Lincoln County: Local Emergency Planning Committee (LEPC)

LINCOLN COUNTY
EMERGENCY MANAGEMENT

2023 Off Site Plan: City of Merrill – Wastewater

Lincoln County Board of Supervisors Chair	Lincoln County Administrative Coordinator	Lincoln County Director of Emergency Management	Lincoln County LEPC Chair
Don Friske	Renee Krueger	Tyler Verhasselt	Richard Burns

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I. Facility Information

A. City of Merrill--Wastewater

1. Address: 1004 East 1st Street, Merrill, WI 54452
2. Phone: (715) 536-6561
3. Facility ID # (Assigned by WEM): 60969

II. Facility Emergency Contacts

A. Tier II Contact:

1. Name: Gabe Steinagel
2. Position: Utility Manager
3. Office Phone: (715) 536-6561
4. Emergency Phone: (715) 218-1849
5. Email: Gabriel.steinagel@ci.merrill.wi.us

B. Tier II Emergency Coordinator:

1. Name: Josh Klug
2. Position: Merrill Fire Department—Chief
3. Emergency Phone: (715) 536-6561
4. Emergency Phone: (715) 218-0815
5. Email: josh.klug@ci.merrill.wi.us

III. Extremely Hazardous Substances (EHS)

A. EHS Chemicals OVER Threshold Planning Quantity (TPQ)

CAS #	Chemical Name	Maximum Daily Quantity (lbs.)	Max. Amount. of Largest Container (lbs.)	Vulnerability Zone (miles)
7782-50-5	Chlorine	1,350	1,350	> 10 miles

IV. Primary Emergency Responders

A. Lincoln County Sheriff's Office

1. Phone: 911 or (715) 563-6272

B. Lincoln County Sheriff's Office Emergency Communications Center

1. Phone: 911 or (715) 563-6272

C. Lincoln County Emergency Management

1. Phone: (715) 218-0128

D. Merrill Fire Department

1. Phone: 911 or (715) 536-2233

E. Merrill Police Department

1. Phone: 911 or (715) 536-8311

V. Support Available at Facility

A. Chemical Emergency Monitoring Equipment:

1. OSHA-required air monitoring equipment.

B. Personal Protective Equipment:

1. None

C. Other Equipment or Supplies:

1. City of Merrill employs a full-time fire service which is capable of handling minor hazardous materials incidents.

D. Outside Resources Available:

1. Lincoln County Emergency Management
   a) Pursuant to Lincoln County's Emergency Operations Plan (EOP), the incident commander and/or unified command will identify the need for hazmat response and relay that request to Lincoln County Sheriff's Office (LCSO) Communication Center whom with contact the appropriate team.

      The Tomahawk Fire Department is capable of handling minor hazardous materials incidents; however, if the incident exceeds the ability/capability of Tomahawk Fire Department LCSO Communications Center will request the appropriate agency. Lincoln County contracts with two (2) external hazmat response teams dependent on level of release, for Level B response Oneida County Sheriff Office Hazardous Materials Response Team; whereas, for Level A response Wausau Wisconsin Hazardous Response Team.

      For Level A incidents, the response of Wausau Wisconsin Hazardous Response Team must be requested through the Wisconsin Emergency Management (WEM) State Emergency Operations Center (SEOC). Contact the WEM SEOC Duty Officer at (800) 943-0003 for response.
2. Chemtrec: (800) 424-9300
   a) Unknown response time
3. National Response Center: (800) 424-8802
   a) Unknown response time
4. REI—Spill & Response Recovery: (800) 734-7745
   a) Unknown response time

VI. General information and Assumptions (Disclaimer)

The vulnerability zones set forth in this plan are based on the Environmental Protection Agency's (EPA) Technical Guidance for Hazard Analysis. The zones are based on a credible worst case scenario and identify the potential area for impact should an airborne release of an EHS occur.

A re-evaluation scenario with more realistic parameters has also been computed. Parameters used for both scenarios have been described as part of the hazard analysis summary.

CAMEO Suite software was used in the preparation of vulnerability zones. It should be noted that CAMEO*fm* cannot compute zones greater than 10 miles nor less than 0.1 miles. Thus, results that fall into these situations will be notes as "> 10 miles" or "< 0.1 miles".

The field Incident Commander shall determine the actual response to an incident and the affected area may vary from the planning vulnerability zone identified in this plan. Depending on wind speed and direction, the amount of material released and other pertinent factors, the ACTUAL vulnerability zone may be smaller, and in some instances larger, than the credible worst case vulnerability zone identified herein.

VII. Hazard Analysis Summary

The City of Merrill—Wastewater is a treatment plant for the residents for the city. The treatment plant is located on the south-east side of the city near the banks of the Wisconsin River. The treatment plant is manned from 7:00 AM to 3:30 PM every day of the year. In regards to electrical malfunction and flooding there are alarms wired to an auto-dialer which goes directly to Merrill Police Department for 24-hour protection.

A. Greatest Potential for Release

1. The greatest potential for release is a 1,350 lb cylinder of chlorine at the facility.

B. Vulnerability Zones (by chemical)

Chlorine: CAS #7782-50-5			
Amount Released:	1,350 lbs.		
Concentration:	100%		
Physical State:	Gas		
Diked Area:	No		
Level of Concern (LOC):	0.073 gm/m^3		
LOC Type:	Greenbook LOC		
Worst Case Scenario		**Re-Evaluation Scenario**	
Duration:	10 minutes	**Duration**	10 minutes
Wind Speed:	3.4 mph	**Wind Speed:**	11.9 mph
Ground Roughness:	Rural	**Ground Roughness:**	Urban
Atmospheric Stability Class:	F	**Atmospheric Stability Class:**	D
Risk:	Low	**Risk:**	Low
Consequences:	Low	**Consequences:**	Low
Overall Risk:	Low	**Overall Risk:**	Low
Threat Zone Radius:	> 10 miles	**Threat Zone Radius:**	0.4 miles

C. Estimation of Population Affected

1. Chlorine
    a) In the credible worst case scenario the total number of persons that could be affected by a release of the extremely hazardous substance has the potential of 9,337 of the general population and twenty (20) special facilities.
    b) In the re-evaluation scenario the total number of persons that could be affected by a release of the extremely hazardous substance has the potential of 9,337 of the general population and one (1) special facilities affected.
    c) Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.
    d) Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

D. Critical Infrastructure

1. City of Merrill-Wastewater
    a) 1004 East 1st Street, Merrill, WI 54452
    b) (715) 536-6561

E. Hospital

1. Aspirus Merrill Hospital
    a) 601 South Center Avenue, Merrill, WI 54452
    b) (715) 536-5511

F. Nursing Homes/Assisted Living Facilities

1. Pine Crest Nursing Home
    a) 2100 East 6th Street, Merrill, WI 54452
    b) (715) 536-0355
2. Bell Tower Residence Assisted Living
    a) 1500 O Day Street, Merrill, WI 54452
    b) (715) 841-9895
3. Woodland Court Elder Services, LLC.
    a) 1102 South Center Avenue, Merrill, WI 54452
    b) (715) 536-3399
4. Kindhearted Home Care, LLC.
    a) 120 South Mill Street, Merrill, WI 54452
    b) (715) 218-3772
5. Merrill Senior Center
    a) 303 North Sales Street, Merrill, WI 54452
    b) (715) 536-4226

6. Our Way, Inc.
    a) 1207 West Taylor Street #700B, Merrill, WI 54452
    b) (715) 722-0980

G. Schools

1. Merrill High School
    a) 1201 North Sales Street, Merrill, WI 54452
    b) (715) 536-4594
2. Prairie River Middle School
    a) 106 North Polk Street, Merrill, WI 54452
    b) (715) 536-9593
3. Washington Elementary School
    a) 1900 East 6th Street, Merrill, WI 54452
    b) (715) 536-2373
4. Kate Goodrich Elementary School
    a) 505 West 10th Street, Merrill, WI 54452
    b) (715) 536-5233
5. Trinity Merrill Lutheran School
    a) 611 West Main Street, Merrill 54452
    b) (715) 536-7501
6. Merrill Adult Diploma Academy
    a) 1004 East Street, Merrill, WI 54452
    b) (715) 536+1431

H. Child Care/Day Care

1. Merrill Child Care
    a) 503 South Center Avenue, Merrill, WI 54452
    b) (715) 539-2477
2. Trinity Lutheran Child Care
    a) 201 Strange Street, Merrill, WI 54452
    b) (715) 722-0523
3. Crystal's Country Daycare
    a) W5398 Taylor Street, Merrill, WI 54452
4. Parkside Pre-School Center
    a) 207 East 1st Street, Merrill, WI 54452
    b) (715) 536-7716
5. Tender Hearts, Precious Moments
    a) 1209 Jackson Street, Merrill, WI 54452
    b) (715) 409-9849
6. Merrill Head Start
    a) 1107 North Sales Street
    b) (715) 539-8361

7. Believe & Achieve Learning & Recreational Center
    a) 101 East 1st Street, Merrill, WI 54452
    b) (715) 539-3444

VIII. Population Protection

The determination to shelter in-place or to evacuate will be made by the on-scene commander as appropriate. The lead time for a hazardous materials incident may be very short. As a result, there may not be time enough for safe evacuation, especially when extremely toxic chemical fumes are involved. An evacuation under these considerations may expose the population to dangerous toxic chemicals and the decision may be made to shelter-in-place. Preferred areas for protective sheltering would be interior hallways, rooms on the side of the building away from where the hazard is approaching. Doors, windows, and other potential air leaks should be sealed up to prevent toxic fumes from entering.

Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.

IX. Special Considerations

A. None

X. Distribution List

- City of Merrill—Wastewater
- Merrill Fire Department
- Wisconsin Emergency Management Northeast Regional Office
- Oneida County Sheriff Office Hazardous Materials Response Team
- Wausau Wisconsin Hazardous Response Team
- Marathon County Emergency Management

XI. Supporting Documentation

A. Attachments

1. Attachment A, Record of Change and Review
2. Attachment B, Facility Layout and Site Information
3. Attachment C, Transportation Route Map
4. Attachment D, Safety Data Sheet for Chlorine
5. Attachment E, Vulnerability Zone Map for Chlorine

Attachment A

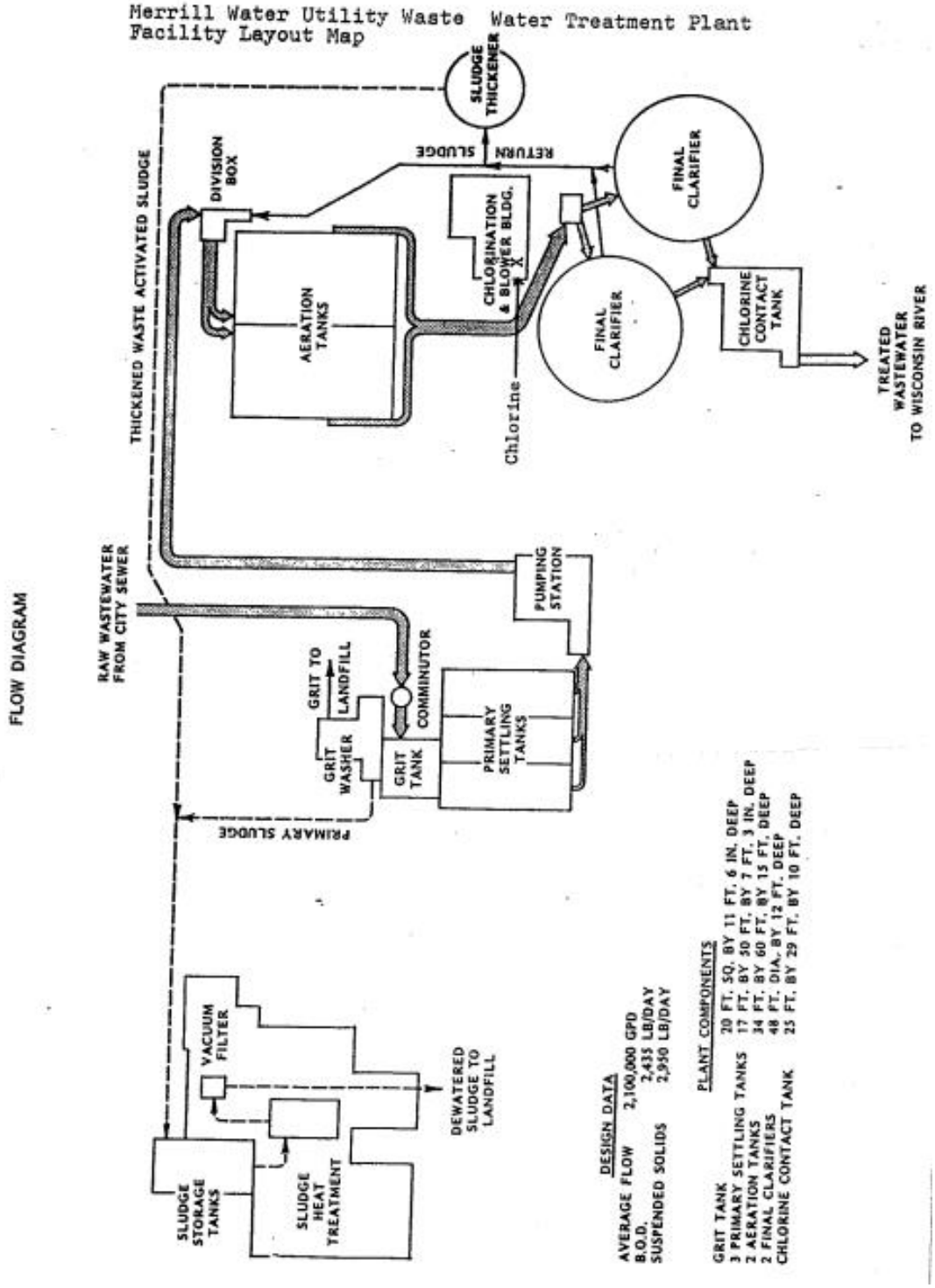
Record of Change and Review

Date	Contributor	Description of Change	Page Number(s)
12-5-2023	T. Verhasselt and G. Steinagel	Authored plan and reviewed with City of Merrill for accuracy.	Pgs. 1-23

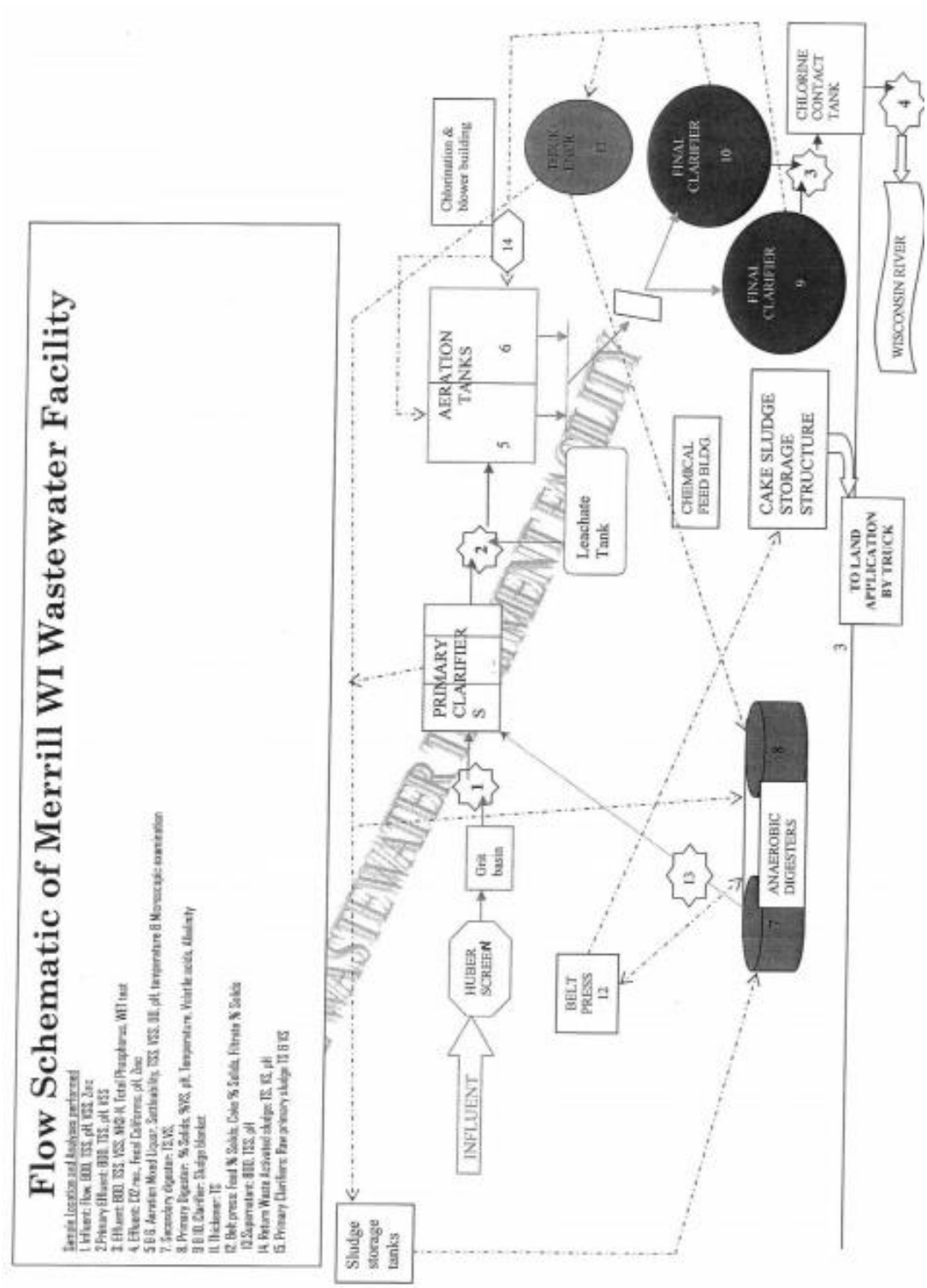
Please see EPCRA Hazardous Materials Off-Site Plan Transmittal Form for approval and signatures.

