in areas where the TLV is exceeded up to ten times. Alternatively, a supplied air full facepiece respirator or air-lined hood may be worn.
Ventilation: A system of local exhaust is recommended to keep employee exposure below the airborne exposure limits. Local exhaust is usually preferred because it controls the emission at its source, preventing dispersion of it into the general work area.
Protective Clothing: Wear rubber gloves and clean body-covering clothing.
Eye Protection: Use chemical splash goggles or face shield where splashing of solution is possible.
Other Protective Clothing or Equipment: Rubber boots, rain suit or rubber apron, face shield.
Work /Hygienic Practices: An eye wash and safety shower should be readily accessible. Wash hands thoroughly after handling.

Section 9 – Physical and Chemical Properties

Physical State: Liquid
Appearance: Dark brown liquid
Boiling Point: 106ºC (223ºF)
Specific Gravity: 1.38 to 1.42
pH: < 2
Solubility in Water: Complete
Vapor Pressure: 40 mm Hg @ 35ºC
Odor: Slightly acrid

Section 10 – Stability and Reactivity

Stability: Stable
Polymerization: Will not occur
Incompatibility: Rapidly corrodes most metals (titanium is one exception); may generate flammable, potentially explosive hydrogen gas. Avoid contact with strong oxidizing agent, nylon, aluminum/aluminum alloys, carbon steel, stainless steel, and copper/copper alloys.
Hazardous Decomposition Products: When heated to decomposition, emits toxic hydrogen chloride or chlorine.

Section 11 – Toxicological Information

Carcinogenicity: None of the components of this material are listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Section 12 – Ecological Information

Environmental Fate: No information found.
Environmental Toxicity: No information found.

Section 13 – Disposal Considerations

Dispose of waste in accordance with applicable federal, state, and local laws.

Section 14 – Transport Information

DOT
Proper Shipping Name: Ferric chloride solution
Hazard Class: Class 8
UN/NA #: UN 2582
DOT Labels: Corrosive
DOT Placards: Corrosive
Packaging Group: III

IMO
Proper Shipping Name: Ferric chloride solution
Hazard Class: Corrosive material, 8
UN #: 2582
IMO Label: Corrosive
Packaging Group: III
Shipping Containers: Rubber-lined steel tank cars/trucks; polyethylene drums, bottles
Storage Conditions: Keep containers closed

Section 15 – Regulatory Information

NFPA Rating: Health – 2 ; Fire – 0 ; Reactivity – 1
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme
Carcinogenicity Lists: No **NTP**: No **IARC Monograph**: No **OSHA Regulated**: No

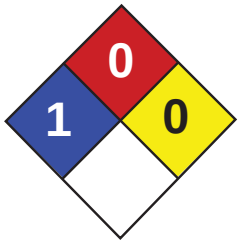
Section 16 - Other Information

Label Hazard Warning:
DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT. HARMFUL IF SWALLOWED OR INHALED. AFFECTS THE LIVER.

****
The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment.
The information contained herewith, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results and assume no responsibility for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.
****

International Chemical Industries, Inc.
Km. 32 Bo. Tuktukan, Guiguinto, Bulacan 3015
Philippines

Phone Number: (6344)794-0444 to 45
FAX Number: (6344)794-4104
Toll Free No. 1-800-1888-6800



Health	2
Fire	0
Reactivity	0
Personal Protection	J

Material Safety Data Sheet
Potassium permanganate MSDS

Section 1: Chemical Product and Company Identification

Product Name: Potassium permanganate

Catalog Codes: SLP4912, SLP3892, SLP1075

CAS#: 7722-64-7

RTECS: SD6475000

TSCA: TSCA 8(b) inventory: Potassium permanganate

CI#: Not available.

Synonym: Potassium Permanganate, Biotech Grade

Chemical Name: Potassium Permanganate

Chemical Formula: KMnO4

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Potassium permanganate	7722-64-7	100

Toxicological Data on Ingredients: Potassium permanganate, Biotech: ORAL (LD50): Acute: 1090 mg/kg [Rat]. 2157 mg/kg [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator). Possibly corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: organic materials, metals, combustible materials

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Explosive in presence of organic materials, of metals.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Spontaneously flammable on contact with ethylene glycol. Potassium Permanganate being conveyed through propylene tube ignited the tube. When solid hydroxylamine is brought into contact with solid potassium permanganate, there is produced immediately a with flame. Potassium permanganate decomposes hydrogen trisulfide so rapidly that sufficient heat is liberated to ignite the trisulfide. When Antimony or arsenic and solid potassium permanganate are ground together, the metals ignite.

Special Remarks on Explosion Hazards:
Take care in handling as explosions may occur if it is brought in contact with organic or other readily oxidizable substances, either in solution or in dry state. Explosive in contact with sulfuric acid or hydrogen peroxide. Potassium permanganate + acetic acid or acetic anhydride can explode if permanganate is not kept cold. Explosions can occur when permanganates come on contact with benzene, carbon disulfide, diethyl ether, ethyl alcohol, petroleum, or oganic matter. Contact with glycerol

may produce explosion. Crystals of potassium permanganate explode vigorously when ground with phosphorous. A mixture of .5% potassium permanganate + ammonium nitrate explosive caused an explosion 7 hrs. later. Addition of Potassium permanganate + dimethylformamide to give a 20% solution led to an explosion after 5 min. During a preparation of chlorine by addition of the concentrated acid (Hydrochloric acid) to solid potassium permanganate, a sharp explosion occurred on one occasion.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Oxidizing material. Corrosive solid. Stop leak if without risk. Do not get water inside container. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Keep away from combustible material. Do not ingest. Do not breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as organic materials, metals, acids.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 5 Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Odorless.

Taste: Sweetish, astringent.

Molecular Weight: 158.03 g/mole

Color: Purple. (Dark.)

pH (1% soln/water): Not available.

Boiling Point: Not available.

Melting Point: Decomposes.

Critical Temperature: Not available.