Attachment B

Facility Layout and Site Information

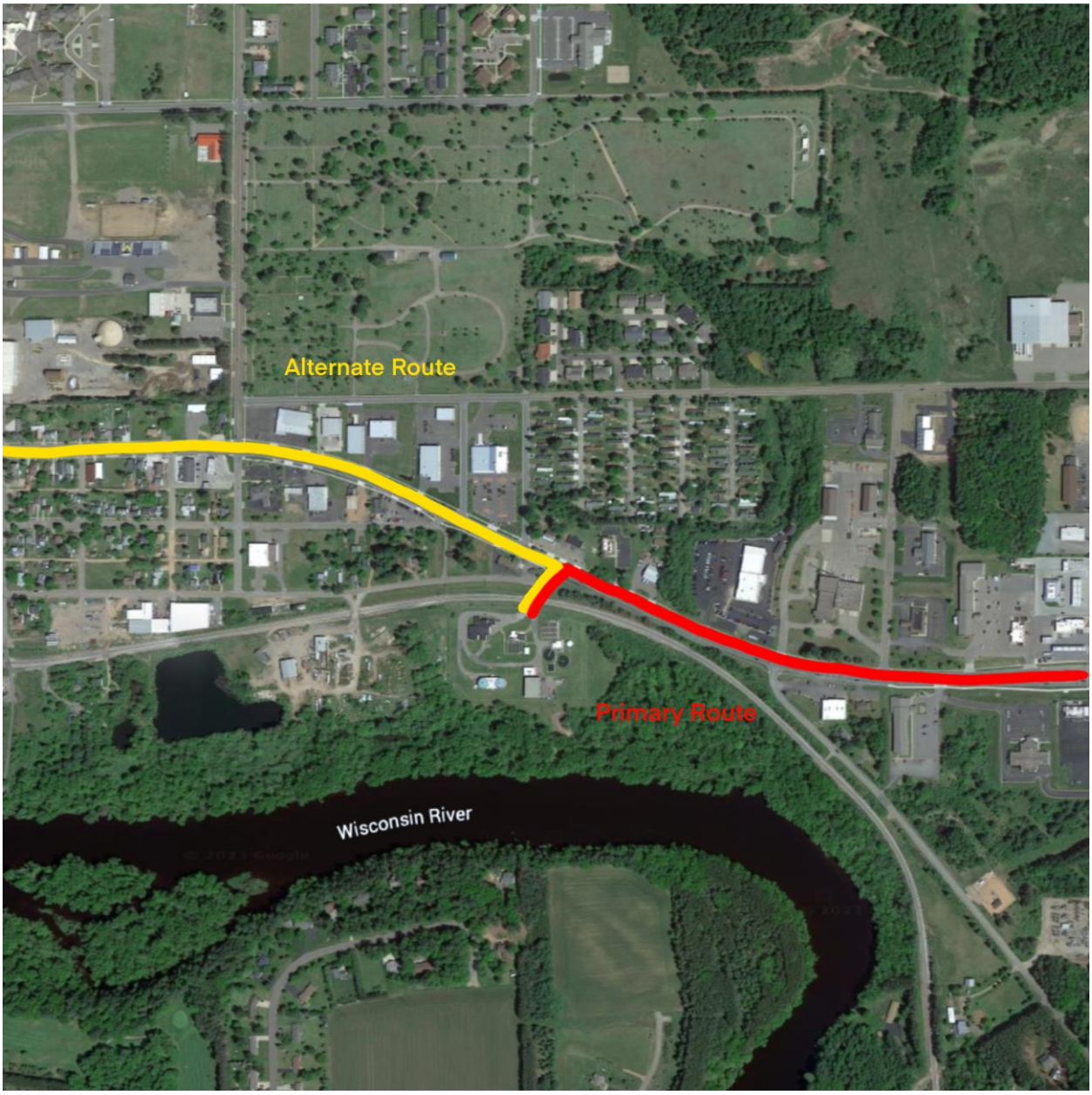


Facility Layout and Site Information



Attachment C

Transportation Route Map



MATERIAL SAFETY DATA SHEET

CHLORINE
Product ID: CL000000
Revised: 12-22-2009
Replaces: 12-22-2009

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name:	CHLORINE
Synonyms:	Liquid Chlorine
CAS Number:	7782-50-5
Chemical Family:	Halogen
Formula:	Cl2

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

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

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: DANGER! CORROSIVE. TOXIC. Causes severe burns to eyes, skin, and respiratory tract. Liquified, nonflammable gas under pressure. Harmful or fatal if swallowed. Harmful or fatal if inhaled. May be harmful if absorbed through the skin. STRONG OXIDIZER! May ignite organic materials and react with other materials.

Physical State:	Liquid. Gas.
Color:	Amber. Greenish-yellow.
Odor:	Pungent irritating odor.

POTENTIAL HEALTH EFFECTS

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

Target Organs: Eyes. Respiratory System. Skin.

Eye Contact: CORROSIVE-Causes severe irritation and burns. Causes: permanent eye damage. blurred vision. blindness. May cause: frostbite. Contact with compressed liquid or escaping gas can cause frostbite injury.

Skin Contact: CORROSIVE-Causes severe irritation and burns. Causes: permanent skin damage. Contact may cause: dermatitis (inflammation of the skin). frostbite. Contact with compressed liquid or escaping gas can cause frostbite injury.

Skin Absorption: May be harmful if absorbed through skin.

Inhalation: May be corrosive to the respiratory tract. Severe irritation and burns may result. Poison. May be fatal if inhaled. May irritate or burn: nose. throat. respiratory tract. May cause: central nervous system depression. permanent damage. pulmonary edema. circulatory failure. unconsciousness. death. Effects may be delayed.

Ingestion: This product is a gas at room temperature. Swallowing this material is unlikely. May cause damage to the: gastrointestinal tract. liver. kidneys. central nervous system. May cause: gastrointestinal irritation. nausea. vomiting. diarrhea.

Medical Conditions Aggravated by Exposure to Product: Respiratory system disorders. Asthma. Skin disorders. Bronchitis. Emphysema. Cardiovascular disorders.

Other: Repeated exposures can result in loss of ability to detect the odor of chlorine. Long term exposures may cause damage to teeth and inflammation or ulceration of the nasal passages. Long term overexposure may produce upper airway changes leading to an increased prevalence of colds, shortness of breath, and reactive airway dysfunction syndrome.

Cancer Information:
This product does not contain 0.1% or more of the known or potential carcinogens listed in NTP, IARC, or OSHA.

Potential Environmental Effects: See Section 12.

Safety Data Sheet for Chlorine

CHLORINE
Product ID: CL000000

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	% by Wt.
Chlorine	7782-50-5	99.5 - 100 %

4. FIRST-AID MEASURES

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention. Washing eyes within several seconds is essential to achieve maximum effectiveness.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Do not reuse clothing and shoes until cleaned. Wash with soap and water. Do not attempt to remove frozen clothing from frostbitten areas.

Inhalation: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration, preferably mouth-to-mouth. GET MEDICAL ATTENTION IMMEDIATELY. Keep warm and quiet.

Ingestion: If swallowed, call a physician immediately. DO NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Have person sip a glass of water if able to swallow.

Note to Physicians:
There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Probable mucosal damage may contraindicate the use of gastric lavage. Delayed pulmonary edema may occur 48-72 hours after exposure in individuals with alveolar injury. Treatments with steroids and bicarbonate have been reported.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Use agent suitable for surrounding fire. DO NOT USE: Direct water stream.

Fire Fighting Methods: Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-Approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers, but avoid getting water into containers. Stop flow of gas before extinguishing fire. Move containers from fire area if possible without hazard. Do not apply water to leaking containers. Use water spray to keep fire-exposed containers cool and to protect persons effecting shut-off. Fire fighters should wear a one piece, total-encapsulating suit of Butyl coated nylon or equivalent. Run-off from fire control may cause pollution.

Fire and Explosion Hazards: STRONG OXIDIZER. Capable of supporting combustion of certain substances. Reacts explosively, or forms explosive compounds, with many chemicals such as acetylene, turpentine, ether, ammonia gas, hydrogen, and finely divided metals. May ignite organic and other easily oxidizable materials. This product may react with certain metals to produce flammable Hydrogen Gas.

Hazardous Combustion Products: Toxic vapors.

6. ACCIDENTAL RELEASE MEASURES

Spill Clean-Up Procedures: CORROSIVE MATERIAL. STRONG OXIDIZER. Eliminate all sources of ignition. Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit. Keep upwind of leak or spill. Do not touch or walk through spilled material. Shut off source of leak if safe to do so. Do not apply water directly to a leak. Reacts with water to form corrosive, acidic solution (hydrochloric acid). Clean-up personnel must be equipped with self-contained breathing apparatus and butyl rubber protective clothing. Prevent entry into basements, low areas, or confined areas. If a container is leaking, try to position it so that the gas rather than the liquid leaks. Apply emergency kit device if possible. For other than minor leaks, immediately implement predetermined emergency plan. Report spills to appropriate government authorities. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

7. HANDLING AND STORAGE

a

CHLORINE
Product ID: CL000000

Handling: Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Empty containers retain product residue (vapor, dust, or liquid) and can be dangerous. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other source of ignition. They may explode and cause injury or death. CORROSIVE MATERIAL. Personnel near or handling Chlorine, should AT ALL TIMES carry a NIOSH/MSHA-approved chemical cartridge type escape respirator and be trained in its use. Follow safety procedures for containers of compressed gases.

Storage: CORROSIVE MATERIAL. STRONG OXIDIZER. Store in a cool, well ventilated area away from all sources of ignition and out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers. Store below 131 Deg. F. Do not attempt to handle, store or use Chlorine without complete review of the Chlorine Institute's Chlorine Manual (Call: 202-775-2790). Chlorine piping and equipment must be thoroughly cleaned of organics and moisture before use. Liquid Chlorine lines must have suitable expansion chambers between block valves due to the high coefficient of expansion. Always handle Chlorine with full regard to its pressure characteristics. KEEP AWAY FROM HEAT AND MOISTURE. NEVER place a leaking container in water nor spray a leaking container with water. Correct leaks immediately. Protect container from weather and physical damage. Liquid levels should be less than 85% of tank or cylinder capacity. Water contamination should be avoided.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA Exposure Guidelines:

Component	Limits
Chlorine	1 ppm Ceiling; 3 mg/m3 Ceiling

ACGIH Exposure Guidelines:

Component	Limits
Chlorine	0.5 ppm TWA; 1 ppm STEL

Note:
* IDLH = 10 ppm. Odor threshold approximately 0.3 ppm - highly variable especially with individuals routinely exposed.

Engineering Controls: General room ventilation and local exhaust are required. Process enclosures or other engineering controls may be needed to maintain airborne levels below recommended exposure limits. Maintain adequate ventilation. Do not use in closed or confined spaces. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly. NOTE: Chlorine is heavier than air and tends to collect at ground or floor level. Provide ventilation for low-lying areas.

Eye/Face Protection: Wear chemical safety goggles and a full face shield while handling this product. Do not wear contact lenses.

Skin Protection: Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: Butyl rubber. Neoprene. Chemical-resistant.

Respiratory Protection: Respiratory protection must be worn if ventilation does not eliminate symptoms or keep levels below recommended exposure limits. If exposure limits are exceeded, wear: NIOSH approved full facepiece chlorine type respirator. NIOSH-Approved full-facepiece positive-pressure, air-supplied respirator. NIOSH-Approved self-contained breathing apparatus with full facepiece is required for vapor concentrations above 10 ppm and for leaks and/or emergencies. Wear respirator while operating valves and connecting and disconnecting lines. Personnel handling or near Chlorine should at all times carry a NIOSH/MSHA-approved, chemical cartridge type, escape respiratory and be trained in its use. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

Other Protective Equipment: Eye-wash station. Safety shower. Rubber boots. Rubber apron. Protective clothing. Fully encapsulated suit for areas of high concentrations.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

CHLORINE
Product ID: CL000000

Physical State: Liquid. Gas.
Color: Amber. Greenish-yellow.
Odor: Pungent irritating odor.
Boiling Point (deg. F): ~ -29
Freezing Point (deg. F): ~ -150
Melting Point (deg. F): N.D.
Vapor Pressure (mm Hg): 4788 @ 20 C
Vapor Density (air=1): ~ 2.5 @ 0 C
Solubility in Water: Slight
pH: N.A.
Specific Gravity: ~ 1.467 @ 0 C
% Volatile (wt%): 100%
Evaporation Rate (nBuAc = 1): N.D.
VOC (wt%): 0
VOC (lbs/gal): 0
Viscosity: N.D.
Flash Point: N.A.
Flash Point Method: N.A.
Lower Explosion Limit: N.A.
Upper Explosion Limit: N.A.
Autoignition Temperature: N.A.
Fire Point: N.D.

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.

Conditions to Avoid: Avoid contact with heat, sparks, electric arcs, other hot surfaces, and open flames. Avoid temperatures above 125 Deg. F. Avoid all forms of contamination.

Incompatible Materials: Alkalies. Reducing agents. Organic materials. Ammonia. Metal hydrides. Carbides. Phosphides. Sulfides. Readily-oxidized materials. Acetylene. Turpentine. Combustible materials. Metallic powders. Sulfur. Aluminum. Elemental metals. Nitrides. Amines. Oxides. Unstable and reactive compounds. Dry chlorine is highly reactive with titanium and tin. Reacts with most metals at high temperatures. Reacts with water to produce hydrochloric and hydrochlorous acids, which are corrosive to most metals. Combines with carbon monoxide and sulfur dioxide forming phosgene and sulfuryl chloride. Moist chlorine is highly corrosive to most metals. Chlorine reaction to some organic compounds can be explosive.

Hazardous Decomposition Products: Chlorine gas is poisonous.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur under normal conditions.

11. TOXICOLOGICAL INFORMATION

Component	Oral LD50	Dermal LD50	Inhalation LC50
No components found or no data available for product.			

Other Information

Inhalation LC50: Rat: 0.86 mg/L/1H; Rat: 293 ppm/1H (Chlorine)

Acute toxicity: This material is corrosive to the skin, eyes, and respiratory tract. Breathing this material is harmful and can cause death. Harmful effects include burns and permanent damage to airways, including nose, throat, and lungs. The extent of injury following chlorine exposure depends on concentration and duration of exposure as well as water content of the tissue involved. Estimated effects are as follows: 0.2-0.4 ppm: Odor detection (some tolerance develops); 1-3 ppm: Mild mucous membrane irritation (can be tolerated ~ 1 hour); 5-15 ppm: Moderate irritation of upper respiratory tract; 30 ppm: Immediate chest pain, vomiting, dyspnea, cough; 40-60 ppm: Toxic pneumonitis and pulmonary edema; 430 ppm: Lethal over 30 minutes; 1000 ppm: Fatal within a few minutes.

Its action in the respiratory tract is due to its strong oxidizing capability; it forms both hypochlorous acid and

hypochloric acid on contact with moist mucous membranes. Symptoms of pulmonary congestion and edema may develop after a latency period of several hours following severe acute exposure of chlorine.

Chronic toxicity: Long term overexposure may produce upper airway changes leading to an increased prevalence of colds, shortness of breath, and reactive airway dysfunction syndrome.

Additional data: Odor does not provide an adequate warning of exposure. In workers exposed to chlorine for a 2 to 5 year period, all had some degree of olfactory impairment. Sensory irritation tolerance developed in rats when they were pretreated with 1 ppm chlorine.

Mutagenic data: This material has tested positive in one or more in vitro mutagenicity studies.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information: Highly toxic to fish and aquatic organisms.
LC50 Fathead minnow: 0.07 to 0.15 (96 hour)
LC50 Bluegill: 0.44 mg/l (96 hour)
LC50 Daphnia: 30 to 150 ug/L (48 hour)

Chemical Fate Information: Chlorine is a strong oxidizer and will react rapidly with oxidizable inorganic compounds. Chlorine will also oxidize organic compounds, but at a slower rate than inorganic compounds. The presence of light accelerates the dissipation of chlorine in water.
Biodegration: This material is an element and not subject to biodegradation.
Persistence: The atmospheric half-life and lifetime of this material due to photolysis is estimated at 10 and 14 minutes, respectively. The half-life of free residual material in fresh water has been estimated at 1.3 to 5 hours.
Bioconcentration: This material is not expected to bioconcentrate in organisms.
Additional Ecological Information: This material has exhibited toxicity to terrestrial organisms.

13. DISPOSAL CONSIDERATIONS

Hazardous Waste Number: D003; D001
Disposal Method: Dispose of in a permitted hazardous waste management facility following all local, state and federal regulations. Absorb in alkaline solution such as Caustic Soda, Soda Ash or Hydrated Lime. Care must be taken during neutralization process due to high heat generation. Place neutralized material in a closed container. For guidance in disposal of material, contact your regional office of the Environmental Protection Agency (EPA). Do not Discard to water or sewer. DO NOT pressurize, cut, weld, solder, drill, grind or expose empty containers to heat, flame, sparks or other sources of ignition.

14. TRANSPORTATION INFORMATION

DOT (Department of Transportation):

Identification Number:	UN1017
Proper Shipping Name:	Chlorine
Hazard Class:	2.3 (5.1, 8)
Packing Group:	N.A.
Additional Description:	Poison-Inhalation Hazard, Hazard Zone B.
Marine Pollutant:	Chlorine.
Label Required:	POISON GAS; OXIDIZER; CORROSIVE
Reportable Quantity (RQ):	10# (Chlorine).

15. REGULATORY INFORMATION

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

SARA Title III Section 311/312 Category Hazards:

Immediate (Acute)	Delayed (Chronic)	Fire Hazard	Pressure Release	Reactive
Yes	No	Yes	Yes	Yes

Safety Data Sheet for Chlorine

CHLORINE
Product ID: CL000000

Regulated Components: Component	CAS Number	CERCLA RQ	SARA EHS	SARA 313	U.S. HAP	WI HAP	Prop 65
Chlorine	7782-50-5	Yes	Yes	Yes	Yes	Yes	No

***Prop 65 - May Contain the Following Trace Components**
This product may contain detectable levels of (a) chemical(s) subject to California's Proposition 65.

NSF/ANSI Standard 60 Maximum Use Level: 30 mg/L.

16. ADDITIONAL INFORMATION

Hazard Rating System
Health: 3
Flammability: 0
Reactivity: 0
* = Chronic Health Hazard

NFPA Rating System
Health: 4
Flammability: 0
Reactivity: 0
Special Hazard: OX

MSDS Abbreviations
N.A. = Not Applicable
N.D. = Not Determined
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound
C = Ceiling Limit
N.E./Not Estab. = Not Established

MSDS Prepared by: NAO

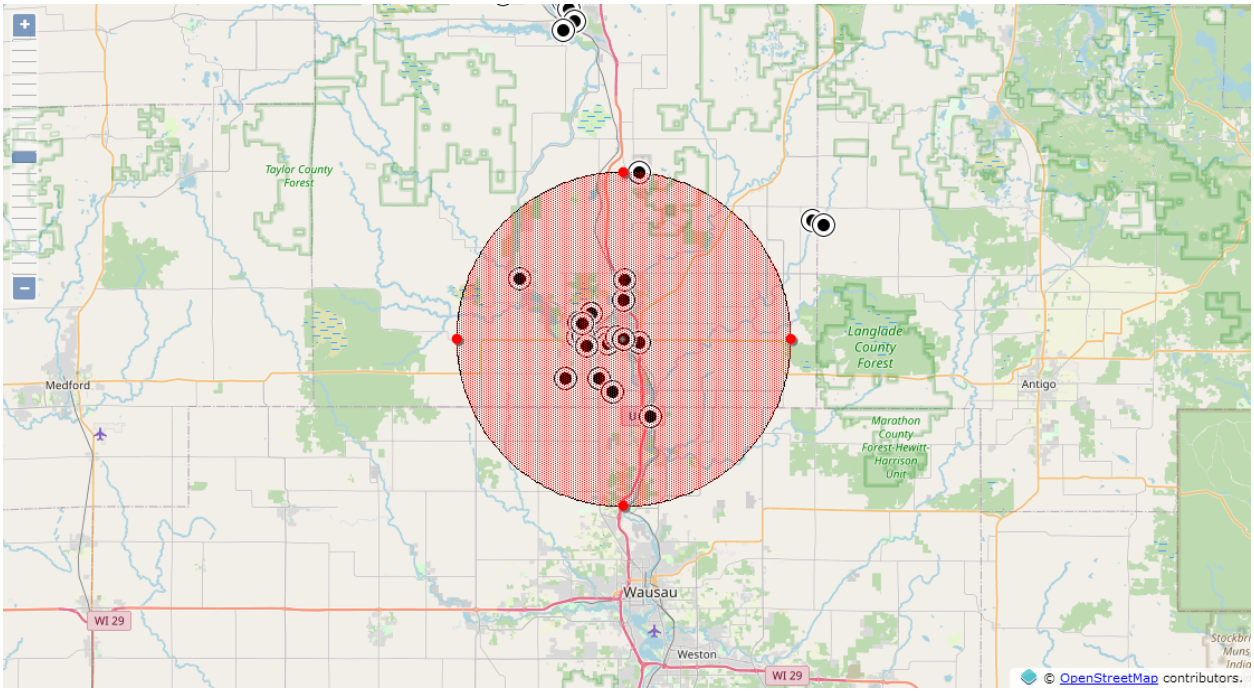
Reason for Revision: New format. Changes made throughout the MSDS.

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

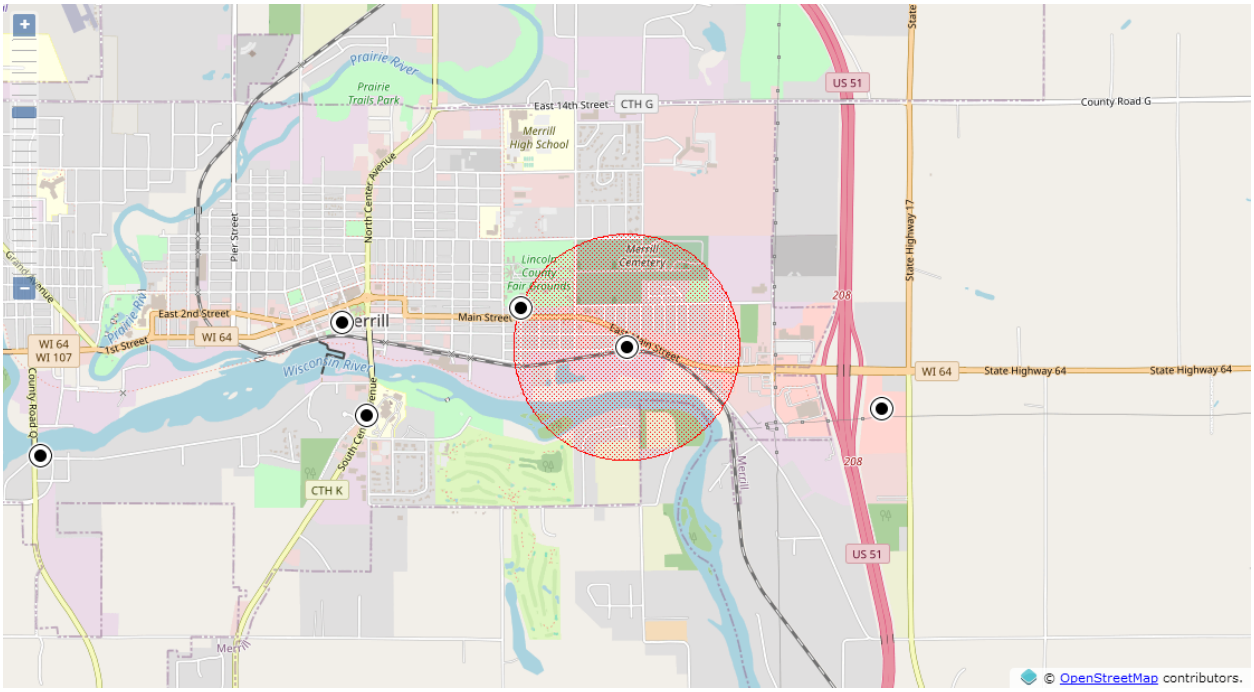
Attachment E

Vulnerability Zone Maps for Chlorine

A. Worst Case Scenario



B. Re-evaluation Scenario



Lincoln County: Local Emergency Planning Committee (LEPC)

LINCOLN COUNTY
EMERGENCY MANAGEMENT

FEMA

2023 Off Site Plan: Frontier—Merrill

Lincoln County Board of Supervisors Chair
Don Friske

Lincoln County Administrative Coordinator
Renee Krueger

Lincoln County Director of Emergency Management
Tyler Verhasselt

Lincoln County LEPC Chair
Richard Burns

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Table of Contents

I. Facility Information

A. Frontier—Merrill

1. Address: 1000 East Main Street, Merrill, WI 54452
2. Phone: (945) 261-5087
3. Facility ID # (Assigned by WEM): 34879

II. Facility Emergency Contacts

A. Tier II Contact:

1. Name: Randy Robertson
2. Position: EH&S Manager, Frontier
3. Office Phone: (945) 261-5087
4. Emergency Phone: (800) 590-6605
5. Email: randy.robertson@ftr.com

B. Tier II Emergency Coordinator:

1. Name: Jeffrey Witt
2. Position: Facility Supervisor
3. Emergency Phone: (608) 837-1129
4. Emergency Phone: (800) 590-6605
5. Email: Jeffrey.witt@ftr.com

III. Extremely Hazardous Substances (EHS)

A. EHS Chemicals OVER Threshold Planning Quantity (TPQ)

CAS #	Chemical Name	Maximum Daily Quantity (lbs.)	Max. Amount. of Largest Container (lbs.)	Vulnerability Zone (miles)
7664-93-9	Sulfuric Acid	24,078	1,526	< 0.1 miles

IV. Primary Emergency Responders

A. Lincoln County Sheriff's Office

1. Phone: 911 or (715) 563-6272

B. Lincoln County Emergency Communications Center

1. Phone: 911 or (715) 563-6272

C. Lincoln County Emergency Management

1. Phone: (715) 218-0128

D. Merrill Fire Department

1. Phone: 911 or (715) 536-2233

E. Merrill Police Department

1. Phone: 911 or (715) 536-8311

V. Support Available at Facility

A. Chemical Emergency Monitoring Equipment:

1. None

B. Personal Protective Equipment:

1. None

C. Other Equipment or Supplies:

1. None

D. Outside Resources Available:

1. Lincoln County Emergency Management
   a) Pursuant to Lincoln County's Emergency Operations Plan (EOP), the incident commander and/or unified command will identify the need for hazmat response and relay that request to Lincoln County Sheriff's Office (LCSO) Communication Center whom with contact the appropriate team.

      The Tomahawk Fire Department is capable of handling minor hazardous materials incidents; however, if the incident exceeds the ability/capability of Tomahawk Fire Department LCSO Communications Center will request the appropriate agency. Lincoln County contracts with two (2) external hazmat response teams dependent on level of release, for Level B response Oneida County Sheriff Office Hazardous Materials Response Team; whereas, for Level A response Wausau Wisconsin Hazardous Response Team.

      For Level A incidents, the response of Wausau Wisconsin Hazardous Response Team must be requested through the Wisconsin Emergency Management (WEM) State Emergency Operations Center (SEOC). Contact the WEM SEOC Duty Officer at (800) 943-0003 for response.
2. Chemtrec: (800) 424-9300
   a) Unknown response time
3. National Response Center: (800) 424-8802
   a) Unknown response time
4. REI—Spill & Response Recovery: (800) 734-7745
   a) Unknown response time

VI. General information and Assumptions (Disclaimer)

The vulnerability zones set forth in this plan are based on the Environmental Protection Agency's (EPA) Technical Guidance for Hazard Analysis. The zones are based on a credible worst case scenario and identify the potential area for impact should an airborne release of an EHS occur.

A re-evaluation scenario with more realistic parameters has also been computed. Parameters used for both scenarios have been described as part of the hazard analysis summary.

CAMEO Suite software was used in the preparation of vulnerability zones. It should be noted that CAMEO*fm* cannot compute zones greater than 10 miles nor less than 0.1 miles. Thus, results that fall into these situations will be notes as "> 10 miles" or "< 0.1 miles".

The field Incident Commander shall determine the actual response to an incident and the affected area may vary from the planning vulnerability zone identified in this plan. Depending on wind speed and direction, the amount of material released and other pertinent factors, the ACTUAL vulnerability zone may be smaller, and in some instances larger, than the credible worst case vulnerability zone identified herein.

VII. Hazard Analysis Summary

Frontier (Merrill) provides a communication service to the public. The facility has one (1) employee who works on-site in a part-time capacity. Extremely hazardous substances are present on-site every day of the year. This facility does not remove products on a seasonal basis.

A. Greatest Potential for Release

1. Sulfuric acid (contained within forty-eight [48] batteries) are located within the basement of the facility. The floor where the EHS is located has no drains. Therefore, the potential for a spill would be contained to an impervious surface.

B. Vulnerability Zones (by chemical)

Sulfuric Acid (Lead Battery Acid): CAS #7664-93-9			
Amount Released:	1,526 lbs.		
Concentration:	100%		
Physical State:	Liquid (Ambient)		
Diked Area:	No		
Level of Concern (LOC):	0.008 gm/m^3		
LOC Type:	Greenbook LOC		
Worst Case Scenario		**Re-Evaluation Scenario**	
Duration:	10 minutes	**Duration**	10 minutes
Wind Speed:	3.4 mph	**Wind Speed:**	11.9 mph
Ground Roughness:	Rural	**Ground Roughness:**	Urban
Atmospheric Stability Class:	F	**Atmospheric Stability Class:**	D
Risk:	Low	**Risk:**	Low
Consequences:	Low	**Consequences:**	Low
Overall Risk:	Low	**Overall Risk:**	Low
Threat Zone Radius:	< 0.1 miles	**Threat Zone Radius:**	< 0.1 miles

C. Estimation of Population Affected

1. Sulfuric Acid
   a) In the credible worst case scenario the total number of persons that could be affected by a release of the extremely hazardous substance would potentially be one (1) employee and no other persons or special facilities.
   b) In the re-evaluation scenario the total number of persons that could be affected by a release of the extremely hazardous substance would potentially be one (1) employee and no other persons or special facilities.
   c) Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.
   d) Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

D. Critical Infrastructure

1. None

E. Hospital

1. None

F. Nursing Homes/Assisted Living Facilities

1. None

G. Schools

1. None

H. Child Care/Day Care

1. None

VIII. Population Protection

The determination to shelter in-place or to evacuate will be made by the on-scene commander as appropriate. The lead time for a hazardous materials incident may be very short. As a result, there may not be time enough for safe evacuation, especially when extremely toxic chemical fumes are involved. An evacuation under these considerations may expose the population to dangerous toxic chemicals and the decision may be made to shelter-in-place. Preferred areas for protective sheltering would be interior hallways, rooms on the side of the building away from where the hazard is approaching. Doors, windows, and other potential air leaks should be sealed up to prevent toxic fumes from entering.

Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.

IX. Special Considerations

A. None

X. Distribution List

- Frontier—Merrill
- Merrill Fire Department
- Wisconsin Emergency Management Northeast Regional Office
- Oneida County Sheriff Office Hazardous Materials Response Team
- Wausau Wisconsin Hazardous Response Team
- Marathon County Emergency Management

XI. Supporting Documentation

A. Attachments

1. Attachment A, Record of Change and Review
2. Attachment B, Facility Layout and Site Information
3. Attachment C, Transportation Route Map
4. Attachment D, Safety Data Sheet for Sulfuric Acid
5. Attachment F, Vulnerability Zone Map for Sulfuric Acid

Attachment A

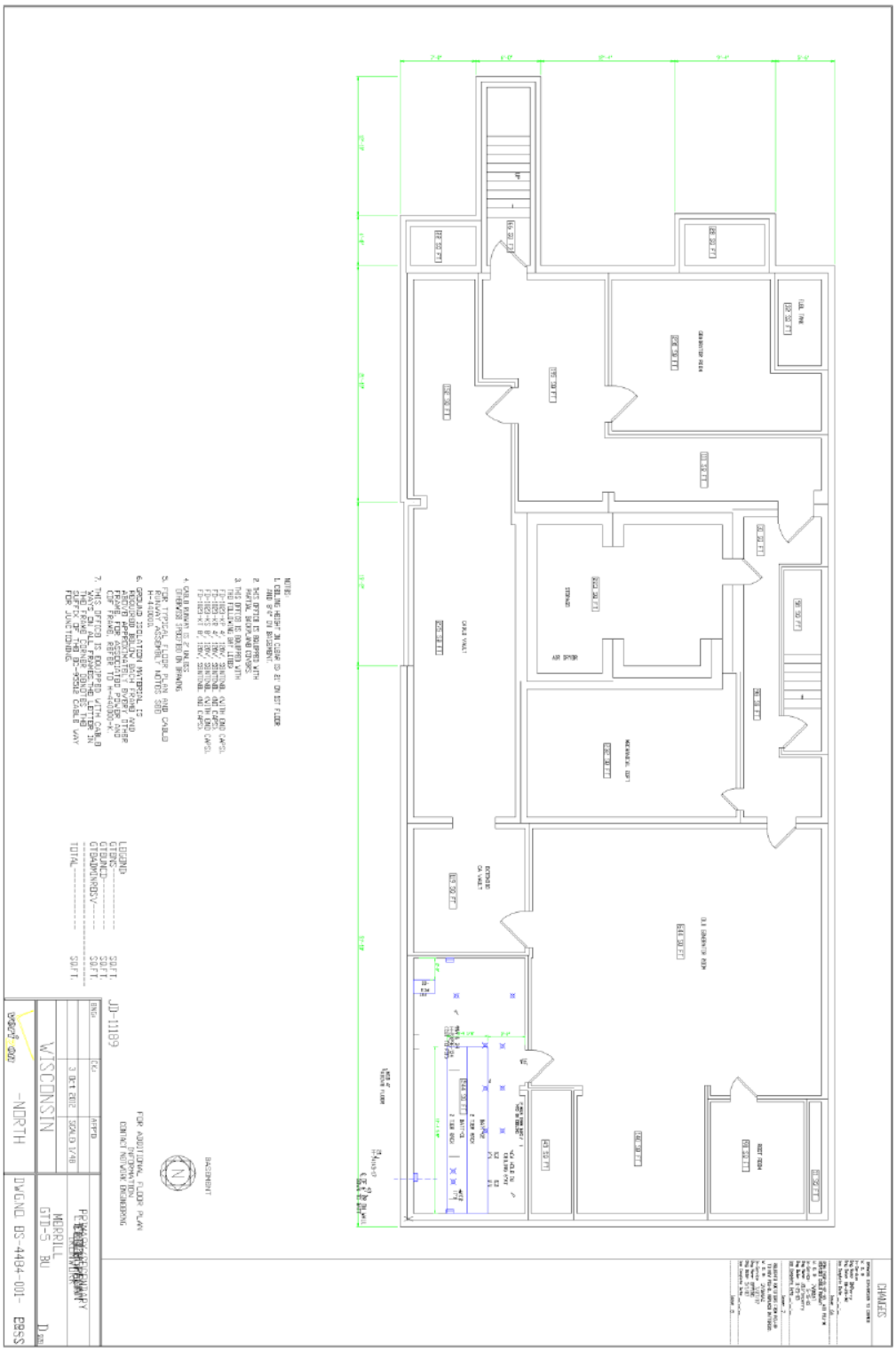
Record of Change/ Review /Signature

Date	Contributor	Description of Change	Page Number(s)
12-5-2023	T. Verhasselt and R. Robertson	Authored plan and reviewed with Frontier (Merrill) for accuracy.	Pgs. 1 -22

Please see EPCRA Hazardous Materials Off-Site Plan Transmittal Form for approval and signatures.