Specific Gravity: 2.7 @ 15 C (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, acetone.

Solubility:
Easily soluble in methanol, acetone. Partially soluble in cold water, hot water. Soluble in Sulfuric Acid

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances:
Highly reactive with organic materials, metals, acids. Reactive with reducing agents, combustible materials.

Corrosivity: Not available.

Special Remarks on Reactivity:
It is a powerful oxidizing agent. Incompatible with reducing agents, acids, formaldehyde, ammonium nitrate, dimethylformamide, glycerol, combustible materials, alcohols, arsenites, bromides, iodides, charcoal, organic substances, ferrous or mercurous salts, hypophosphites, hyposulfites, sulfites, peroxides, oxalates, ethylene glycol, Manganese salts in air oxidize the toxic sulfur dioxide to more toxic sulfur trioxide. Can react violently with most metal powders, ammonia, ammonium salts, phosphorous, many finely divided organic compounds (materials), flammable liquids, acids, sulfur.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
Acute oral toxicity (LD50): 1090 mg/kg [Rat]. Lowest Published Lethal Dose: LDL[Woman] - Route: Oral; Dose: 100 mg/kg LDL[Human] - Route: Oral; Dose: 143 mg/kg.

Chronic Effects on Humans:
MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, skin, central nervous system (CNS).

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant), of eye contact (corrosive), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects (Male and Female fertility) based on animal data. May affect genetic material (mutagenetic) based on animal data.

Special Remarks on other Toxic Effects on Humans:

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 5.1: Oxidizing material.

Identification: : Potassium permanganate UNNA: 1490 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut carcinogen reporting list.: Potassium permanganate Illinois toxic substances disclosure to employee act: Potassium permanganate Illinois chemical safety act: Potassium permanganate New York release reporting list: Potassium permanganate Rhode Island RTK hazardous substances: Potassium permanganate Pennsylvania RTK: Potassium permanganate Massachusetts RTK: Potassium permanganate Massachusetts spill list: Potassium permanganate New Jersey: Potassium permanganate New Jersey spill list: Potassium permanganate Louisiana spill reporting: Potassium permanganate California Director's list of Hazardous Substances: Potassium permanganate

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS C: Oxidizing material. CLASS E: Corrosive solid.

DSCL (EEC):
R8- Contact with combustible material may cause fire. R22- Harmful if swallowed. R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S60- This material and its container must be disposed of as hazardous waste. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:50 PM

Last Updated: 11/01/2010 12:00 PM

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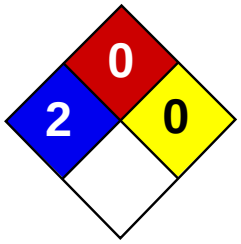

Health	2
Fire	0
Reactivity	0
Personal Protection	

Material Safety Data Sheet
Sodium Hydroxide, 25% MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sodium Hydroxide, 25%

Catalog Codes: SLS4210

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Sodium hydroxide; Water

CI#: Not applicable.

Synonym:

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium hydroxide	1310-73-2	25
Water	7732-18-5	75

Toxicological Data on Ingredients: Sodium hydroxide LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (corrosive, irritant), of eye contact (irritant), of ingestion. Hazardous in case of inhalation. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-irritating to the eyes. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe

skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Finish by rinsing thoroughly with running water to avoid a possible infection. Cold water may be used.

Skin Contact:
If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands : Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

Large Spill:
Corrosive liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep container dry. Do not breathe gas/fumes/ vapour/spray. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes Keep away from incompatibles such as acids.

Storage:
Alkalis may be stored in heavy duty gauge steel containers. Corrosive materials should be stored in a separate safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Sodium hydroxide CEIL: 2 (mg/m3) from ACGIH [1995] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Odorless.

Taste: Alkaline. Bitter. (Strong.)

Molecular Weight: Not applicable.

Color: Clear Colorless.

pH (1% soln/water): Basic.

Boiling Point: The lowest known value is 100°C (212°F) (Water).

Melting Point: Not available.

Critical Temperature: Not available.

Specific Gravity: Weighted average: 1.15 (Water = 1)

Vapor Pressure: The highest known value is 17.535 mm of Hg (@ 20°C) (Water).

Vapor Density: The highest known value is 0.62 (Air = 1) (Water).

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Extremely reactive or incompatible with acids.

Corrosivity:
Highly corrosive in presence of aluminum. Slightly corrosive to corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (corrosive, irritant), of ingestion. Hazardous in case of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 8: Corrosive liquid.

Identification: : Sodium hydroxide, solution (Sodium hydroxide) : UN1824 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Sodium hydroxide Massachusetts RTK: Sodium hydroxide TSCA 8(b) inventory: Sodium hydroxide; Water

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC): R35- Causes severe burns.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 12:05 PM

Last Updated: 11/01/2010 12:00 PM

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SAFETY DATA SHEET

PRODUCT

Tri-ACT® 1801

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **Tri-ACT® 1801**

APPLICATION : CORROSION INHIBITOR

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 3 / 3* FLAMMABILITY : 2 / 2 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has identified the following chemical substance(s) as hazardous. Consult Section 15 for the nature of the hazard(s).

Hazardous Substance(s)	CAS NO	% (w/w)
Cyclohexylamine	108-91-8	5.0 - 10.0
Monoethanolamine	141-43-5	10.0 - 30.0
Methoxypropylamine	5332-73-0	10.0 - 30.0
Hydrazine	302-01-2	<= 0.3

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

DANGER
Corrosive. Combustible. Causes severe burns. Harmful in contact with skin and if swallowed May cause sensitization by skin contact. Vapors may have a strong offensive odor which may cause sensory response including headache, nausea and vomiting. This product contains low levels of hydrazine. Upon standing, hydrazine may be generated in excess of 1,000 ppm. The International Agency for Research on Cancer(IARC) has evaluated hydrazine, and found it to be a possible human carcinogen (Group 2B) based on sufficient animal data and inadequate human data.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Keep away from sources of ignition - No smoking. Keep away from heat. Keep container tightly closed and in a well-ventilated place. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Protect product from freezing.
Wear a face shield. Wear chemical resistant apron, chemical splash goggles, impervious gloves and boots. Combustible Liquid; may form combustible mixtures at or above the flash point. Empty product containers may contain product residue. Do not pressurize, cut, heat, weld, or expose containers to flame or other sources of ignition. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin, Inhalation

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
Corrosive. Will cause eye burns and permanent tissue damage. Exposure to low vapor concentrations can result in foggy or blurred vision, objects appearing bluish and appearance of a halo around lights. These symptoms are temporary.