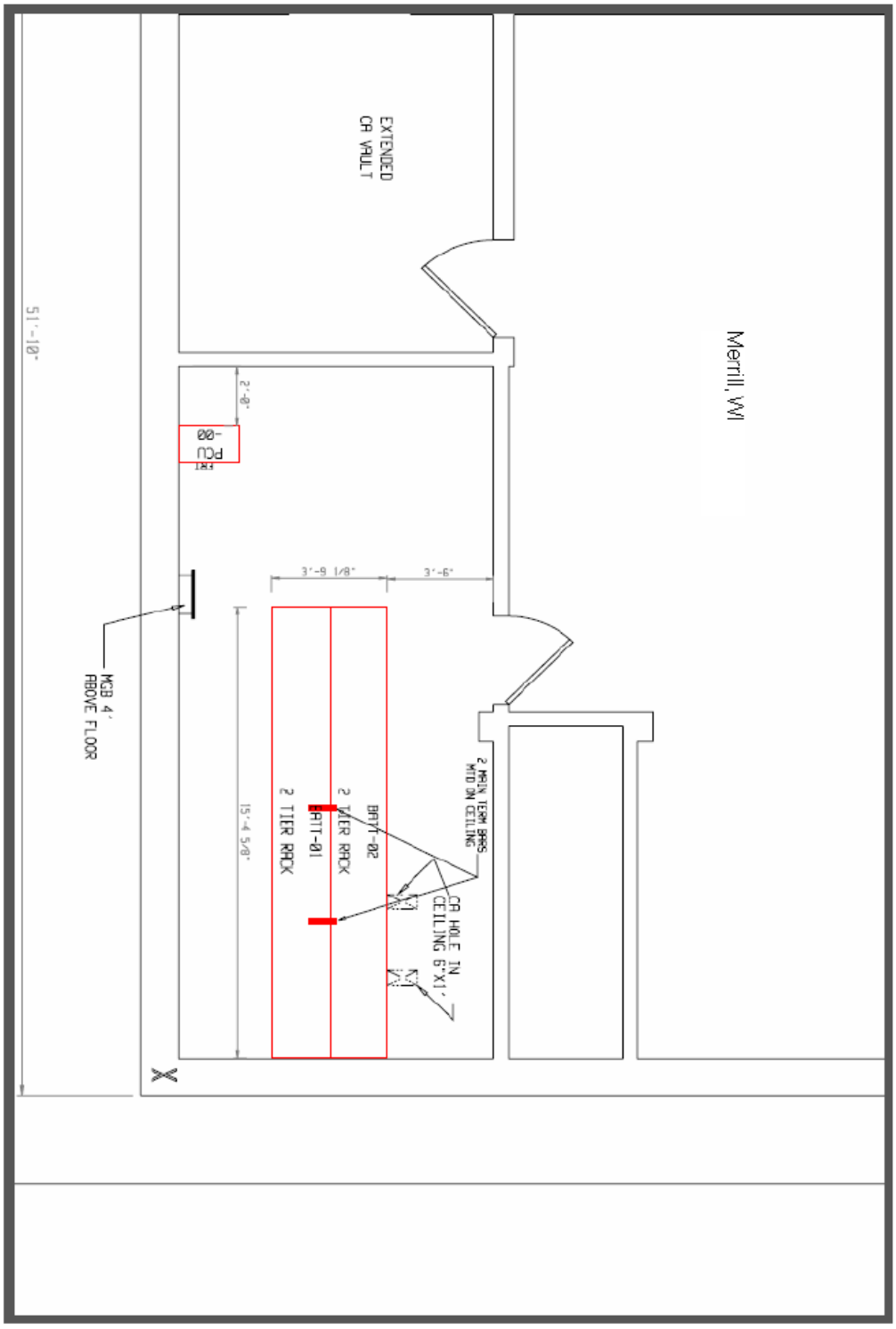
Attachment B

Facility Layout and Site Information



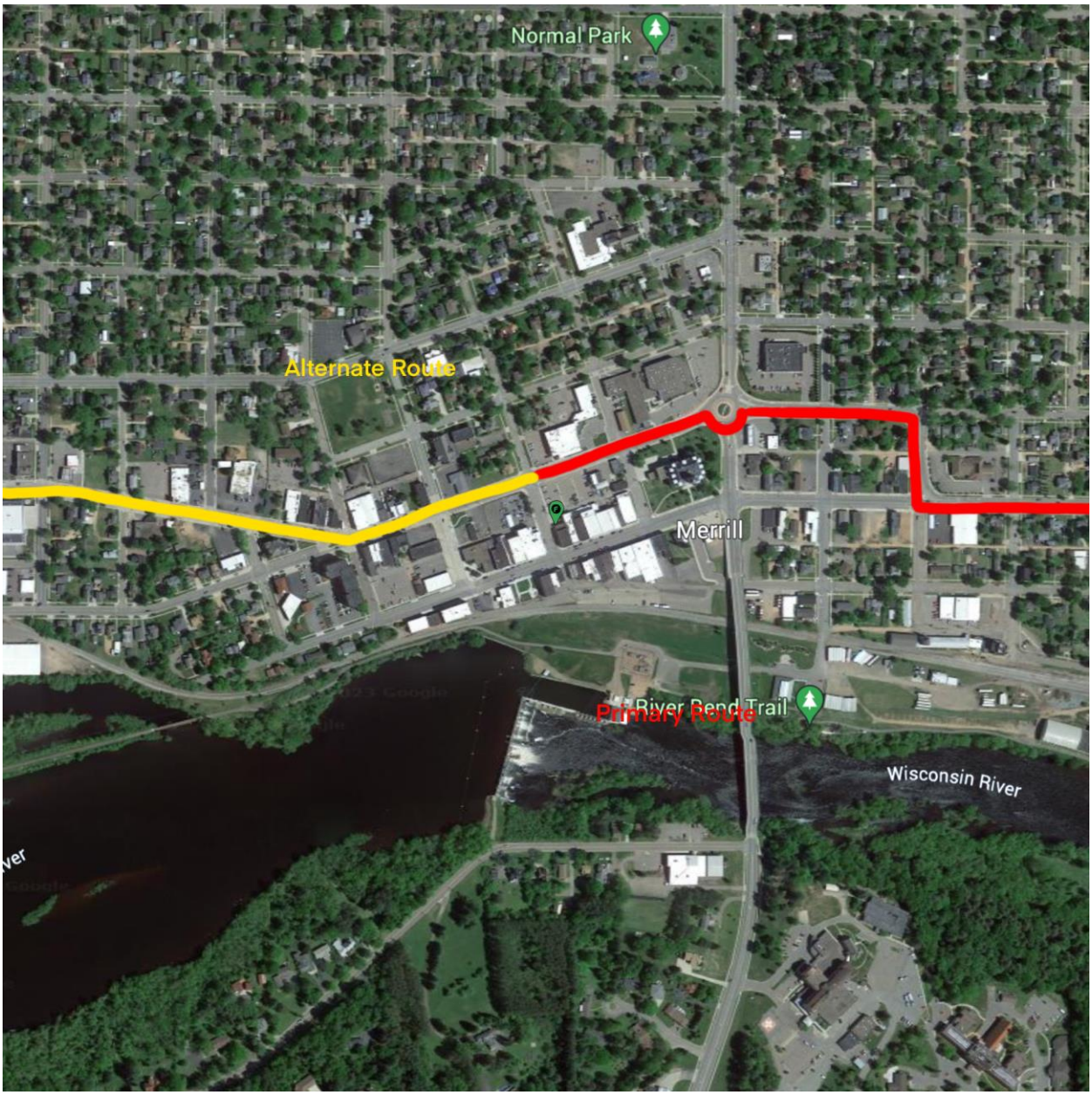
Attachment B cont.

Facility Layout and Site Information



Attachment C

Transportation Route Map



Safety Data Sheet for Sulfuric Acid

EnerSys
Power/Full Solutions

SAFETY DATA SHEET

Form #: SDS 853020
Revised: AB
Supersedes: AA
ECO #: 1001828

I. PRODUCT IDENTIFICATION

Chemical Trade Name (as used on label):
Lead-Acid Battery, Wet

Synonyms:
Industrial Battery, Traction Battery, Stationary Battery, Deep Cycle Battery

Manufacturer's Name/Address:
EnerSys
P.O. Box 14145
2366 Bernville Road
Reading, PA 19612-4145

Chemical Family/Classification:
Electric Storage Battery

Telephone:
For information and emergencies, contact EnerSys' Environmental, Health & Safety Dept. at 610-208-1996

24-Hour Emergency Response Contact:
CHEMTREC DOMESTIC: 800-424-9300 CHEMTREC INT'L: 703-527-3877

II GHS HAZARDS IDENTFICATION

HEALTH		ENVIRONMENTAL	PHYSICAL
Acute Toxicity (Oral/Dermal/Inhalation)	Category 4	Aquatic Chronic 1	Explosive Chemical, Division 1.3
Skin Corrosion/Irritation	Category 1A	Aquatic Acute 1	
Eye Damage	Category 1		
Reproductive	Category 1A		
Carcinogenicity (lead compounds)	Category 1B		
Carcinogenicity (arsenic)	Category 1A		
Carcinogenicity (acid mist)	Category 1A		
Specific Target Organ Toxicity (repeated exposure)	Category 2		

GHS LABEL:

HEALTH

ENVIRONMENTAL

PHYSICAL

Hazard Statements

DANGER!

Causes severe skin burns and serious eye damage.
May damage fertility or the unborn child if ingested or inhaled.
May cause cancer if ingested or inhaled.
Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure.
May form explosive air/gas mixture during charging.
Extremely flammable gas (hydrogen).
Explosive, fire, blast, or projection hazard.
May cause harm to breast-fed children
Harmful if swallowed, inhaled, or contact with skin
Causes skin irritation, serious eye damage.

Precautionary Statements

Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing, eye protection/face protection.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid.
Irritating to eyes, respiratory system, and skin.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood
Avoid contact during pregnancy/while nursing
Keep away from heat./sparks/open flames/hot surfaces. No smoking

III. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Approximate % by Wt.
Inorganic Lead Compound:		
Lead	7439-92-1	60-70
* Antimony	7440-36-0	2
* Arsenic	7440-38-2	0.2
* Calcium	7440-70-2	0.04
* Tin	7440-31-5	0.2
Electrolyte (Sulfuric Acid (H2SO4/H2O))	7664-93-9	10-30
Case Material:		5-10
Polypropylene	9003-07-0	
Polystyrene	9003-53-6	
Styrene Acrylonitrile	9003-54-7	
Acrylonitrile Butadiene Styrene	9003-56-9	
Styrene Butadiene	9003-55-8	
Polyvinylchloride	9002-86-2	
Polycarbonate, Hard Rubber, Polyethylene	9002-88-4	

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Other:				
	Silicon Dioxide (Gel batteries only) Sheet Molding Compound (Glass reinforced polyester)	7631-86-9 --	1-5	

Inorganic lead and electrolyte (sulfuric acid) are the primary components of every battery manufactured by EnerSys.
Other ingredients may be present dependent upon battery type. Contact your EnerSys representative for additional information.

IV. FIRST AID MEASURES

Inhalation:
Sulfuric Acid: Remove to fresh air immediately. If breathing is difficult, give oxygen. Consult a physician.
Lead: Remove from exposure, gargle, wash nose and lips; consult physician.

Ingestion:
Sulfuric Acid: Give large quantities of water; do not induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death; consult a physician.
Lead: Consult physician immediately.

Skin:
Sulfuric Acid: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes.
Lead: Wash immediately with soap and water.

Eyes:
Sulfuric Acid and Lead: Flush immediately with large amounts of water for a least 15 minutes while lifting lids. Seek immediate medical attention if eyes have been exposed directly to acid.

V. FIRE FIGHTING MEASURES

Flash Point: N/A **Flammable Limits:** LEL = 4.1% (Hydrogen Gas) UEL = 74.2%

Extinguishing Media: CO_2; foam; dry chemical. Do not use carbon dioxide directly on cells. Avoid breathing vapors. Use appropriate media for surrounding fire.

Special Fire Fighting Procedures:
If batteries are on charge, shut off power. Use positive pressure, self-contained breathing apparatus. Water applied to electrolyte generates heat and causes it to spatter. Wear acid-resistant clothing, gloves, face and eye protection.
But note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

Unusual Fire and Explosion Hazards:
Highly flammable hydrogen gas is generated during charging and operation of batteries. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Follow manufacturer's instructions for installation and service.

VI. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:
Stop flow of material, contain/absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of unneutralized acid to sewer. Acid must be managed in accordance with local, state, and federal requirements.
Consult state environmental agency and/or federal EPA.

VII. HANDLING AND STORAGE

Handling:
Unless involved in recycling operations, do not breach the casing or empty the contents of the battery. Handle carefully and avoid tipping, which may allow electrolyte leakage. There may be increasing risk of electric shock from strings of connected batteries.
Keep containers tightly closed when not in use. If battery case is broken, avoid contact with internal components.
Keep vent caps on and cover terminals to prevent short circuits. Place cardboard between layers of stacked automotive batteries to avoid damage and short circuits.
Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water. Use banding or stretch wrap to secure items for shipping.

Storage:
Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat. Keep away from metallic objects could bridge the terminals on a battery and create a dangerous short-circuit.

Charging:
There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas.
Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby.
Wear face and eye protection when near batteries being charged.

EnerSys
Power/Full Solutions

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VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits (mg/m3) Note: N.E = Not Established

INGREDIENTS (Chemical/Common Names)	OSHA PEL	ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Lead and Lead Compounds (inorganic)	0.05	0.05	0.05	0.05	0.05	0.15 (b)
Antimony	0.5	0.5	0.5	0.5	0.5	0.5 (b,e)
Arsenic	0.01	0.01	0.002	0.2	0.01	N.E
Calcium	N.E	N.E	N.E	N.E	N.E	N.E
Tin	2	2	2	2	2	N.E
Electrolyte (Sulfuric Acid)	1	0.2	1	1	0.2	0.05 (c)
Polypropylene	N.E	N.E	N.E	N.E	N.E	N.E
Polystyrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Acrylonitrile	N.E	N.E	N.E	N.E	N.E	N.E
Acrylonitrile Butadiene Styrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Butadiene	N.E	N.E	N.E	N.E	N.E	N.E
Polyvinylchloride	N.E	N.E	N.E	N.E	1	N.E
Polycarbonate, Hard Rubber, Polyethylene	N.E	N.E	N.E	N.E	N.E	N.E
Silicon Dioxide (Gel Batteries Only)	N.E	N.E	N.E	N.E	N.E	N.E
Sheet Molding Compound (Glass reinforced polyester)	N.E	N.E	N.E	N.E	N.E	N.E

NOTES:

(b) As inhalable aerosol
(c) Thoracic fraction
(e) Based on OEL;s Of Austria, Belgium, Denmark, France, Netherlands, Switzerland, & U.K.

Engineering Controls (Ventilation):
Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant.
Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective clothing, eye and face protection when filling, charging or handling batteries. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Charge the batteries in areas with adequate ventilation. General dilution ventilation is acceptable.

Respiratory Protection (NIOSH/MSHA approved):
None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed the PEL, use NIOSH or MSHA-approved respiratory protection.

Skin Protection:
If battery case is damaged, use rubber or plastic acid-resistant gloves with elbow-length gauntlet, acid-resistant apron, clothing and boots.

Eye Protection:
If battery case is damaged, use chemical goggles or face shield.

Other Protection:
In areas where sulfuric acid is handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply. Acid-resistant apron. Under severe exposure emergency conditions, wear acid-resistant clothing and boots.
Face shield recommended when adding water or electrolyte to batteries, wash hands after handling.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Properties Listed Below are for Electrolyte:

Boiling Point:	203 - 240° F	**Specific Gravity (H2O = 1):**	1.215 to 1.350
Melting Point:	N/A	**Vapor Pressure (mm Hg):**	10
Solubility in Water:	100%	**Vapor Density (AIR = 1):**	Greater than 1
Evaporation Rate: (Butyl Acetate = 1)	Less than 1	**% Volatile by Weight:**	N/A
pH:	~1 to 2	**Flash Point:**	Below room temperature (as hydrogen gas)
LEL (Lower Explosive Limit)	4.1% (Hydrogen)	**UEL (Upper Explosive Limit)**	74.2% (Hydrogen)
Appearance and Odor:	Manufactured article; no apparent odor. Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.		

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X. STABILITY AND REACTIVITY

Stability: Stable X Unstable ___

This product is stable under normal conditions at ambient temperature.

Conditions To Avoid: Prolonged overcharge; sources of ignition

Incompatibility: (Materials to avoid)

Sulfuric Acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

Lead Compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.

Arsenic compounds: strong oxidizers; bromine azide. NOTE: hydrogen gas can react with inorganic arsenic to form the highly toxic gas-arsine.

Hazardous Decomposition Products:

Sulfuric Acid: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, and hydrogen sulfide.

Lead Compounds: High temperatures likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

Hazardous Polymerization:

Will not occur

XI. TOXICOLOGICAL INFORMATION

Routes of Entry:

Sulfuric Acid: Harmful by all routes of entry.

Lead Compounds: Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume. The presence of nascent hydrogen may generate highly toxic arsine gas.

Inhalation:

Sulfuric Acid: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.

Lead Compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Sulfuric Acid: May cause severe irritation of mouth, throat, esophagus and stomach.

Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.

Skin Contact:

Sulfuric Acid: Severe irritation, burns and ulceration.

Lead Compounds: Not absorbed through the skin.

Arsenic Compounds: Contact may cause dermatitis and skin hyper pigmentation.

Eye Contact:

Sulfuric Acid: Severe irritation , burns, cornea damage, and blindness.

Lead Components: May cause eye irritation.

Effects of Overexposure - Acute:

Sulfuric Acid: Severe skin irritation, damage to cornea, upper respiratory irritation.

Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.

Effects of Overexposure - Chronic:

Sulfuric Acid: Possible erosion of tooth enamel, inflammation of nose, throat and bronchial tubes.

Lead Compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females. Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. Some toxicologists report abnormal conduction velocities in persons with blood lead levels of 50mcg/100 ml or higher. Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues.

Carcinogenicity:

Sulfuric Acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Group 1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may result in the generation of sulfuric acid mist.

Lead Compounds: Lead is listed as a Group 2A carcinogen, likely in animals at extreme doses. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1B. Proof of carcinogenicity in humans is lacking at present.

Arsenic: Arsenic is listed by IARC as a Group 1 - carcinogenic to humans. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1A.

Medical Conditions Generally Aggravated by Exposure:

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.

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Acute Toxicity:
Inhalation LD50:
Electrolyte: LC50 rat: 375 mg/m3; LC50: guinea pig: 510 mg/m3
Elemental Lead: Acute Toxicity Point Estimate = 4500 ppmV (based on lead bullion)
Elemental Arsenic: No data

Oral LD50:
Electrolyte: rat: 2140 mg/kg
Elemental Lead: Acute Toxicity Estimate (ATE) = 500 mg/kg body weight (based on lead bullion)
Elemental Arsenic: LD50 mouse: 145 mg/kg
Elemental Antimony: LD50 rat: 100 mg/kg

Additional Health Data:

All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion.
Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section 8.
Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the worksite. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home or laundered with personal non-contaminated clothing. This product is intended for industrial use only and should be isolated from children and their environment.

The 19th Amendment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form, as possibly toxic to reproduction.
Risk phrase 61: May cause harm to the unborn child, applies to lead compounds, especially soluble forms.

XII. ECOLOGICAL INFORMATION

Environmental Fate:

Lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain.
Most studies include lead compounds and not elemental lead.

Environmental Toxicity: Aquatic Toxicity:

Sulfuric acid:	24-hr LC50, freshwater fish (Brachydanio rerio): 82 mg/L
	96 hr- LOEC, freshwater fish (Cyprinus carpio): 22 mg/L
Lead:	48 hr LC50 (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion
Arsenic:	24 hr LC50, freshwater fish (Carrassisus auratus) >5000 g/L.