SKIN CONTACT :
Corrosive; causes permanent skin damage. Harmful if absorbed through skin. May cause sensitization by skin contact.

INGESTION :
Not a likely route of exposure. Corrosive; causes chemical burns to the mouth, throat and stomach. Harmful if swallowed.

INHALATION :
Irritating, in high concentrations, to the eyes, nose, throat and lungs. Vapors may have a strong offensive odor which may cause sensory response including headache, nausea and vomiting.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

HUMAN HEALTH HAZARDS - CHRONIC :
The International Agency for Research on Cancer(IARC) has evaluated hydrazine, and found it to be a possible human carcinogen (Group 2B) based on sufficient animal data and inadequate human data.
Prolonged exposure to cyclohexylamine in the diet has produced reproductive effects in rats. The relevance to humans is unknown.

4. FIRST AID MEASURES

EYE CONTACT :
Immediately flush eye with water for at least 15 minutes while holding eyelids open. PROMPT ACTION IS ESSENTIAL IN CASE OF CONTACT. Get immediate medical attention.

SKIN CONTACT :
Immediately flush with plenty of water for at least 15 minutes. Use a mild soap if available. For a large splash, flood body under a shower. Get immediate medical attention. Contaminated clothing, shoes, and leather goods must be discarded or cleaned before re-use.

INGESTION :
Get immediate medical attention. DO NOT INDUCE VOMITING. If conscious, washout mouth and give water to drink.

INHALATION :
Remove to fresh air, treat symptomatically. Get immediate medical attention.

NOTE TO PHYSICIAN :
Probable mucosal damage may contraindicate the use of gastric lavage. Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : 133 °F / 56 °C (PMCC)

EXTINGUISHING MEDIA :
Dry powder, Carbon dioxide, Foam, Other extinguishing agent suitable for Class B fires, For large fires, use water spray or fog, thoroughly drenching the burning material.
Keep containers cool by spraying with water.

FIRE AND EXPLOSION HAZARD :
Combustible Liquid; may form combustible mixtures at or above the flash point. Empty product containers may contain product residue. Do not pressurize, cut, heat, weld, or expose containers to flame or other sources of ignition. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible. Remove sources of ignition. Ensure clean-up is conducted by trained personnel only. Do not touch spilled material. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Notify appropriate government, occupational health and safety and environmental authorities.

METHODS FOR CLEANING UP :
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces with water or aqueous cleaning agents. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Do not contaminate surface water.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Do not breathe vapors/gases/dust. Use with adequate ventilation. Avoid generating aerosols and mists. Keep away from acids and oxidizing agents. Do not use, store, spill or pour near heat, sparks or open flame. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available.

STORAGE CONDITIONS :
Store in suitable labeled containers. Store the containers tightly closed. Store away from heat and sources of ignition. Have appropriate fire extinguishers available in and near the storage area. Connections must be grounded to avoid electrical charges. Store separately from oxidizers. Store separately from acids. Amine and sulphite products should not be stored within close proximity or resulting vapors may form visible airborne particles.

SUITABLE CONSTRUCTION MATERIAL :
Stainless Steel 304, Stainless Steel 316L, Buna-N, EPDM, Polypropylene (rigid), Polyethylene (rigid)

UNSUITABLE CONSTRUCTION MATERIAL :
Brass, Neoprene, Polyurethane, Plasite 7122, Plasite 4300, CPVC (rigid), coated steel, Fluoroelastomer, Chlorosulfonated polyethylene rubber Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
Exposure guidelines have not been established for this product. Available exposure limits for the substance(s) are shown below.

Substance(s)	Category:	ppm	mg/m3	Non-Standard Unit
Cyclohexylamine	ACGIH/TWA	10		
Monoethanolamine	ACGIH/TWA	3		
	ACGIH/STEL	6		
	OSHA Z1/PEL	3	6	
Hydrazine	ACGIH/TWA	0.01		
	ACGIH/Skin*			
	OSHA Z1/PEL	1	1.3	
	OSHA Z1/Skin*			
Methoxypropylamine	WEEL/TWA	5		
	WEEL/STEL	15		

* Can be absorbed through the skin.

ENGINEERING MEASURES :
General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :
When handling this product, the use of chemical gauntlets is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear chemical resistant apron, chemical splash goggles, impervious gloves and boots. A full slicker suit is recommended if gross exposure is possible.

EYE PROTECTION :
Wear a face shield with chemical splash goggles.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Eye wash station and safety shower are necessary. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is: Low

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Pink Light yellow
ODOR	Amine

SPECIFIC GRAVITY	0.99 - 1.01 @ 77 °F / 25 °C
DENSITY	8.25 - 8.33 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	11.9 - 12.9
VISCOSITY	5 cps @ 77 °F / 25 °C
FREEZING POINT	-8 °F / -22 °C
BOILING POINT	/ > 100 °C
VAPOR PRESSURE	29 mm Hg @ 100 °F / 12 mm Hg @ 68 °F /

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Heat and sources of ignition including static discharges. Freezing temperatures.

MATERIALS TO AVOID :
Contact with strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering or boiling and toxic vapors. Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors. Avoid contact with SO2 or acidic bisulfite products, which may react to form visible airborne amine salt particles. Certain amines in contact with nitrous acid, organic or inorganic nitrites or atmospheres with high nitrous oxide concentrations may produce N-nitrosamines, many of which are cancer-causing agents to laboratory animals.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon, Oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

The following results are for the hazardous components.

ACUTE ORAL TOXICITY :
Species: Rat
LD50: 156 mg/kg
Test Descriptor: Hazardous component Cyclohexylamine

ACUTE DERMAL TOXICITY :
Species: Rabbit
LD50: 320 mg/kg
Test Descriptor: Hazardous component Cyclohexylamine

ACUTE INHALATION TOXICITY :
Species: Rat
LC50: 8000 PPM (4 hrs)
Test Descriptor: Hazardous component Cyclohexylamine

SENSITIZATION :
Repeated or prolonged contact may cause skin sensitization. Methoxypropylamine is reported to cause skin sensitization in guinea pigs.

CARCINOGENICITY :
The International Agency for Research on Cancer(IARC) has evaluated hydrazine, and found it to be a possible human carcinogen (Group 2B) based on sufficient animal data and inadequate human data.

REPRODUCTIVE EFFECTS :
Prolonged exposure to cyclohexylamine in the diet has produced reproductive effects in rats. The relevance to humans is unknown.

MUTAGENICITY :
A mutagenicity test battery on cyclohexylamine was inconclusive. In a short-term test, cyclohexylamine caused mutation in human white blood cells. A bacterial mutagenicity (Ames) bioassay was negative for methoxypropylamine.

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: High

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Fathead Minnow	96 hrs	194 mg/l	Product
Rainbow Trout	96 hrs	176 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	205 mg/l		Product

PERSISTENCY AND DEGRADATION :

Chemical Oxygen Demand (COD) : 524,000 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
5 d	6,400 mg/l	Product

The product is biodegradable.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: High

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste.

Hazardous Waste: D001, D002

Hazardous wastes must be transported by a licensed hazardous waste transporter and disposed of or treated in a properly licensed hazardous waste treatment, storage, disposal or recycling facility. Consult local, state, and federal regulations for specific requirements.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

The presence of an RQ component (Reportable Quantity for U.S. EPA and DOT) in this product causes it to be regulated with an additional description of RQ for road, or as a class 9 for road and air, ONLY when the net weight in the package exceeds the calculated RQ for the product.

LAND TRANSPORT :

Proper Shipping Name :	AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.
Technical Name(s) :	Cyclohexylamine, Methoxypropylamine
UN/ID No :	UN 2734
Hazard Class - Primary :	8
Hazard Class - Secondary :	3
Packing Group :	II
Flash Point :	56 °C / 133 °F
Reportable Quantity (per package) :	398 lbs
RQ Component :	HYDRAZINE

AIR TRANSPORT (ICAO/IATA) :

The presence of an RQ component (Reportable Quantity for U.S. EPA and DOT) in this product causes it to be regulated with an additional description of RQ for road, or as a class 9 for road and air, ONLY when the net weight in the package exceeds the calculated RQ for the product.

Proper Shipping Name :	AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.
Technical Name(s) :	Cyclohexylamine, Methoxypropylamine
UN/ID No :	UN 2734
Hazard Class - Primary :	8
Hazard Class - Secondary :	3
Packing Group :	II
Reportable Quantity (per package) :	398 lbs
RQ Component :	HYDRAZINE

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.
Technical Name(s) :	Cyclohexylamine, Methoxypropylamine
UN/ID No :	UN 2734
Hazard Class - Primary :	8
Hazard Class - Secondary :	3
Packing Group :	II

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Based on our hazard evaluation, the following substance(s) in this product is/are hazardous and the reason(s) is/are shown below.

Cyclohexylamine : Corrosive, Flammable, Prolonged exposure to cyclohexylamine in the diet has produced reproductive effects in rats. The relevance to humans is unknown.
Monoethanolamine : Corrosive, Combustible., HARMFUL
Methoxypropylamine : Corrosive, Flammable, Dermal Sensitizer
Hydrazine : Cancer suspect agent (refer to Section 3), Corrosive, Dermal Sensitizer

CERCLA/SUPERFUND, 40 CFR 302 :
This product contains the following Reportable Quantity (RQ) Substance. Also listed is the RQ for the product. If a reportable quantity of product is released, it requires notification to the NATIONAL RESPONSE CENTER, WASHINGTON, D.C. (1-800-424-8802).

RQ Substance	RQ
Hydrazine	398 lbs

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product contains the following substance(s) which is listed in Appendix A and B as an Extremely Hazardous Substance. Listed below are the statutory Threshold Planning Quantity (TPQ) for the substance(s) and the Reportable Quantity (RQ) of the product. If a reportable quantity of product is released, it requires notification to your State Emergency Response Commission. You may also be required to notify the National Response Center - See CERCLA/SUPERFUND, above.

Extremely Hazardous Substance	TPQ	RQ
Cyclohexylamine	1,000 lbs	398 lbs

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found this product to be hazardous. The product should be reported under the following indicated EPA hazard categories:

X	Immediate (Acute) Health Hazard
X	Delayed (Chronic) Health Hazard
X	Fire Hazard
-	Sudden Release of Pressure Hazard
-	Reactive Hazard

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product contains the following substance(s), (with CAS # and % range) which appear(s) on the List of Toxic Chemicals

Hazardous Substance(s)	CAS NO	% (w/w)
Hydrazine	302-01-2	0.1 - 1.0

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

FOOD AND DRUG ADMINISTRATION (FDA) Federal Food, Drug and Cosmetic Act :
When use situations necessitate compliance with FDA regulations, this product is acceptable under : the following use conditions.

This product may be used in pulp and papermill boilers where the steam is used to treat pulp in the manufacture of paper and paperboard that may be used to package food.

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
This product contains the following substances listed in the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Hydrazine	Sec. 112

CALIFORNIA PROPOSITION 65 :
This product contains the following substances which require warning under California Proposition 65. Additional components may be unintentionally present at trace levels.