Additional Information:

- No known effects on stratospheric ozone depletion.
- Volatile organic compounds: 0% (by Volume)
- Water Endangering Class (WGK): NA

XIII. DISPOSAL CONSIDERATIONS (UNITED STATES)

Spent batteries: Send to secondary lead smelter for recycling. Spent lead-acid batteries are not regulated as hazardous waste when the requirements of 40 CFR Section 266.80 are met. This should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Electrolyte:

Place neutralized slurry into sealed containers and handle as applicable with state and federal regulations. Large water-diluted spills, after neutralization and testing, should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Following local, State/Provincial, and Federal/National regulations applicable to end-of-life characteristics will be the responsibility of the end-user.

XIV. TRANSPORT INFORMATION

U.S. DOT:

The transportation of wet and moist charged (moist active) batteries within the continental United States is regulated by the U.S. DOT through the Code of Federal Regulations, Title 49 (49CFR). These regulations classify these types of batteries as a hazardous material. Refer to 49 CFR, 173.159 for more details pertaining to the transportation of wet and moist batteries.

The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid
Hazardous Class: 8
UN Identification: UN2794
Packing Group: N/A
Label/Placard Required: Corrosive

Contact your EnerSys representative for additional information regarding the classification of batteries.

49 CFR 173.159(e) specifies that when transported by highway or rail, electric storage batteries containing electrolyte or corrosive battery fluid are not subject to any other requirements of this subchapter, if all of the following are met:

(1) No other hazardous materials may be transported in the same vehicle;
(2) The batteries must be loaded or braced so as to prevent damage and short circuits in transit;
(3) Any other material loaded in the same vehicle must be blocked, braced, or otherwise secured to prevent contact with or damage to the batteries; and
(4) The transport vehicle may not carry material shipped by any person other than the shipper of the batteries.

If any of the above-referenced requirements are not met, the batteries must be shipped as fully-regulated Class 8 Corrosive hazardous materials.

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IATA Dangerous Goods Regulations DGR:

The international transportation of wet and moist charged (moist active) batteries is regulated by the International Air Transport Association (IATA). These regulations also classify these types of batteries as a hazardous material. The batteries must be packed according to IATA Packing Instruction 870.

The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid
Hazardous Class: 8
UN Identification: UN2794
Packing Group: N/A
Label/Placard Required: Corrosive

Contact your EnerSys representative for additional information regarding the classification of batteries.

IMDG:

The international transportation of wet and moist charged (moist active) batteries is regulated by the International Maritime Dangerous Goods code (IMDG). These regulations also classify these types of batteries as hazardous material. The batteries must be packed according to IMDG code pages 8120 and 8121. IMDG Code Packing Instruction P801.

The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid
Hazardous Class: 8
UN Identification: UN2794
Packing Group: N/A
Label/Placard Required: Corrosive

Contact your EnerSys representative for additional information regarding the classification of batteries.

XV. REGULATORY INFORMATION

UNITED STATES:

EPA SARA Title III:

Section 302 EPCRA Extremely Hazardous Substances (EHS):

Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs. EPCRA Section 302 notification is required if 1000 lbs or more of sulfuric acid is present at one site (40 CFR 370.10). For more information consult 40 CFR Part 355. The quantity of sulfuric acid will vary by battery type. Contact your EnerSys representative for additional information.

Section 304 CERCLA Hazardous Substances:

Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.

Section 311/312 Hazard Categorization:

EPCRA Section 312 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of 500 lbs or more and/or if lead is present in quantities of 10,000 lbs or more. For more information consult 40 CFR 370.10 and 40 CFR 370.40

Section 313 EPCRA Toxic Substances:

40 CFR section 372.38 (b) states: If a toxic chemical is present in an article at a covered facility, a person is not required to consider the quantity of the toxic chemical present in such article when determining whether an applicable threshold has been met under § 372.25, § 372.27, or § 372.28 or determining the amount of release to be reported under § 372.30. This exemption applies whether the person received the article from another person or the person produced the article. However, this exemption applies only to the quantity of the toxic chemical present in the article.

Supplier Notification:

This product contains toxic chemicals, which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to enable you to complete the required reports:

Toxic Chemical	CAS Number	Approximate % by Wt.
Lead	7439-92-1	60
Electrolyte (Sulfuric Acid (H_2SO_4/H_2O))	7664-93-9	10 - 30
* Antimony	7440-36-0	2
* Arsenic	7440-38-2	0.2
Tin	7440-31-5	0.2

See 40 CRG Part 370 for more details.

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

The Section 313 supplier notification requirement does not apply to batteries, which are "consumer products".

* Not present in all battery types. Contact your EnerSys representative for additional information.

Safety Data Sheet for Sulfuric Acid

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TSCA:

TSCA Section 8b – Inventory Status: All chemicals comprising this product are either exempt or listed on the TSCA Inventory.

TSCA Section 12b (40 CFR Part 707.60(b)) No notice of export will be required for articles, except PCB articles, unless the Agency so requires in the context of individual section 5, 6, or 7 actions.

TSCA Section 13 (40 CFR Part 707.20): No import certification required (EPA 305-B-99-001, June 1999, Introduction to the Chemical Import Requirements of the Toxic Substances Control Act, Section IV.A).

RCRA:

Spent Lead Acid Batteries are subject to streamlined handling requirements when managed in compliance with 40 CFR section 266.80 or 40 CFR part 273. Waste sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity) and D008 (lead).

CAA:

EnerSys supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, EnerSys established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

STATE REGULATIONS (US):

Proposition 65:

Warning: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals known to the State of California to cause cancer. Wash hands after handling.

INTERNATIONAL REGULATIONS:

Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2).

Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.

XVI. OTHER INFORMATION

Revision: AB (04-25-17)

NFPA Hazard Rating for Sulfuric Acid:

Flammability (Red) = 0	Reactivity (Yellow) = 2
Health (Blue) = 3	Sulfuric acid is water-reactive if concentrated.

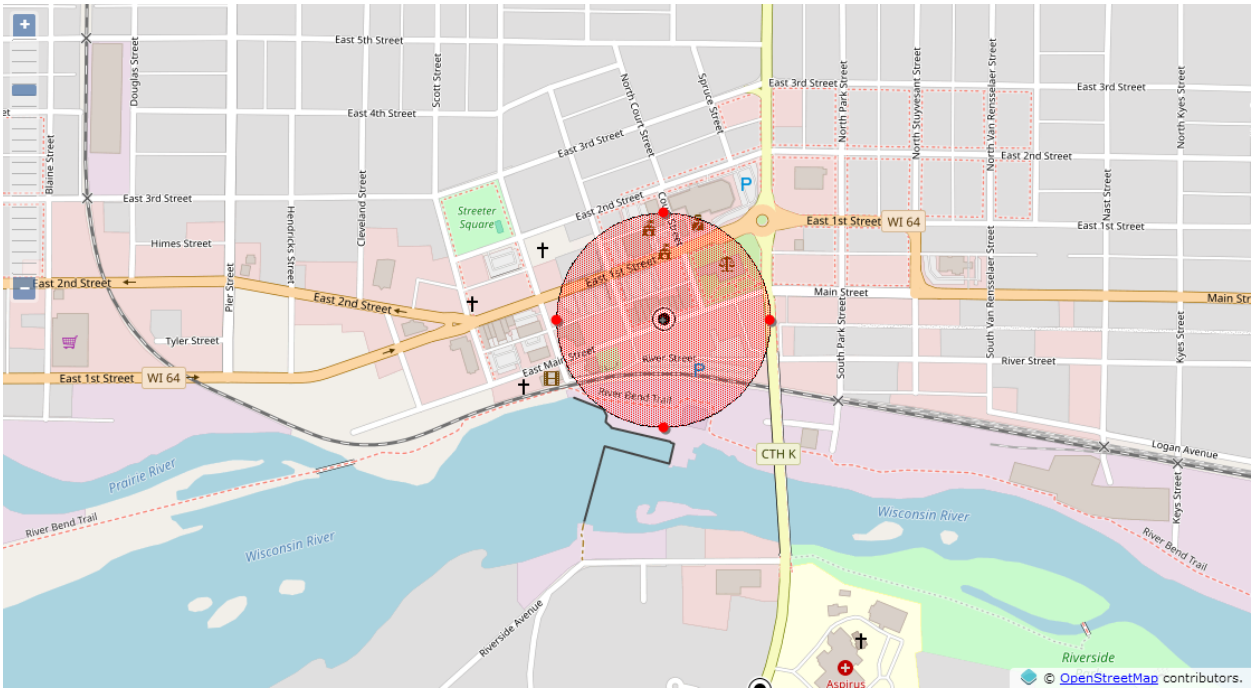
DISCLAIMER

This Safety Data Sheet is created by the manufacturer to comply with the requirements of 29 CFR 1910.1200. To the extent allowed by law, the manufacturer hereby expressly disclaims any liability to any third party, including users of this product, including, but not limited to, consequential or other damages, arising out of the use of, or reliance on, this Safety Data Sheet.

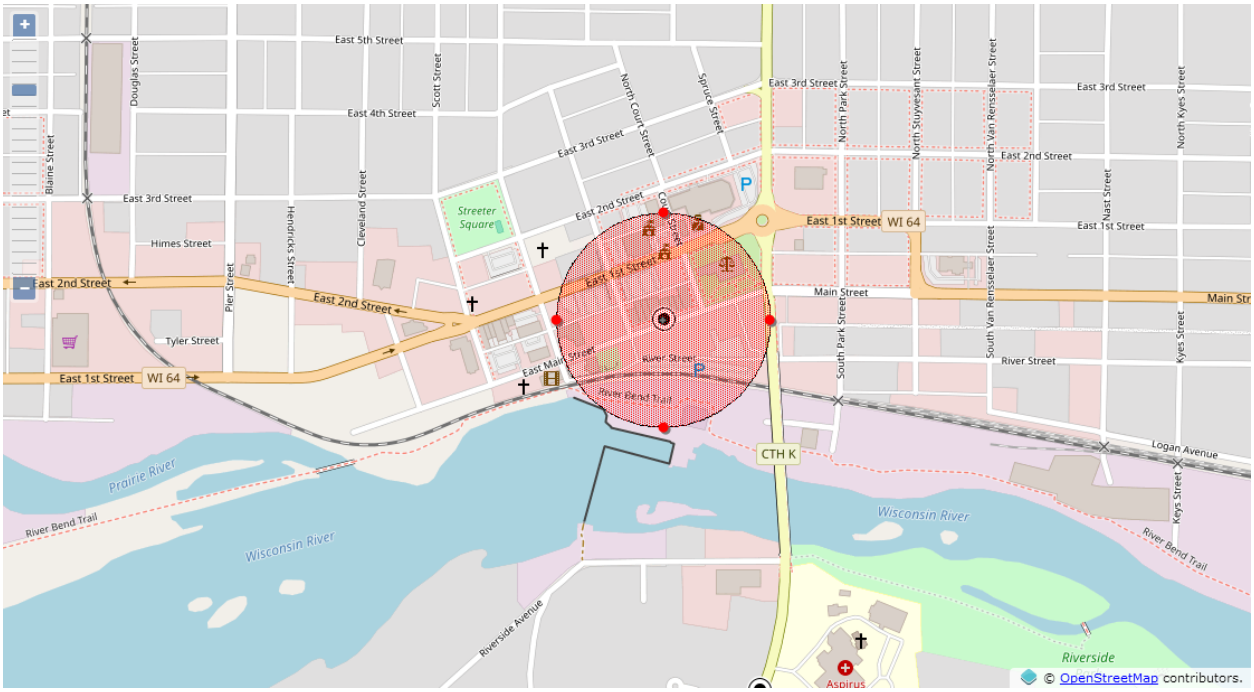
Attachment E

Vulnerability Zone Maps for Sulfuric Acid

A. Worst Case Scenario



B. Re-evaluation Scenario



Lincoln County: Local Emergency Planning Committee (LEPC)

LINCOLN COUNTY
EMERGENCY MANAGEMENT

2023 Off Site Plan: Frontier—Tomahawk

Lincoln County Board of Supervisors Chair	**Lincoln County Administrative Coordinator**	**Lincoln County Director of Emergency Management**	**Lincoln County LEPC Chair**
Don Friske	Renee Krueger	Tyler Verhasselt	Richard Burns

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Table of Contents

I. Facility Information

A. Frontier (Tomahawk)

1. Address: 312 West Wisconsin Avenue, Tomahawk, WI 54487
2. Phone: (972) 424-1680
3. Facility ID # (Assigned by WEM): 5268

II. Facility Emergency Contacts

A. Tier II Contact:

1. Name: Randy Robertson
2. Position: EHS Manager, Frontier
3. Office Phone: (972) 424-1680
4. Emergency Phone: (972) 261-5087
5. Email: Randy.Robertson@ftr.com

B. Tier II Emergency Coordinator:

1. Name: Jeffery Witt
2. Position: Facility Supervisor
3. Emergency Phone: (608) 837-1129
4. Emergency Phone: (800) 590-6605
5. Email: Jeffrey.witt@ftr.com

III. Extremely Hazardous Substances (EHS)

A. EHS Chemicals OVER Threshold Planning Quantity (TPQ)

CAS #	Chemical Name	Maximum Daily Quantity (lbs.)	Max. Amount. of Largest Container (lbs.)	Vulnerability Zone (miles)
7664-93-9	Sulfuric Acid	1,554	1,554	< 0.1 miles

IV. Primary Emergency Responders

A. Lincoln County Sheriff's Office

1. Phone: 911 or (715) 563-6272

B. Lincoln County Emergency Communications Center

1. Phone: 911 or (715) 563-6272

C. Lincoln County Emergency Management

1. Phone: (715) 218-0128

D. Tomahawk Fire Department

1. Phone: 911 or (715) 453-8180

E. Tomahawk Police Department

1. Phone: 911 or (715) 453-2121

V. Support Available at Facility

A. Chemical Emergency Monitoring Equipment:

1. None

B. Personal Protective Equipment:

1. None

C. Other Equipment or Supplies:

1. None

D. Outside Resources Available:

1. Lincoln County Emergency Management
   a) Pursuant to Lincoln County's Emergency Operations Plan (EOP), the incident commander and/or unified command will identify the need for hazmat response and relay that request to Lincoln County Sheriff's Office (LCSO) Communication Center whom with contact the appropriate team.

      The Tomahawk Fire Department is capable of handling minor hazardous materials incidents; however, if the incident exceeds the ability/capability of Tomahawk Fire Department LCSO Communications Center will request the appropriate agency. Lincoln County contracts with two (2) external hazmat response teams dependent on level of release, for Level B response Oneida County Sheriff Office Hazardous Materials Response Team; whereas, for Level A response Wausau Wisconsin Hazardous Response Team.

      For Level A incidents, the response of Wausau Wisconsin Hazardous Response Team must be requested through the Wisconsin Emergency Management (WEM) State Emergency Operations Center (SEOC). Contact the WEM SEOC Duty Officer at (800) 943-0003 for response.
2. Chemtrec: (800) 424-9300
   a) Unknown response time
3. National Response Center: (800) 424-8802
   a) Unknown response time
4. REI—Spill & Response Recovery: (800) 734-7745
   a) Unknown response time

VI. General information and Assumptions (Disclaimer)

The vulnerability zones set forth in this plan are based on the Environmental Protection Agency's (EPA) Technical Guidance for Hazard Analysis. The zones are based on a credible worst case scenario and identify the potential area for impact should an airborne release of an EHS occur.

A re-evaluation scenario with more realistic parameters has also been computed. Parameters used for both scenarios have been described as part of the hazard analysis summary.

CAMEO Suite software was used in the preparation of vulnerability zones. It should be noted that CAMEO*fm* cannot compute zones greater than 10 miles nor less than 0.1 miles. Thus, results that fall into these situations will be notes as "> 10 miles" or "< 0.1 miles".

The field Incident Commander shall determine the actual response to an incident and the affected area may vary from the planning vulnerability zone identified in this plan. Depending on wind speed and direction, the amount of material released and other pertinent factors, the ACTUAL vulnerability zone may be smaller, and in some instances larger, than the credible worst case vulnerability zone identified herein.

VII. Hazard Analysis Summary

Frontier (Tomahawk) provides a communication service to the public. The facility has one (1) employee who works on-site in a part-time capacity. Extremely hazardous substances are present on-site every day of the year. This facility does not remove products on a seasonal basis.

A. Greatest Potential for Release

1. The greatest potential for release would be an accident involving sulfuric acid, which is the only EHS on site, when being handled.
2. It is unlikely that a large sulfuric acid release would occur and it is unlikely that a release would have off site consequences. Spills would normally be contained inside the building except perhaps in a fire situation.

B. Vulnerability Zones (by chemical)

Sulfuric Acid: CAS #7664-93-9			
Amount Released:	1,544 lbs.		
Concentration:	100%		
Physical State:	Liquid (Ambient)		
Diked Area:	No		
Level of Concern (LOC):	0.008 gm/m^3		
LOC Type:	Greenbook LOC		
Worst Case Scenario		**Re-Evaluation Scenario**	
Duration:	10 minutes	**Duration**	10 minutes
Wind Speed:	3.4 mph	**Wind Speed:**	11.9 mph
Ground Roughness:	Rural	**Ground Roughness:**	Urban
Atmospheric Stability Class:	F	**Atmospheric Stability Class:**	D
Risk:	Low	**Risk:**	Low
Consequences:	Low	**Consequences:**	Low
Overall Risk:	Low	**Overall Risk:**	Low
Threat Zone Radius:	< 0.1 miles	**Threat Zone Radius:**	< 0.1 miles

C. Estimation of Population Affected

1. Sulfuric Acid
   a) In the credible worst case scenario the total number of persons that could be affected by a release of the extremely hazardous substance would potentially be one (1) employee and no other persons or special facilities.
   b) In the re-evaluation scenario the total number of persons that could be affected by a release of the extremely hazardous substance would potentially be one (1) employee and no other persons or special facilities.
   c) Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.
   d) Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

D. Critical Infrastructure

1. None

E. Hospital

1. None

F. Nursing Homes/Assisted Living Facilities

1. None

G. Schools

1. None

H. Child Care/Day Care

1. None

VIII. Population Protection

The determination to shelter in-place or to evacuate will be made by the on-scene commander as appropriate. The lead time for a hazardous materials incident may be very short. As a result, there may not be time enough for safe evacuation, especially when extremely toxic chemical fumes are involved. An evacuation under these considerations may expose the population to dangerous toxic chemicals and the decision may be made to shelter-in-place. Preferred areas for protective sheltering would be interior hallways, rooms on the side of the building away from where the hazard is approaching. Doors, windows, and other potential air leaks should be sealed up to prevent toxic fumes from entering.

Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.

IX. Special Considerations

A. None

X. Distribution List

- Frontier—Tomahawk
- Tomahawk Fire Department
- Wisconsin Emergency Management Northeast Regional Office
- Oneida County Sheriff Office Hazardous Materials Response Team
- Wausau Wisconsin Hazardous Response Team
- Oneida County Emergency Management

XI. Supporting Documentation

A. Attachments

1. Attachment A, Record of Change and Review
2. Attachment B, Facility Layout and Site Information
3. Attachment C, Transportation Route Map
4. Attachment D, Safety Data Sheet for Sulfuric Acid
5. Attachment F, Vulnerability Zone Map for Sulfuric Acid

Attachment A

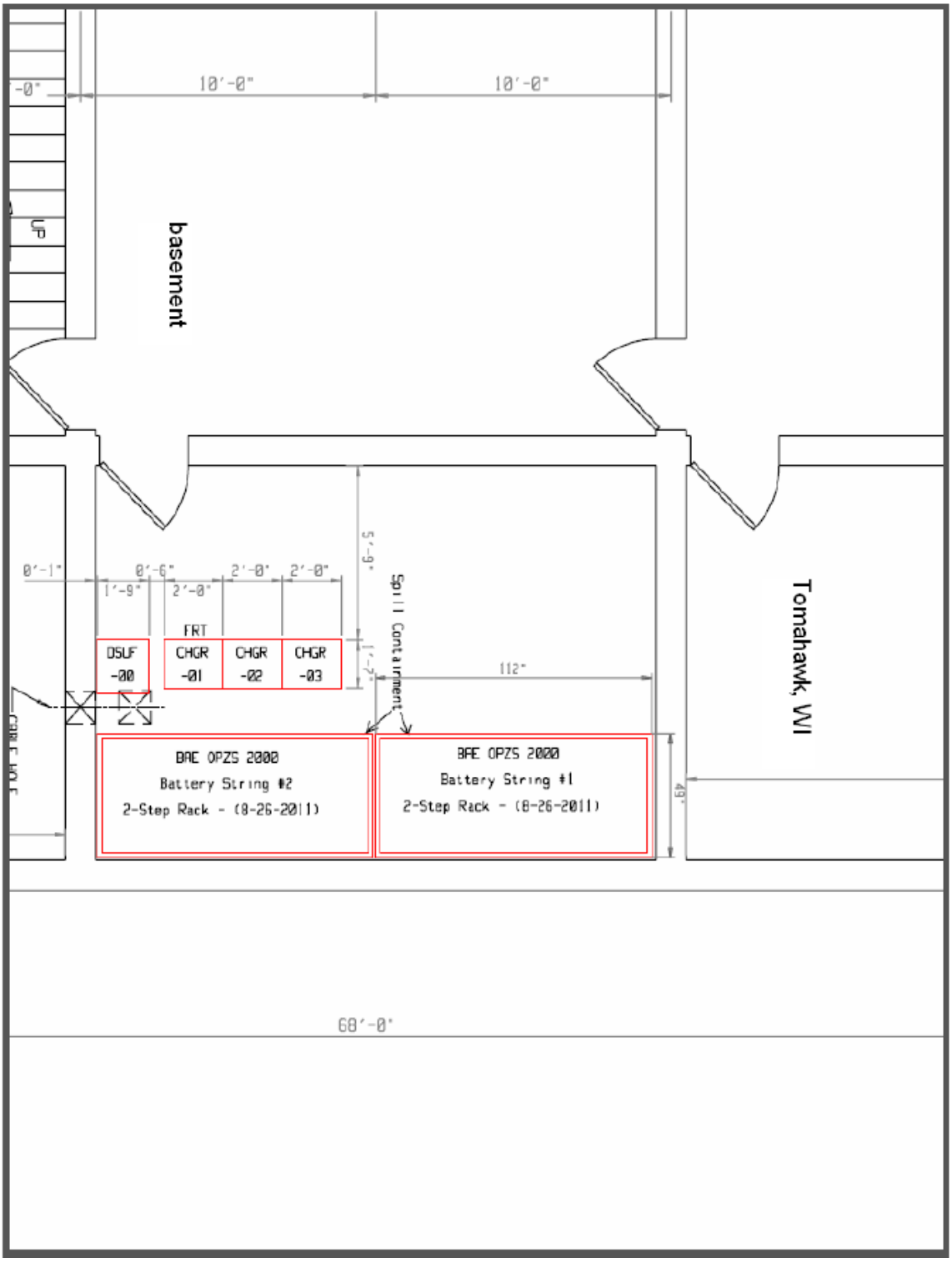
Record of Change/ Review /Signature

Date	Contributor	Description of Change	Page Number(s)
12-5-2023	T. Verhasselt, R. Robertson, and J. Witt	Authored plan and reviewed with Frontier (Tomahawk) for accuracy. Tier II contact was changed to R. Robertson.	Pgs. 1-21

Please see EPCRA Hazardous Materials Off-Site Plan Transmittal Form for approval and signatures.

Attachment B

Facility Layout and Site Information



Attachment C

Transportation Route Map

Attachment D

Safety Data Sheet for Sulfuric Acid

EnerSys
Power/Full Solutions

SAFETY DATA SHEET

Form #: SDS 853020
Revised: AB
Supersedes: AA
ECO #: 1001828

I. PRODUCT IDENTIFICATION

Chemical Trade Name (as used on label):
Lead-Acid Battery, Wet

Synonyms:
Industrial Battery, Traction Battery, Stationary Battery, Deep Cycle Battery

Manufacturer's Name/Address:
EnerSys
P.O. Box 14145
2366 Bernville Road
Reading, PA 19612-4145

Chemical Family/Classification:
Electric Storage Battery

Telephone:
For information and emergencies, contact EnerSys' Environmental, Health & Safety Dept. at 610-208-1996

24-Hour Emergency Response Contact:
CHEMTREC DOMESTIC: 800-424-9300 CHEMTREC INT'L: 703-527-3877

II GHS HAZARDS IDENTFICATION

HEALTH		ENVIRONMENTAL	PHYSICAL
Acute Toxicity (Oral/Dermal/Inhalation)	Category 4	Aquatic Chronic 1	Explosive Chemical, Division 1.3
Skin Corrosion/Irritation	Category 1A	Aquatic Acute 1	
Eye Damage	Category 1		
Reproductive	Category 1A		
Carcinogenicity (lead compounds)	Category 1B		
Carcinogenicity (arsenic)	Category 1A		
Carcinogenicity (acid mist)	Category 1A		
Specific Target Organ Toxicity (repeated exposure)	Category 2		

GHS LABEL:

HEALTH	ENVIRONMENTAL	PHYSICAL
		

Hazard Statements

DANGER!

Causes severe skin burns and serious eye damage.
May damage fertility or the unborn child if ingested or inhaled.
May cause cancer if ingested or inhaled.
Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure.
May form explosive air/gas mixture during charging.
Extremely flammable gas (hydrogen).
Explosive, fire, blast, or projection hazard.
May cause harm to breast-fed children
Harmful if swallowed, inhaled, or contact with skin
Causes skin irritation, serious eye damage.

Precautionary Statements

Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing, eye protection/face protection.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid.
Irritating to eyes, respiratory system, and skin.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood
Avoid contact during pregnancy/while nursing
Keep away from heat./sparks/open flames/hot surfaces. No smoking

III. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Approximate % by Wt.
Inorganic Lead Compound:		
Lead	7439-92-1	60-70
* Antimony	7440-36-0	2
* Arsenic	7440-38-2	0.2
* Calcium	7440-70-2	0.04
* Tin	7440-31-5	0.2
Electrolyte (Sulfuric Acid (H2SO4/H2O))	7664-93-9	10-30
Case Material:		5-10
Polypropylene	9003-07-0	
Polystyrene	9003-53-6	
Styrene Acrylonitrile	9003-54-7	
Acrylonitrile Butadiene Styrene	9003-56-9	
Styrene Butadiene	9003-55-8	
Polyvinylchloride	9002-86-2	
Polycarbonate, Hard Rubber, Polyethylene	9002-88-4	

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Other:				
	Silicon Dioxide (Gel batteries only) Sheet Molding Compound (Glass reinforced polyester)	7631-86-9 --	1-5	

Inorganic lead and electrolyte (sulfuric acid) are the primary components of every battery manufactured by EnerSys.
Other ingredients may be present dependent upon battery type. Contact your EnerSys representative for additional information.

IV. FIRST AID MEASURES

Inhalation:
Sulfuric Acid: Remove to fresh air immediately. If breathing is difficult, give oxygen. Consult a physician.
Lead: Remove from exposure, gargle, wash nose and lips; consult physician.

Ingestion:
Sulfuric Acid: Give large quantities of water; do not induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death; consult a physician.
Lead: Consult physician immediately.

Skin:
Sulfuric Acid: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes.
Lead: Wash immediately with soap and water.

Eyes:
Sulfuric Acid and Lead: Flush immediately with large amounts of water for a least 15 minutes while lifting lids.
Seek immediate medical attention if eyes have been exposed directly to acid.

V. FIRE FIGHTING MEASURES

Flash Point: N/A **Flammable Limits:** LEL = 4.1% (Hydrogen Gas) UEL = 74.2%

Extinguishing Media: CO_2; foam; dry chemical. Do not use carbon dioxide directly on cells. Avoid breathing vapors. Use appropriate media for surrounding fire.

Special Fire Fighting Procedures:
If batteries are on charge, shut off power. Use positive pressure, self-contained breathing apparatus. Water applied to electrolyte generates heat and causes it to spatter. Wear acid-resistant clothing, gloves, face and eye protection.
But note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

Unusual Fire and Explosion Hazards:
Highly flammable hydrogen gas is generated during charging and operation of batteries. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Follow manufacturer's instructions for installation and service.

VI. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:
Stop flow of material, contain/absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of unneutralized acid to sewer. Acid must be managed in accordance with local, state, and federal requirements.
Consult state environmental agency and/or federal EPA.

VII. HANDLING AND STORAGE

Handling:
Unless involved in recycling operations, do not breach the casing or empty the contents of the battery. Handle carefully and avoid tipping, which may allow electrolyte leakage. There may be increasing risk of electric shock from strings of connected batteries.
Keep containers tightly closed when not in use. If battery case is broken, avoid contact with internal components.
Keep vent caps on and cover terminals to prevent short circuits. Place cardboard between layers of stacked automotive batteries to avoid damage and short circuits.
Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water. Use banding or stretch wrap to secure items for shipping.

Storage:
Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat. Keep away from metallic objects could bridge the terminals on a battery and create a dangerous short-circuit.

Charging:
There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas.
Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby.
Wear face and eye protection when near batteries being charged.

EnerSys
Power/Full Solutions

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VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits (mg/m3) Note: N.E = Not Established

INGREDIENTS (Chemical/Common Names)	OSHA PEL	ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Lead and Lead Compounds (inorganic)	0.05	0.05	0.05	0.05	0.05	0.15 (b)
Antimony	0.5	0.5	0.5	0.5	0.5	0.5 (b,e)
Arsenic	0.01	0.01	0.002	0.2	0.01	N.E
Calcium	N.E	N.E	N.E	N.E	N.E	N.E
Tin	2	2	2	2	2	N.E
Electrolyte (Sulfuric Acid)	1	0.2	1	1	0.2	0.05 (c)
Polypropylene	N.E	N.E	N.E	N.E	N.E	N.E
Polystyrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Acrylonitrile	N.E	N.E	N.E	N.E	N.E	N.E
Acrylonitrile Butadiene Styrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Butadiene	N.E	N.E	N.E	N.E	N.E	N.E
Polyvinylchloride	N.E	N.E	N.E	N.E	1	N.E
Polycarbonate, Hard Rubber, Polyethylene	N.E	N.E	N.E	N.E	N.E	N.E
Silicon Dioxide (Gel Batteries Only)	N.E	N.E	N.E	N.E	N.E	N.E
Sheet Molding Compound (Glass reinforced polyester)	N.E	N.E	N.E	N.E	N.E	N.E

NOTES:

(b) As inhalable aerosol
(c) Thoracic fraction
(e) Based on OEL;s Of Austria, Belgium, Denmark, France, Netherlands, Switzerland, & U.K.

Engineering Controls (Ventilation):
Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant.
Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective clothing, eye and face protection when filling, charging or handling batteries. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Charge the batteries in areas with adequate ventilation. General dilution ventilation is acceptable.

Respiratory Protection (NIOSH/MSHA approved):
None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed the PEL, use NIOSH or MSHA-approved respiratory protection.

Skin Protection:
If battery case is damaged, use rubber or plastic acid-resistant gloves with elbow-length gauntlet, acid-resistant apron, clothing and boots.

Eye Protection:
If battery case is damaged, use chemical goggles or face shield.

Other Protection:
In areas where sulfuric acid is handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply. Acid-resistant apron. Under severe exposure emergency conditions, wear acid-resistant clothing and boots.
Face shield recommended when adding water or electrolyte to batteries, wash hands after handling.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Properties Listed Below are for Electrolyte:

Boiling Point:	203 - 240° F	**Specific Gravity (H2O = 1):**	1.215 to 1.350
Melting Point:	N/A	**Vapor Pressure (mm Hg):**	10
Solubility in Water:	100%	**Vapor Density (AIR = 1):**	Greater than 1
Evaporation Rate: (Butyl Acetate = 1)	Less than 1	**% Volatile by Weight:**	N/A
pH:	~1 to 2	**Flash Point:**	Below room temperature (as hydrogen gas)
LEL (Lower Explosive Limit)	4.1% (Hydrogen)	**UEL (Upper Explosive Limit)**	74.2% (Hydrogen)
Appearance and Odor:	Manufactured article; no apparent odor. Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.		

EnerSys
Power/Full Solutions

SAFETY DATA SHEET

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Revised: AB
Supersedes: AA
ECO #: 1001828

X. STABILITY AND REACTIVITY

Stability: Stable X Unstable ___

This product is stable under normal conditions at ambient temperature.

Conditions To Avoid: Prolonged overcharge; sources of ignition

Incompatibility: (Materials to avoid)

Sulfuric Acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

Lead Compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.

Arsenic compounds: strong oxidizers; bromine azide. NOTE: hydrogen gas can react with inorganic arsenic to form the highly toxic gas-arsine.

Hazardous Decomposition Products:

Sulfuric Acid: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, and hydrogen sulfide.

Lead Compounds: High temperatures likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

Hazardous Polymerization:

Will not occur

XI. TOXICOLOGICAL INFORMATION

Routes of Entry:

Sulfuric Acid: Harmful by all routes of entry.

Lead Compounds: Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume. The presence of nascent hydrogen may generate highly toxic arsine gas.

Inhalation:

Sulfuric Acid: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.

Lead Compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Sulfuric Acid: May cause severe irritation of mouth, throat, esophagus and stomach.

Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.

Skin Contact:

Sulfuric Acid: Severe irritation, burns and ulceration.

Lead Compounds: Not absorbed through the skin.

Arsenic Compounds: Contact may cause dermatitis and skin hyper pigmentation.

Eye Contact:

Sulfuric Acid: Severe irritation , burns, cornea damage, and blindness.

Lead Components: May cause eye irritation.

Effects of Overexposure - Acute:

Sulfuric Acid: Severe skin irritation, damage to cornea, upper respiratory irritation.

Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.

Effects of Overexposure - Chronic:

Sulfuric Acid: Possible erosion of tooth enamel, inflammation of nose, throat and bronchial tubes.

Lead Compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females. Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. Some toxicologists report abnormal conduction velocities in persons with blood lead levels of 50mcg/100 ml or higher. Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues.

Carcinogenicity:

Sulfuric Acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Group 1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may result in the generation of sulfuric acid mist.

Lead Compounds: Lead is listed as a Group 2A carcinogen, likely in animals at extreme doses. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1B. Proof of carcinogenicity in humans is lacking at present.

Arsenic: Arsenic is listed by IARC as a Group 1 - carcinogenic to humans. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1A.

Medical Conditions Generally Aggravated by Exposure:

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.

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Acute Toxicity:
Inhalation LD50:
Electrolyte: LC50 rat: 375 mg/m3; LC50: guinea pig: 510 mg/m3
Elemental Lead: Acute Toxicity Point Estimate = 4500 ppmV (based on lead bullion)
Elemental Arsenic: No data

Oral LD50:
Electrolyte: rat: 2140 mg/kg
Elemental Lead: Acute Toxicity Estimate (ATE) = 500 mg/kg body weight (based on lead bullion)
Elemental Arsenic: LD50 mouse: 145 mg/kg
Elemental Antimony: LD50 rat: 100 mg/kg

Additional Health Data:

All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion.
Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section 8.
Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the worksite. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home or laundered with personal non-contaminated clothing. This product is intended for industrial use only and should be isolated from children and their environment.

The 19th Amendment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form, as possibly toxic to reproduction.
Risk phrase 61: May cause harm to the unborn child, applies to lead compounds, especially soluble forms.

XII. ECOLOGICAL INFORMATION

Environmental Fate:

Lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain.
Most studies include lead compounds and not elemental lead.

Environmental Toxicity: Aquatic Toxicity:

Sulfuric acid:	24-hr LC50, freshwater fish (Brachydanio rerio): 82 mg/L
	96 hr- LOEC, freshwater fish (Cyprinus carpio): 22 mg/L
Lead:	48 hr LC50 (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion
Arsenic:	24 hr LC50, freshwater fish (Carrassisus auratus) >5000 g/L.

Additional Information:

- No known effects on stratospheric ozone depletion.
- Volatile organic compounds: 0% (by Volume)
- Water Endangering Class (WGK): NA

XIII. DISPOSAL CONSIDERATIONS (UNITED STATES)

Spent batteries: Send to secondary lead smelter for recycling. Spent lead-acid batteries are not regulated as hazardous waste when the requirements of 40 CFR Section 266.80 are met. This should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Electrolyte:

Place neutralized slurry into sealed containers and handle as applicable with state and federal regulations. Large water-diluted spills, after neutralization and testing, should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Following local, State/Provincial, and Federal/National regulations applicable to end-of-life characteristics will be the responsibility of the end-user.

XIV. TRANSPORT INFORMATION

U.S. DOT:

The transportation of wet and moist charged (moist active) batteries within the continental United States is regulated by the U.S. DOT through the Code of Federal Regulations, Title 49 (49CFR). These regulations classify these types of batteries as a hazardous material. Refer to 49 CFR, 173.159 for more details pertaining to the transportation of wet and moist batteries.