Substance(s)	Concentration	EFFECTS
• Hydrazine	<= .3 %	Causes Cancer

MICHIGAN CRITICAL MATERIALS :
This product contains the following substances listed in the regulation. Additional components may be unintentionally present at trace levels.

Hydrazine

STATE RIGHT TO KNOW LAWS :
The following substances are disclosed for compliance with State Right to Know Laws:

Cyclohexylamine	108-91-8
Monoethanolamine	141-43-5
Methoxypropylamine	5332-73-0
Hydrazine	302-01-2

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version),
Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH,
(TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight™ (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 01/13/2011
Version Number : 6.0

Cricket Valley Energy Center
Dover, New York
Spill Prevention Report

Appendix F – Transfer Station Protocol

Cricket Valley Energy Center
Spill Prevention Report

Delivery Procedures for Tanks

Note:
This procedure is to be completed in the presence of CVEC personnel. Before the delivery is to be accepted, the Facility Manager is responsible to ensure that the delivery truck is correctly positioned in the containment area of the transfer location to allow the chemical, if spilled, to be contained within the containment basin. The CVEC personnel are responsible to ensure that the driver is wearing his/her proper personal protective equipment (P.P.E.) during the delivery, including during connection and disconnection of the fill hose.

Personal Protection Equipment (P.P.E.):

- Chemical Gloves
- Chemical Goggles
- Face Shield
- Apron
- Safety Shoes – Rubber Boots or Rubber Overshoes

Procedure:

1. When a delivery vehicle arrives at the facility, CVEC personnel shall be present. The personnel must confirm that the delivery is made at the correct location and that the correct chemical is delivered.
2. If the delivery is at the correct location, the CVEC personnel must determine if there is enough room in the storage tank(s) to safely accept the delivery.
3. The level of the receiving tank and the chemical name and identification number shall be recorded.
4. The operator will close any drain valve(s) to prevent migration of chemical should a leak occur.
5. The driver will make the hose connection. The CVEC personnel shall record the meter reading from the truck's delivery system.
6. The driver will ensure that connection to the fill port is secure, but flexible so that any movement will not damage the connection or cause a leak to occur. When the delivery truck is in place and connected to the transfer line, caution signs are to be placed to provide warning to approaching people from any anticipated direction. These signs must remain in place until product transfer operations are completed, and all connections are removed.
7. The driver shall begin pumping upon approval of the CVEC personnel.
8. The level indicator(s) must be observed. The level indicator(s) should be monitored throughout the entire product transfer period.
9. During the transfer period, any leaks of product from the truck (hose, valves, etc.) must be reported to the driver immediately.

10. If the working capacity of the tank is reached or an equipment failure or emergency occurs, the CVEC personnel and the driver must take immediate action to stop the flow of product. Should a leak be discovered during the transfer, measures must be taken immediately to stop the leak and clean up the spilled material.
11. After the driver has finished the product transfer, disconnected the hose and replaced the fill cap, CVEC personnel shall check the level indicator(s) and verify that the appropriate volume of product was received. The level reading shall be recorded. The meter on the truck's product delivery system shall also be read and recorded.
12. The CVEC personnel shall check the secondary containment area for spills or leaks.
13. Following removal of any residual chemical, the delivery vehicle shall be cleaned of any spilled product, as necessary, and removed from the area. PPE shall be removed and, as necessary, cleaned or disposed. The signs shall be removed and any drainage valve(s) re-opened.

Cricket Valley Energy Center
Dover, New York
Spill Prevention Report

Appendix G – Inspection Reports

AST Inspection Form

This inspection record must be completed each month. Any item that receives "yes" as an answer must be addressed immediately. This monthly inspection is intended to be a routine walk-around that can generally be conducted by properly trained facility personnel.

	Description	**Tank ID _____**	
I	**Check tank for leaks, specifically looking for:**	**yes**	**no**
A.	*Drip marks;*		
B.	*Discoloration of tank;*		
C.	*Puddles containing spilled or leaked material;*		
D.	*Corrosion;*		
E.	*Cracks;*		
F.	*Localized dead vegetation; and*		
G.	*Stained area*		
II	**Check piping for:**	**yes**	**no**
A.	*Droplets of stored material;*		
B.	*Discoloration;*		
C.	*Corrosion;*		
D.	*Cracks;*		
E.	*Evidence of stored material seepage from valves or seals; and*		
F.	*Loose fittings.*		

Authorized Facility Representative:

Signature: _____ Name: _____
Title: _____ Date: _____

NEW YORK STATE **CHEMICAL BULK STORAGE** INSPECTION REPORT

Rev. 8/28/06
Cbscklst 2005

CBS#___-000_____ or ☐ Unregistered Inspection number _____ Date _____

Site Name _____	Owner Name _____
Site Address _____	Owner Address _____
_____	_____
Site Contact _____	Owner Contact _____
Phone Number _____	Phone Number _____
Fax Number _____	Fax Number _____
Email Address _____	Email Address _____

1.Visitor parking 2. Centroid

of site **Map Datum**
GIS: **E** _____ **N** _____ **Location** 3. At AST 4. At UST 5.Main Gate ✓NAD83

SITE Representative _____
NYSDEC Inspector _____

I. GENERAL	**YES**	**NO**	**X**
1. All regulated tanks at this site are registered [§596.2(a)]?			
2. Is the registration certificate posted at the facility [§596.2(g)]?			
3. Is registration information current & correct [§596.2(f)]?			

II. SPILL PREVENTION REPORT (SPR)	**YES**	**NO**	**X**
A. Preparation of the SPR			
4. Does facility have an SPR [§598.1(k)(1)]? **Y/N** Date:			
5. Has SPR been updated annually or Whenever a significant release occurred or When a substantial modification was made. **Y/N**/X			
6. Does the SPR contains a copy of current registration application & certificate. [§598.1(k)(2)(i)]? **Y/N**			
7. Current approval of management [§598.1(k)(2)(ii)]? **Y/N**			
8. Current site map [§598.1(k)(2)(iii)]? Locate/identify tanks, transfer stations, connecting piping **Y/N**			
9. Preparer's name and signature [§598.1(k)(2)(iv)]? **Y/N**			
10. Listing and description of spills for past 5 years [§598.1(k)(2)(v)]? **Y/N**			
11. An assessment of causes of spills, leaks, and releases for past 5 years §598.1(k)(2)(vi)]? **Y/N**			
12. SPR contain a spill response plan [§598.1(k)(2)(x)]? **Y/N/1 (incomplete)**			
B. Periodic Inspections of Tank/Piping and Record keeping §598.1(k)(2)(viii) , §598.6 &§598.8]			
13. Is weekly monitoring performed between the tank/pipe and the secondary containment system for: a. UST [; §598.6(b)(2)]? Y/N/X			

b. Underground piping [§599.15(b); §598.6(c)(1); §598.5(a)]? Can be in combination with: inventory with annual tightness test; vapor wells; gw wells; auto tank gauging; equiv. **Y/N/X**			
14. UST Systems - Monthly Inspections Monthly visual is performed [§598.6(a)(1)]? Y/N/X/1 (records not retained for 10 yrs §598.8(a))/2 (report signed, dated, certified §598.8(b))/3 (records not in SPR)/4(operability)			
15. AST Monthly (≥10% volume beneath ground) [§598.7(b)] a. Aboveground tank - Monthly leak detection is performed [§598.7(b)]? Y/N/X/1 (records not retained for 10 yrs §598.8(a))/ 2 (report signed, dated, certified §598.8(b)/ 3 (records not in SPR)			
b. Underground piping - Monthly leak detection is performed [§598.6(c);§598.7(b);§599.15(b)]? Y/N/ 1 (records not retained for 10 yrs §598.8(a))/ 2 (report signed, dated, certified §598.8(b)/ 3 (records not in SPR)			
16. UST Systems - Annual Inspections [§598.6(a)(2)] Date: _____ a. Automatic Line Leak Detector? Y/N(not performed)/1(no records in SPR)/2(records not retained 5 yrs)/3(no cert.)/4(not operational)			
b. Cathodic Protection System for Tanks? Y/N/X(not performed)/1(no records in SPR)/2(records not retained 5 yrs)/3(no cert.)/4(not maintained to achieve protection)			
c. Cathodic Protection System for Piping? Y/N(not performed)/1(no records in SPR)/ 2(records not retained 5 yrs)/3(no cert.)/4(not maintained to achieve protection)			
17. AST Systems - Annual Inspections [§598.7] Date Completed:_____ a. Aboveground Tank- (1) Visual inspections performed [§598.7(c)(2)]? Y/N/ 1 (records not in SPR)			
(2) For tank subject to corrosion, cathodic protection system is inspected by qualified technician and is maintained to achieve protection [§598.7(c)(1); §598.8(a); §598.8(b) & §598.9]?Y/N (not performed)/ X(not in contact with soil)/1(no records in SPR)/ 2 (records not retained 5 yrs)/ 3 (no cert.)/ 4 (not maintained to achieve protection)			
b. Aboveground Piping - (1) Visual inspections performed [§598.7(c)(2)]? Y/N/1 (records not in SPR)			
(2) For piping subject to corrosion, cathodic protection system is inspected by qualified technician and is maintained to achieve protection [§598.7(c)(1); §598.8(a); §598.8(b) & §598.9]? Y/N(not performed)/ X(not in contact with soil)/ 1 (no records in SPR)/ 2 (records not retained 5 yrs)/3 (no cert.)/ 4 (not maintained to achieve protection)			
18. AST Systems - 5-year Inspections [§598.7(d)] Date: _____ Aboveground tanks and piping must undergo a 5-year inspection in accordance with a consensus code, standard, or practice. An assessment & evaluation must be made of structural soundness, system tightness, corrosion, wear, foundation weakness & operability. Reports are dated, signed, & certified [§598.8(b)] & records are maintained for 10-year period [§598.8(a)]. For tanks > 10,000 gal, the inspection is certified by a NYS-licensed professional engineer. The remaining life expectancy must be determined. a. Aboveground tanks? Y/N/X/ 1 (not in accordance with code)/ 2 (no assessment)/ 3 (no cert)/ 4 (records not retained 10 yrs)/ 5 (no cert. for tank>10,000 g)/ 6 (records not in SPR)			
b. Aboveground piping? Y/N/X/ 1(not in accordance with code)/ 2(no assessment)/3(no cert)/4(records not retained 10 yrs)/5 (records not in SPR)			

19. UST Inspection - Reconditioned Tanks With Liners [§598.6(d)]? Y/N (not inspected internally)/X/ 1 (not performing to design specs)/ 2 (no assessment)/ 3 (no cert.)/ 4 (records not retained)/ 5 (records not in SPR)			
20. Facility report on status of compliance [§598.1(k)(2)(vii)]?			
C. Tank & Piping Certifications (Apply to tanks installed on or after 2/11/95) 21. Does the SPR contain a certification statement for design and installation of tank and piping systems - a. USTs [§599.6(g)(4)& (5)]? Y/N/ X (no USTs)/1 (record not available)/2 (no records for 5 yrs)/3 (records not in SPR)			
b. ASTs [§599.11(f)(4) & (5)]? Y/N/ X (no ASTs)/1 (record not available)/2 (no records for 5 yrs)/3 (records not in SPR)			
c. Piping [§599.16(e)(3)&(4)]? Y/N/1 (record not available)/2 (no records for 5 yrs)/3 (records not in SPR)			
D. Life Expectancy/Warranty 22. UST secondary containment liner - liner life expectancy is specified in the SPR [§599.4(d)]? Y/N/X			
23. Useful life for UST tank design, if < 30 years, is specified in the SPR [§599.3(c)(1)]? Y/N/X			
24. Useful life for AST tank design, if < 30 years, is specified in the SPR [§599.8(b)(1)]? Y/N/X			
25. Piping life expectancy is specified in the SPR? [§599.13(a)(1)]? Y/N			
E. Additional Requirements			
26. Are rupture disks replaced			
a. Every 3 years, Y/N (no option selected)/X			
b. According to manufacturer's guidelines, Y/N (no option selected)/X			
c. On the basis of operating experience [§598.9(f)]?Y/N (no option selected)/X			
27. Does SPR contain a site assessment for UST, or AST with ≥10% volume beneath ground, for{ closure[§598.10(e)]}; {change-in-service [§598.10(a)(2)} or {when directed by the department[§598.1(g)(3)]} Y/N/X (not applicable)/1 (inadequate)/2 (not in SPR §598.1(k)(4) &§598.10(e)(4))			
28. If facility have written procedures to prevent deliveries to the wrong tank, are they referenced in SPR [§598.4(b)(7)]? Y/N/X (single tank with no other fill ports, or facility has mated connections)			