The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid
Hazardous Class: 8
UN Identification: UN2794
Packing Group: N/A
Label/Placard Required: Corrosive

Contact your EnerSys representative for additional information regarding the classification of batteries.

49 CFR 173.159(e) specifies that when transported by highway or rail, electric storage batteries containing electrolyte or corrosive battery fluid are not subject to any other requirements of this subchapter, if all of the following are met:

(1) No other hazardous materials may be transported in the same vehicle;
(2) The batteries must be loaded or braced so as to prevent damage and short circuits in transit;
(3) Any other material loaded in the same vehicle must be blocked, braced, or otherwise secured to prevent contact with or damage to the batteries; and
(4) The transport vehicle may not carry material shipped by any person other than the shipper of the batteries.

If any of the above-referenced requirements are not met, the batteries must be shipped as fully-regulated Class 8 Corrosive hazardous materials.

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IATA Dangerous Goods Regulations DGR:

The international transportation of wet and moist charged (moist active) batteries is regulated by the International Air Transport Association (IATA). These regulations also classify these types of batteries as a hazardous material. The batteries must be packed according to IATA Packing Instruction 870.

The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid
Hazardous Class: 8
UN Identification: UN2794
Packing Group: N/A
Label/Placard Required: Corrosive

Contact your EnerSys representative for additional information regarding the classification of batteries.

IMDG:

The international transportation of wet and moist charged (moist active) batteries is regulated by the International Maritime Dangerous Goods code (IMDG). These regulations also classify these types of batteries as hazardous material. The batteries must be packed according to IMDG code pages 8120 and 8121. IMDG Code Packing Instruction P801.

The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid
Hazardous Class: 8
UN Identification: UN2794
Packing Group: N/A
Label/Placard Required: Corrosive

Contact your EnerSys representative for additional information regarding the classification of batteries.

XV. REGULATORY INFORMATION

UNITED STATES:

EPA SARA Title III:

Section 302 EPCRA Extremely Hazardous Substances (EHS):

Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs. EPCRA Section 302 notification is required if 1000 lbs or more of sulfuric acid is present at one site (40 CFR 370.10). For more information consult 40 CFR Part 355. The quantity of sulfuric acid will vary by battery type. Contact your EnerSys representative for additional information.

Section 304 CERCLA Hazardous Substances:

Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.

Section 311/312 Hazard Categorization:

EPCRA Section 312 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of 500 lbs or more and/or if lead is present in quantities of 10,000 lbs or more. For more information consult 40 CFR 370.10 and 40 CFR 370.40

Section 313 EPCRA Toxic Substances:

40 CFR section 372.38 (b) states: If a toxic chemical is present in an article at a covered facility, a person is not required to consider the quantity of the toxic chemical present in such article when determining whether an applicable threshold has been met under § 372.25, § 372.27, or § 372.28 or determining the amount of release to be reported under § 372.30. This exemption applies whether the person received the article from another person or the person produced the article. However, this exemption applies only to the quantity of the toxic chemical present in the article.

Supplier Notification:

This product contains toxic chemicals, which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to enable you to complete the required reports:

Toxic Chemical	CAS Number	Approximate % by Wt.
Lead	7439-92-1	60
Electrolyte (Sulfuric Acid (H2SO4/H2O))	7664-93-9	10 - 30
* Antimony	7440-36-0	2
* Arsenic	7440-38-2	0.2
Tin	7440-31-5	0.2

See 40 CRG Part 370 for more details.

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

The Section 313 supplier notification requirement does not apply to batteries, which are "consumer products".

* Not present in all battery types. Contact your EnerSys representative for additional information.

Safety Data Sheet for Sulfuric Acid

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TSCA:

TSCA Section 8b – Inventory Status: All chemicals comprising this product are either exempt or listed on the TSCA Inventory.

TSCA Section 12b (40 CFR Part 707.60(b)) No notice of export will be required for articles, except PCB articles, unless the Agency so requires in the context of individual section 5, 6, or 7 actions.

TSCA Section 13 (40 CFR Part 707.20): No import certification required (EPA 305-B-99-001, June 1999, Introduction to the Chemical Import Requirements of the Toxic Substances Control Act, Section IV.A).

RCRA:

Spent Lead Acid Batteries are subject to streamlined handling requirements when managed in compliance with 40 CFR section 266.80 or 40 CFR part 273. Waste sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity) and D008 (lead).

CAA:

EnerSys supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, EnerSys established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

STATE REGULATIONS (US):

Proposition 65:

Warning: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals known to the State of California to cause cancer. Wash hands after handling.

INTERNATIONAL REGULATIONS:

Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2).

Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.

XVI. OTHER INFORMATION

Revision: AB (04-25-17)

NFPA Hazard Rating for Sulfuric Acid:

Flammability (Red) = 0	Reactivity (Yellow) = 2
Health (Blue) = 3	Sulfuric acid is water-reactive if concentrated.

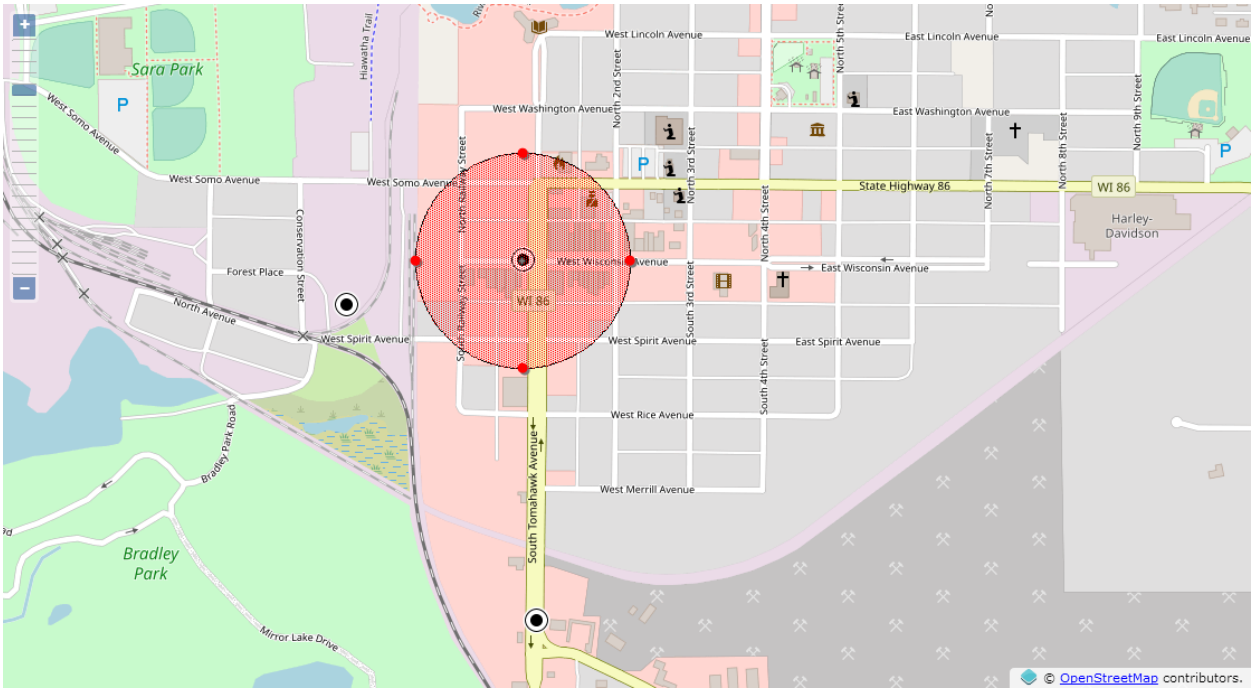
DISCLAIMER

This Safety Data Sheet is created by the manufacturer to comply with the requirements of 29 CFR 1910.1200. To the extent allowed by law, the manufacturer hereby expressly disclaims any liability to any third party, including users of this product, including, but not limited to, consequential or other damages, arising out of the use of, or reliance on, this Safety Data Sheet.

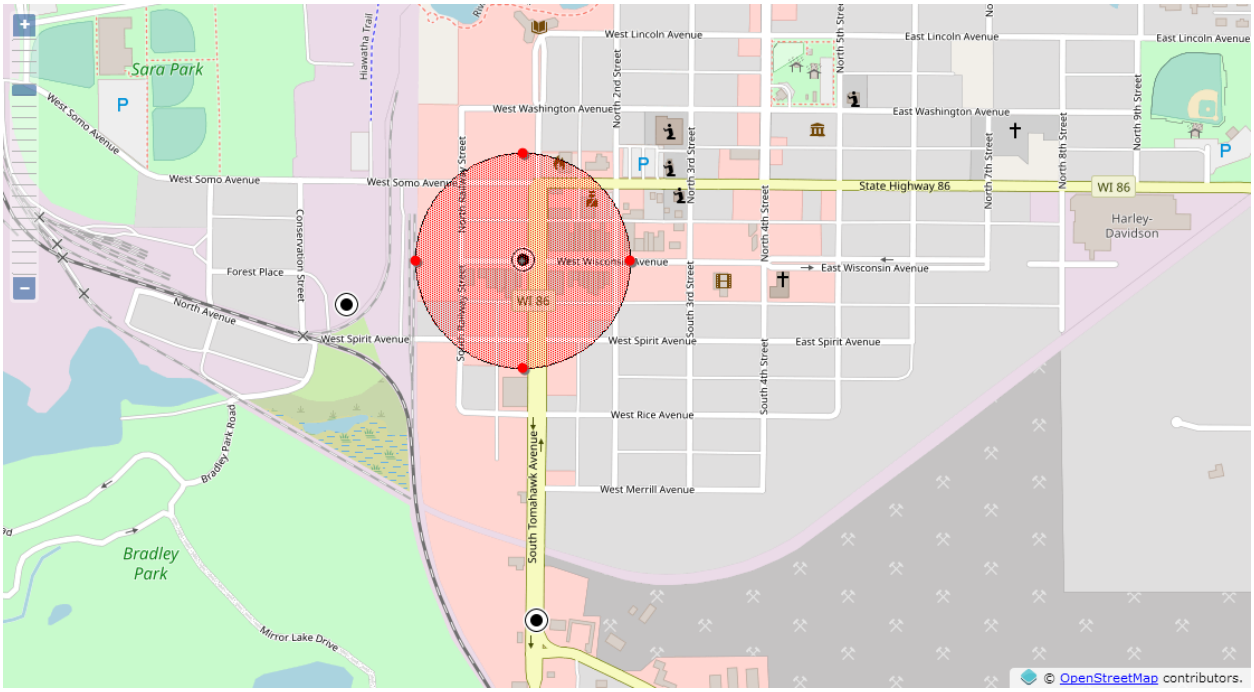
Attachment E

Vulnerability Zone Maps for Sulfuric Acid

A. Worst Case Scenario



B. Re-evaluation Scenario



Lincoln County: Local Emergency Planning Committee (LEPC)

LINCOLN COUNTY
EMERGENCY MANAGEMENT

2023 Off Site Plan: Interflex Group

Lincoln County Board of Supervisors Chair	**Lincoln County Administrative Coordinator**	**Lincoln County Director of Emergency Management**	**Lincoln County LEPC Chair**
Don Friske	Renee Krueger	Tyler Verhasselt	Richard Burns

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Table of Contents

I. Facility Information

A. Interflex Group

1. Address: 1401 West Taylor Street, Merrill, WI 54452
2. Phone: (715) 536-5400
3. Facility ID # (Assigned by WEM): 197616

II. Facility Emergency Contacts

A. Tier II Contact:

1. Name: Beverly Kershner
2. Position: Environment Specialist
3. Office Phone: (484) 553-6676
4. Emergency Phone: (484) 553-6676
5. Email: bkershner@complianceplace.com

B. Tier II Emergency Coordinator:

1. Name: Jim Loos
2. Position: Plant Manager
3. Office Phone: (715) 536-5400
4. Emergency Phone: (715) 921-9874
5. Email: jloos@interflexgroup.com

C. Tier II Emergency Contact:

1. Name: Scottie Nicholson
2. Position: Ink Room Technician
3. Office Phone: (715) 536-5400
4. Emergency Phone: (715) 218-4714
5. Email: snicholson@interflexgroup.com

D. Tier II Emergency Contact

1. Name: Andy Moses
2. Position: Operations Manager
3. Office Phone: (715) 536-5400
4. Emergency Phone: (715) 216-7945
5. Email: amoses@interflexgroup.com

III. Extremely Hazardous Substances (EHS)

A. EHS Chemicals OVER Threshold Planning Quantity (TPQ)

CAS #	Chemical Name	Maximum Daily Quantity (lbs.)	Max. Amount. of Largest Container (lbs.)	Vulnerability Zone (miles)
7664-93-9	Sulfuric Acid	5,879	5,879	< 0.1 miles

IV. Primary Emergency Responders

A. Lincoln County Sheriff's Office

1. Phone: 911 or (715) 563-6272

B. Lincoln County Emergency Communications Center

1. Phone: 911 or (715) 563-6272

C. Lincoln County Emergency Management

1. Phone: (715) 218-0128

D. Merrill Fire Department

1. Phone: 911 or (715) 536-2233

E. Merrill Police Department

1. Phone: 911 or (715) 536-8311

V. Support Available at Facility

A. Chemical Emergency Monitoring Equipment:

1. None

B. Personal Protective Equipment:

1. None

C. Other Equipment or Supplies:

1. None

D. Outside Resources Available:

1. Lincoln County Emergency Management
   a) Pursuant to Lincoln County's Emergency Operations Plan (EOP), the incident commander and/or unified command will identify the need for hazmat response and relay that request to Lincoln County Sheriff's Office (LCSO) Communication Center whom with contact the appropriate team.

      The Tomahawk Fire Department is capable of handling minor hazardous materials incidents; however, if the incident exceeds the ability/capability of Tomahawk Fire Department LCSO Communications Center will request the appropriate agency. Lincoln County contracts with two (2) external hazmat response teams dependent on level of release, for Level B response Oneida County Sheriff Office Hazardous Materials Response Team; whereas, for Level A response Wausau Wisconsin Hazardous Response Team.

      For Level A incidents, the response of Wausau Wisconsin Hazardous Response Team must be requested through the Wisconsin Emergency Management (WEM) State Emergency Operations Center (SEOC). Contact the WEM SEOC Duty Officer at (800) 943-0003 for response.
2. Chemtrec: (800) 424-9300
   a) Unknown response time
3. National Response Center: (800) 424-8802
   a) Unknown response time
4. REI—Spill & Response Recovery: (800) 734-7745
   a) Unknown response time

VI. General information and Assumptions (Disclaimer)

The vulnerability zones set forth in this plan are based on the Environmental Protection Agency's (EPA) Technical Guidance for Hazard Analysis. The zones are based on a credible worst case scenario and identify the potential area for impact should an airborne release of an EHS occur.

A re-evaluation scenario with more realistic parameters has also been computed. Parameters used for both scenarios have been described as part of the hazard analysis summary.

CAMEO Suite software was used in the preparation of vulnerability zones. It should be noted that CAMEO*fm* cannot compute zones greater than 10 miles nor less than 0.1 miles. Thus, results that fall into these situations will be notes as "> 10 miles" or "< 0.1 miles".

The field Incident Commander shall determine the actual response to an incident and the affected area may vary from the planning vulnerability zone identified in this plan. Depending on wind speed and direction, the amount of material released and other pertinent factors, the ACTUAL vulnerability zone may be smaller, and in some instances larger, than the credible worst case vulnerability zone identified herein.

VII. Hazard Analysis Summary

For over 40 years Interflex has been an innovator in flexible packaging solutions with flexible, responsive service as key to their value proposition. Their team supports a range of recognized brands in specialty packaged goods segments in the US, UK, and Europe.

A. Greatest Potential for Release

1. Sulfuric acid is the only extremely hazardous chemical present at the facility and therefore presents the greatest potential for release. However, the sulfuric acid is a component of and contained in electric forklift and pallet jack batteries.

B. Vulnerability Zones (by chemical)

Sulfuric Acid: CAS #7664-93-9			
Amount Released:	5,879 lbs.		
Concentration:	100%		
Physical State:	Liquid (Ambient)		
Diked Area:	No		
Level of Concern (LOC):	0.008 gm/m^3		
LOC Type:	Greenbook LOC		
Worst Case Scenario		**Re-Evaluation Scenario**	
Duration:	10 minutes	**Duration**	10 minutes
Wind Speed:	3.4 mph	**Wind Speed:**	11.9 mph
Ground Roughness:	Rural	**Ground Roughness:**	Urban
Atmospheric Stability Class:	F	**Atmospheric Stability Class:**	D
Risk:	Low	**Risk:**	Low
Consequences:	Low	**Consequences:**	Low
Overall Risk:	Low	**Overall Risk:**	Low
Threat Zone Radius:	< 0.1 miles	**Threat Zone Radius:**	< 0.1 miles

C. Estimation of Population Affected

1. Sulfuric Acid
   a) In the credible worst case scenario the total number of persons that could be affected by a release of the extremely hazardous substance would potentially be isolated to any of the eighty-four (84) full-time employees and no other persons or special facilities.
   b) In the credible worst case scenario the total number of persons that could be affected by a release of the extremely hazardous substance would potentially be isolated to any of the eighty-four (84) full-time employees and no other persons or special facilities.
   c) Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.
   d) Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

D. Critical Infrastructure

1. None

E. Hospital

1. None

F. Nursing Homes/Assisted Living Facilities

1. None

G. Schools

1. None

H. Child Care/Day Care

1. None

VIII. Population Protection

The determination to shelter in-place or to evacuate will be made by the on-scene commander as appropriate. The lead time for a hazardous materials incident may be very short. As a result, there may not be time enough for safe evacuation, especially when extremely toxic chemical fumes are involved. An evacuation under these considerations may expose the population to dangerous toxic chemicals and the decision may be made to shelter-in-place. Preferred areas for protective sheltering would be interior hallways, rooms on the side of the building away from where the hazard is approaching. Doors, windows, and other potential air leaks should be sealed up to prevent toxic fumes from entering.

Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.