III. TRANSFER STATIONS & HAZARDOUS SUBSTANCE TRANSFERS	**YES**	**NO**	**X**
29. Transfer station [§599.17(c)(2)]: Transfer stations must have a permanently installed secondary containment system. Containment system must have an acceptable spill containment volume; satisfy permeability to substance stored; constructed, coated, or lined with materials that are compatible with substance stored; and equipped with a sump and manually-controlled drainage system (must be locked closed). Y/X/N (no containment)/ 1 (not perm. installed)/ 2 (unacceptable cont. vol.)/ 3 (permeable)/ 4(not maintained)/5 (incompatible)/ 6 (no sump or lockable drainage valve)			
To prevent mixing of incompatible substances: [§598.4(b)(7)] 30. Does the facility have written site procedures in SPR to prevent delivery to the wrong tank, fill ports with mated connections? Y/N/X (have written procedures, or facility has single tank of any type)			

31. Are remote fill/dispensing ports properly labeled at point of delivery. [§ 598.4(b)(8), 599.17(b)(1)(ii), 596.2(h)]? Tank ID#, chemical or common name, hazard warning, (for USTs - design & working capacities are required in addition) Y/N			
32. Valves for filling/emptying a tank are properly labeled for closed/open positions [§598.4(b)(8)]? Y/N			

Storage of Solids and Non-Stationary Tanks:			
33. Are water soluble solids stored in non-stationary tanks and protected from stormwater [§598.5(f)]? Y/N/X/1 (floor is permeable)/ 2 (no enclosure or container does not prevent entry of stormwater)			
34. Do non-stationary tanks satisfy performance standards [§598.5(g)]: Y/N/X/1 (proximity)/2 (enclosure for water reactive)/3 (impervious floor, curb, 110%, permeability)/4 (NSTs satisfy consensus code)/5 (stored in stable position)/6 (labeling & inventory records)			

IV. ABOVEGROUND STORAGE TANKS/PIPING

Aboveground Storage Tanks * **For tanks installed prior to 02/11/95, items marked with an asterisk are recommended but are NOT required until the tank system undergoes substantial modification**								
Tank Volume if different than registered								
Date Installed								
35. Are daily visual inspections performed on AST systems [§598.7(a)]? Y/N								
36. Are temporarily out-of-service tanks (>30 days) properly closed [§598.10(b)]? Y/N/X								
37. Are permanently out-of-service tanks properly closed [§598.10(c)]? Y/N/X								
38. Protected against scouring [§599.8(a)]? Y/N/X								
39. Tanks subject to melting are protected against fire [§599.8(c)]? Y/N/X								
40. Tank bottoms resting on soil are cathodically protected [§599.8(d)]? Y/N/X/1 (improper design)/2 (not insulated from piping)/3 (not isolated from stray current)								
41. Tank $\geq$ 5,000 gallons has a manway [§599.8(e)]? Y/N/X								
42. Exterior surfaces are corrosion protected (painted) [§598.9(e) & §599.8(f)]? Y/N/X								
43.*For tank bottoms resting on ground, tank is equipped with double bottom or impervious barrier[§599.8(g)]? Y/N/X("old tanks")								
44. Tanks are protected from explosion [§599.8(h)]? Y/N								
45.*Does tank have leak monitoring between bottom and secondary containment [§599.10(a)]? Y/N/X("old tanks")								
46. High level alarm, high-level trip, or automatic bypass to overflow tank is installed [§598.5(b); §599.17(b)(1)(i)]? Y/N/1 (not visible/audible at remote fill port)/ 2 (not operational)								

47. Level gauge [§599.17(b)(1)(iii)]								
a. If a remote fill is present, is there a level gauge & flow control at remote fill port**?** Y (has both) / N (neither)/ X/ 1 (no gauge)/2 (gauge not operational)/3 (no flow control)/ 4 (flow control not operational)								
b. If no remote fill port, is there a level gauge at the AST? Y(has gauge or tank is translucent)/ N/ 1(not operational)								
48. Vacuum and over pressurization [§599.18]?								
a. Vacuum and over pressurization equipment installed? Y/N								
b. Relief valves (safety, pressure, & vacuum) are properly labeled [§599.18(d)]? Y/N/X								
49. Secondary Containment [§598.5(c) & §599.9].								
a. Tank has secondary containment? Y/N								
b. Spill containment volume is 110%? Y/N								
c. Construction satisfies permeability of $1x10^{-6}$ cm/sec to substance stored? Y/N								
d. Constructed, coated, or lined with materials that are compatible? Y/N								
e. Equipped with a sump and a drainage system which is manually-controlled from outside the diked area? Y/N								
f. Is gravity drainage system valve locked closed)? Y/N/X								
50. Valves for filling/emptying a tank are properly labeled for closed/open positions [§598.4(b)(8)]? Y/N								
51. AST tank properly labeled [§596.2(h); §599.17(b)(1)(iii)]? Tank ID #; chemical or common name; total cap./working cap.; hazard signs/NYSUFP&BC. Y/N								
Aboveground Piping Systems 52. Are aboveground tanks/piping protected from atmospheric corrosion [§598.9(e)] & §599.13(c)(1)? Corrosion resistant eq; non-metallic cladding; paint; equivalent. Y/N (not corrosion protected)								
53. Does aboveground piping > 2" diameter have welded or flanged connections, or is constructed of plastic-lined metal piping with flared-end connections [§599.13(c)]? Y/N/X								
54. Piping in contact with soil is protected from corrosion [§599.13(b)] Y/N/X/1 (improper design)/2 (not isolated from tank)/3 (not isolated								
55. Automatic line leak detector for pressurized underground and on-ground piping [§598.6(c)(2)][§599.15(a)]?								
a. Is piping equipped with automatic line leak detector ? Y/N/X								
b. Is the leak detection system operable [§598.6(c)(2)? Y/N/X								
56.* Piping installed after Feb. 11, 1995 is properly labeled [§599.13(c)(4)]? Chemical name & placement at valves, pumps, switches, each side of wall, & each end of pipe. Y/N/X								
Pumps/valves are protected from leaks [§598.5(e)] using:								
57. Sealless or double seal pumps and values OR Y/N/X								

58. Pump/valve maintenance program, OR Y/N/X								
59. Pump/valves have secondary containment. Y/N/X / 1(permeable) /2(incompatible)								
Valves/Couplings Used in Transfers [§599.17(b)(2)]:								
60. Valves/couplings are located within transfer station? Y/N/X								
61. Dry disconnect valve provided on fill line? Y/N/X								
62. Check valve provided on fill line? Y/N/X								
63. Control valve provided for each tank connection through which hazardous substances flows? Y/N								

V. UNDERGROUND STORAGE TANKS/PIPING

Tank Volume if different than registered									
Date Installed									
64. Are vapor and groundwater monitoring wells labeled "Monitoring Well"or "Test Well - No Fill" & equipped with a locking cap? [§598.6(b)(3&4)] Y/X/1 (not labeled)/2 (not equipped or not locked)									
65. Are temporarily out-of-service tanks (>30 days) properly closed [§598.10(b)]? Y/N/X									
66. Are permanently out-of-service tanks properly closed [§598.10(c)]? Y/N/X									
67. Are USTs properly labeled [§599.3(a) & §596.2(h)]? Y/N/X									
68. Is UST protected against scouring [§599.3(b)]? Y/N/X									
69. Is UST protected against corrosion [§599.3(d)]? Y/N/X/1 (improper design)/									
70. Secondary containment [§598.5(a) & §599.4]?									
a. Tank has secondary containment? Double wall; vault; liner; or equiv. Y/N									
b. Construction satisfies permeability of $1x10^{-6}$ cm/sec to substance stored? Y/N									
c. Designed, installed, & operated to prevent Allow release to environment? Y/N									

d. Allows for detection & collection of releases or spills until material is removed? Y/N									
e. Constructed of, or lined with, materials compatible with substance stored and having sufficient strength & thickness to prevent failure? Y/N									
f. Foundation suitable to prevent failure due to settlement, compression, & uplift? Y/N									
71. Does tank have leak monitoring §598.6 (b)(2)]?,[§599.5]? Y/N (not installed)/									
72. High level alarm, high-level trip, or automatic bypass to overflow tank is installed [§599.17(b)(1)(I)]? Y/N/1 (not visible/audible at remote fill port)/ 2(operational)									
73. Vacuum and over pressurization [§599.18]? a. Vacuum and over pressurization equipment installed? Y/N									
b. Relief valves (safety, pressure, & vacuum) are properly labeled [§599.18(d)]? Y/N									
74. Valves for filling/emptying a tank are properly labeled for closed/open positions [§598.4(b)(8)]? Y/N									

<u>If no on-ground or underground piping, inspection is COMPLETED.</u> **<u>On-Ground/Underground Piping:</u>**									
75. Secondary Containment [§599.14]									
a. Piping has secondary containment? Double wall, vault, or liner Y/N/X									
b. Construction satisfies permeability of $1x10^{-6}$ cm/sec to sub. stored? Y **/N**									
c. Designed, installed, and operated to prevent release to environment? Y/N									
d. Allows for detection and collection of releases or spills until material is removed? Y/N									
e. Constructed of, or lined with, materials compatible with substance stored and having sufficient strength & thickness to prevent failure? Y/N									
f. Foundation suitable to prevent failure due to settlement, compression, and uplift? Y/N									
g. Sloped and operated to remove liquids resulting from leaks, spills, precipitation? Y/N									
76. Automatic line leak detector for pressurized underground and on-ground piping [§599.15(a)]? a. Is piping equipped with automatic line leak detector ? Y/N/X									
b. Is the leak detection system operable? Y/N/X									
77. Leak detection systems for piping - a. Is piping equipped with a leak detection system [§599.15(b)]? Y/N									
b. Is the leak detection system operable [§599.14(a)(2)(vii)]? Y/N									
78. Piping in contact with soil is protected from corrosion [§599.13(b)] Y/N/X/1 (improper design)/2 (not isolated from tank)/3 (not isolated from stray current)									

Y=Yes N=No X=Not Applicable Transfer Stations #29 AST #35 AG PIPING #52 UST #64

NOTES:

Cricket Valley Energy Center
Dover, New York
Spill Prevention Report

Appendix H – Personnel Training Record

PERSONNEL TRAINING RECORD:

Cricket Valley Energy Center
2241 Route 22, Dover, New York

SPR Training

Conducted By:

Name_____

Title_____

Date_____

Name	Title	Signature

Retain one copy of this training record in the SPR.

Cricket Valley Energy Center
Dover, New York
Spill Prevention Report

Appendix I – Spill Equipment

Spill Equipment

Cricket Valley Energy Center
2241 Route 22, Dover, New York

Spill Response Equipment	
Amount	**Type**
Items Note:	
An inventory of absorbent material, spill pads and spill containment booms is maintained in each storage area. This material is sufficient to respond to most minor discharges occurring at the facility.	