IX. Special Considerations

A. None

X. Distribution List

- Interflex Group
- Merrill Fire Department
- Wisconsin Emergency Management Northeast Regional Office
- Oneida County Sheriff Office Hazardous Materials Response Team
- Wausau Wisconsin Hazardous Response Team
- Oneida County Emergency Management

XI. Supporting Documentation

A. Attachments

1. Attachment A, Record of Change and Review
2. Attachment B, Facility Layout and Site Information
3. Attachment C, Transportation Route Map
4. Attachment D, Safety Data Sheet for Sulfuric Acid
5. Attachment E, Vulnerability Zone Map for Sulfuric Acid

Attachment A

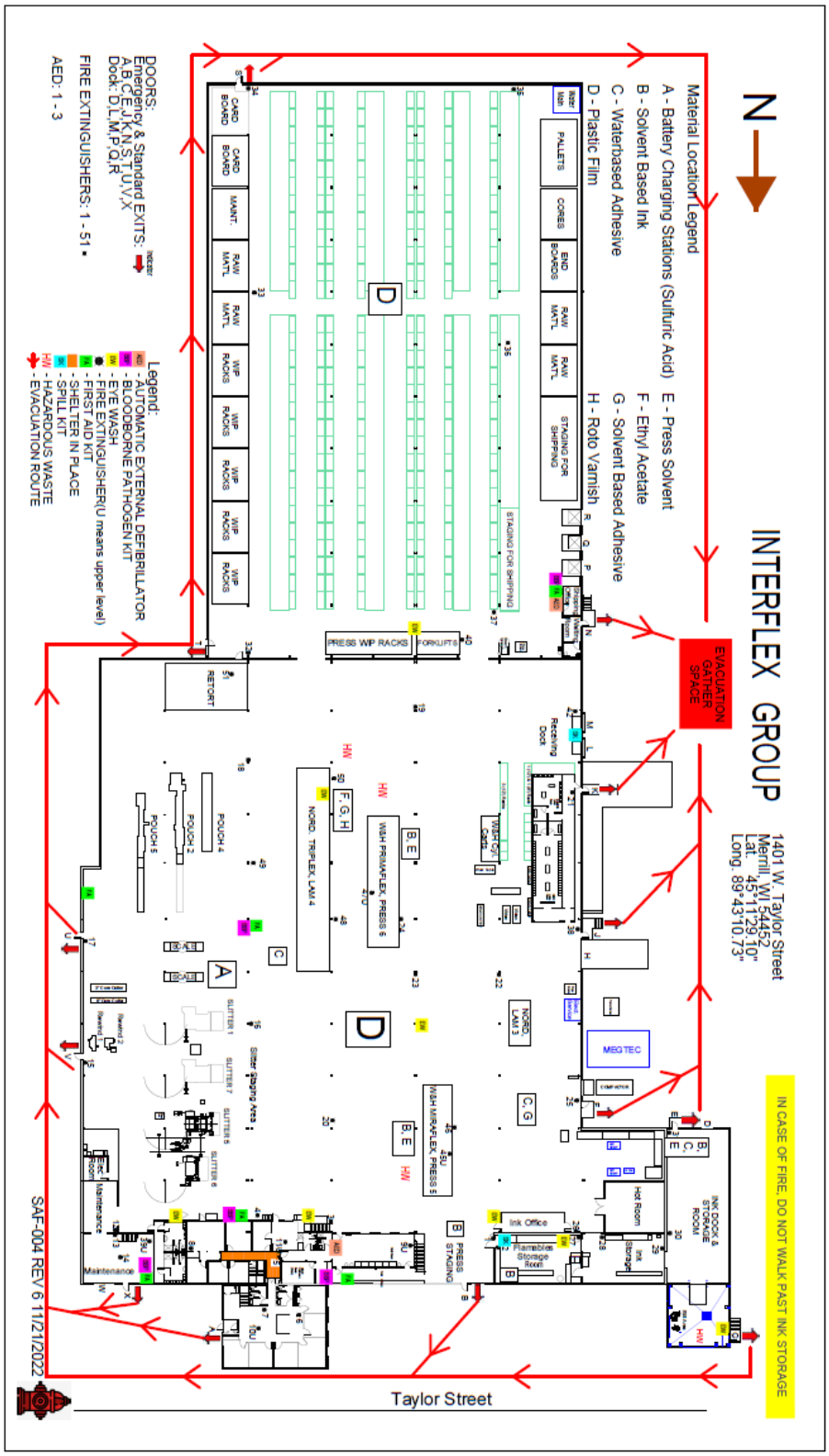
Record of Change/ Review /Signature

Date	Contributor	Description of Change	Page Number(s)
12-5-2023	T. Verhasselt and B. Kershner	Authored plan and reviewed with Interflex Group for accuracy. Tier II contacts were updated, to include phone numbers. Greatest potential for release updated to reflect sulfuric acid being battery acid. Added updated facility layout and site information.	Pgs. 1-21

Please see EPCRA Hazardous Materials Off-Site Plan Transmittal Form for approval and signatures.

Attachment B

Facility Layout and Site Information



Attachment C

Transportation Route Map

Safety Data Sheet for Sulfuric Acid

HAWKER

SAFETY DATA SHEET

Revised: AA (06-16-16)
Supersedes: 05/14/2015
ECO #: 1001735

I. PRODUCT IDENTIFICATION

Chemical Trade Name (as used on label):
Lead-Acid Battery, Wet

Synonyms:
Industrial Battery, Traction Battery, Stationary Battery, Deep Cycle Battery

Manufacturer's Name/Address:
Hawker Powersource
P.O. Box 808
9404 Ooltewah Indsutrial Drive
Ooltewah, TN 37363

Chemical Family/Classification:
Electric Storage Battery

Telephone:
For information and emergencies, contact Hawker's Environmental, Health & Safety Dept. at 423-238-5700 ATTN: Kevin P. Wileman

24-Hour Emergency Response Contact:
CHEMTREC DOMESTIC: 800-424-9300 CHEMTREC INTL: 703-527-3877

II GHS HAZARDS IDENTFICATION

HEALTH		ENVIRONMENTAL	PHYSICAL
Acute Toxicity (Oral/Dermal/Inhalation)	Category 4	Aquatic Chronic 1	Explosive Chemical, Division 1.3
Skin Corrosion/Irritation	Category 1A	Aquatic Acute 1	
Eye Damage	Category 1		
Reproductive	Category 1A		
Carcinogenicity (lead compoun	Category 1B		
Carcinogenicity (arsenic)	Category 1A		
Carcinogenicity (acid mist)	Category 1A		
Specific Target Organ Toxicity (repeated exposure)	Category 2		

GHS LABEL:

HEALTH	ENVIRONMENTAL	PHYSICAL
		

Hazard Statements

DANGER!

Causes severe skin burns and serious eye damage.
May damage fertility or the unborn child if ingested or inhaled.
May cause cancer if ingested or inhaled.
Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure.
May form explosive air/gas mixture during charging.
Extremely flammable gas (hydrogen).
Explosive, fire, blast, or projection hazard.
May cause harm to breast-fed children
Harmful if swallowed, inhaled, or contact with skin
Causes skin irritation, serious eye damage.

Precautionary Statements

Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing, eye protection/face protection.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid.
Irritating to eyes, respiratory system, and skin.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood
Avoid contact during pregnancy/while nursing
Keep away from heat./sparks/open flames/hot surfaces. No smoking

III. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Approximate % by Wt.
Inorganic Lead Compound:		
Lead	7439-92-1	60-70
* Antimony	7440-36-0	2
* Arsenic	7440-38-2	0.2
* Calcium	7440-70-2	0.04
* Tin	7440-31-5	0.2
Electrolyte (Sulfuric Acid (H2SO4/H2O))	7664-93-9	10-30
Case Material:		5-10
Polypropylene	9003-07-0	
Polystyrene	9003-53-6	
Styrene Acrylonitrile	9003-54-7	
Acrylonitrile Butadiene Styrene	9003-56-9	
Styrene Butadiene	9003-55-8	
Polyvinylchloride	9002-86-2	
Polycarbonate, Hard Rubber, Polyethylene	9002-88-4	

HAWKER

SAFETY DATA SHEET

Form #: SDS 853020H
Revised: AA (06-16-16)
Supersedes: 05/14/2015
ECO #: 1001735

Other:			
Silicon Dioxide (Gel batteries only)	7631-86-9	1-5	
Sheet Molding Compound (Glass reinforced polyester)	--		

Inorganic lead and electrolyte (sulfuric acid) are the primary components of every battery manufactured by Hawker.
Other ingredients may be present dependent upon battery type. Contact your Hawker representative for additional information.

IV. FIRST AID MEASURES

Inhalation:

Sulfuric Acid: Remove to fresh air immediately. If breathing is difficult, give oxygen. Consult a physician
Lead: Remove from exposure, gargle, wash nose and lips; consult physician.

Ingestion:

Sulfuric Acid: Give large quantities of water; do not induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death; consult a physician
Lead: Consult physician immediately.

Skin:

Sulfuric Acid: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes
Lead: Wash immediately with soap and water.

Eyes:

Sulfuric Acid and Lead: Flush immediately with large amounts of water for a least 15 minutes while lifting lids
Seek immediate medical attention if eyes have been exposed directly to acid.

V. FIRE FIGHTING MEASURES

Flash Point: N/A **Flammable Limits:** LEL = 4.1% (Hydrogen Gas) UEL = 74.2%

Extinguishing Media: CO_2; foam; dry chemical. Do not use carbon dioxide directly on cells. Avoid breathing vapors. Use appropriate media for surrounding fire.

Special Fire Fighting Procedures:

If batteries are on charge, shut off power. Use positive pressure, self-contained breathing apparatus. Water applied to electrolyte generates heat and causes it to spatter. Wear acid-resistant clothing, gloves, face and eye protection.
But note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

Unusual Fire and Explosion Hazards:

Highly flammable hydrogen gas is generated during charging and operation of batteries. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Follow manufacturer's instructions for installation and service.

VI. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:

Stop flow of material, contain/absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of unneutralized acid to sewer. Acid must be managed in accordance with local, state, and federal requirements.
Consult state environmental agency and/or federal EPA.

VII. HANDLING AND STORAGE

Handling:

Unless involved in recycling operations, do not breach the casing or empty the contents of the battery. Handle carefully and avoid tipping, which may allow electrolyte leakage. There may be increasing risk of electric shock from strings of connected batteries.
Keep containers tightly closed when not in use. If battery case is broken, avoid contact with internal components.
Keep vent caps on and cover terminals to prevent short circuits. Place cardboard between layers of stacked automotive batteries to avoid damage and short circuits.
Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water. Use banding or stretch wrap to secure items for shipping.

Storage:

Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat. Keep away from metallic objects could bridge the terminals on a battery and create a dangerous short-circuit.

Charging:

There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas.
Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby.
Wear face and eye protection when near batteries being charged.

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VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits (mg/m3) Note: N.E.= Not Established

INGREDIENTS (Chemical/Common Names)	OSHA PEL	ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Lead and Lead Compounds (inorganic)	0.05	0.05	0.05	0.05	0.05	0.15 (b)
Antimony	0.5	0.5	0.5	0.5	0.5	0.5 (b,e)
Arsenic	0.01	0.01	0.002	0.2	0.01	N.E
Calcium	N.E	N.E	N.E	N.E	N.E	N.E
Tin	2	2	2	2	2	N.E
Electrolyte (Sulfuric Acid)	1	0.2	1	1	0.2	0.05 (c)
Polypropylene	N.E	N.E	N.E	N.E	N.E	N.E
Polystyrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Acrylonitrile	N.E	N.E	N.E	N.E	N.E	N.E
Acrylonitrile Butadiene Styrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Butadiene	N.E	N.E	N.E	N.E	N.E	N.E
Polyvinylchloride	N.E	N.E	N.E	N.E	1	N.E
Polycarbonate, Hard Rubber, Polyethylene	N.E	N.E	N.E	N.E	N.E	N.E
Silicon Dioxide (Gel Batteries Only)	N.E	N.E	N.E	N.E	N.E	N.E
Sheet Molding Compound (Glass reinforced polyester)	N.E	N.E	N.E	N.E	N.E	N.E

NOTES:
(b) As inhalable aerosol
(c) Thoracic fraction
(e) Based on OEL;s Of Austria, Belgium, Denmark, France, Netherlands, Switzerland, & U.K.

Engineering Controls (Ventilation):
Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant.
Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective clothing, eye and face protection when filling, charging or handling batteries. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Charge the batteries in areas with adequate ventilation. General dilution ventilation is acceptable.

Respiratory Protection (NIOSH/MSHA approved):
None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed the PEL, use NIOSH or MSHA-approved respiratory protection.

Skin Protection:
If battery case is damaged, use rubber or plastic acid-resistant gloves with elbow-length gauntlet, acid-resistant apron, clothing and boots.

Eye Protection:
If battery case is damaged, use chemical goggles or face shield.

Other Protection:
In areas where sulfuric acid is handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply. Acid-resistant apron. Under severe exposure emergency conditions, wear acid-resistant clothing and boots. Face shield recommended when adding water or electrolyte to batteries, wash hands after handling.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Properties Listed Below are for Electrolyte:

Boiling Point:	203 - 240° F	**Specific Gravity (H2O = 1):**	1.215 to 1.350
Melting Point:	N/A	**Vapor Pressure (mm Hg):**	10
Solubility in Water:	100%	**Vapor Density (AIR = 1):**	Greater than 1
Evaporation Rate: (Butyl Acetate = 1)	Less than 1	**% Volatile by Weight:**	N/A
pH:	~1 to 2	**Flash Point:**	Below room temperature (as hydrogen gas)
LEL (Lower Explosive Limit)	4.1% (Hydrogen)	**UEL (Upper Explosive Limit)**	74.2% (Hydrogen)
Appearance and Odor:	Manufactured article; no apparent odor. Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.		

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X. STABILITY AND REACTIVITY

Stability: Stable X Unstable ___

This product is stable under normal conditions at ambient temperature

Conditions To Avoid: Prolonged overcharge; sources of ignition

Incompatibility: (Materials to avoid)

Sulfuric Acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

Lead Compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.

Arsenic compounds: strong oxidizers; bromine azide. NOTE: hydrogen gas can react with inorganic arsenic to form the highly toxic gas-arsine.

Hazardous Decomposition Products:

Sulfuric Acid: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, and hydrogen sulfide.

Lead Compounds: High temperatures likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

Hazardous Polymerization:

Will not occur

XI. TOXICOLOGICAL INFORMATION

Routes of Entry:

Sulfuric Acid: Harmful by all routes of entry.

Lead Compounds: Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume. The presence of nascent hydrogen may generate highly toxic arsine gas.

Inhalation:

Sulfuric Acid: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.

Lead Compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Sulfuric Acid: May cause severe irritation of mouth, throat, esophagus and stomach.

Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.

Skin Contact:

Sulfuric Acid: Severe irritation, burns and ulceration.

Lead Compounds: Not absorbed through the skin.

Arsenic Compounds: Contact may cause dermatitis and skin hyper pigmentation.

Eye Contact:

Sulfuric Acid: Severe irritation , burns, cornea damage, and blindness.

Lead Components: May cause eye irritation.

Effects of Overexposure - Acute:

Sulfuric Acid: Severe skin irritation, damage to cornea, upper respiratory irritation.

Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.

Effects of Overexposure - Chronic:

Sulfuric Acid: Possible erosion of tooth enamel, inflammation of nose, throat and bronchial tubes.

Lead Compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females. Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. Some toxicologists report abnormal conduction velocities in persons with blood lead levels of 50mcg/100 ml or higher. Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues.

Carcinogenicity:

Sulfuric Acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Group 1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may result in the generation of sulfuric acid mist.

Lead Compounds: Lead is listed as a Group 2A carcinogen, likely in animals at extreme doses. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1B. Proof of carcinogenicity in humans is lacking at present.

Arsenic: Arsenic is listed by IARC as a Group 1 - carcinogenic to humans. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1A.

Medical Conditions Generally Aggravated by Exposure:

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.

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Acute Toxicity:
Inhalation LD50:
Electrolyte: LC50 rat: 375 mg/m3; LC50: guinea pig: 510 mg/m3
Elemental Lead: Acute Toxicity Point Estimate = 4500 ppmV (based on lead bullion)
Elemental Arsenic: No data

Oral LD50:
Electrolyte: rat: 2140 mg/kg
Elemental Lead: Acute Toxicity Estimate (ATE) = 500 mg/kg body weight (based on lead bullion)
Elemental Arsenic: LD50 mouse: 145 mg/kg
Elemental Antimony: LD50 rat: 100 mg/kg

Additional Health Data:

All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion. Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section 8. Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the worksite. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home or laundered with personal non-contaminated clothing. This product is intended for industrial use only and should be isolated from children and their environment.

The 19th Amendment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form, as possibly toxic to reproduction. Risk phrase 61: May cause harm to the unborn child, applies to lead compounds, especially soluble forms.

XII. ECOLOGICAL INFORMATION

Environmental Fate:

Lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain. Most studies include lead compounds and not elemental lead.

Environmental Toxicity: Aquatic Toxicity:

Sulfuric acid:	24-hr LC50, freshwater fish (Brachydanio rerio): 82 mg/L
	96 hr- LOEC, freshwater fish (Cyprinus carpio): 22 mg/L
Lead:	48 hr LC50 (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion
Arsenic:	24 hr LC50, freshwater fish (Carrassisus auratus) >5000 g/L.

Additional Information:

- No known effects on stratospheric ozone depletion.
- Volatile organic compounds: 0% (by Volume)
- Water Endangering Class (WGK): NA

XIII. DISPOSAL CONSIDERATIONS (UNITED STATES)

Spent batteries: Send to secondary lead smelter for recycling. Spent lead-acid batteries are not regulated as hazardous waste when the requirements of 40 CFR Section 266.80 are met. This should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Electrolyte:

Place neutralized slurry into sealed containers and handle as applicable with state and federal regulations. Large water-diluted spills, after neutralization and testing, should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Following local, State/Provincial, and Federal/National regulations applicable to end-of-life characteristics will be the responsibility of the end-user.

XIV. TRANSPORT INFORMATION

U.S. DOT:

The transportation of wet and moist charged (moist active) batteries within the continental United States is regulated by the U.S. DOT through the Code of Federal Regulations, Title 49 (49CFR). These regulations classify these types of batteries as a hazardous material. Refer to CFR 49, 173.159 for more details pertaining to the transportation of wet and moist batteries.

The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid
Hazardous Class: 8
UN Identification: UN2794
Packing Group: N/A
Label/Placard Required: Corrosive

Contact your Hawker representative for additional information regarding the classification of batteries.

49 CFR 173.159(e) specifies that when transported by highway or rail, electric storage batteries containing electrolyte or corrosive battery fluid are not subject to any other requirements of this subchapter, if all of the following are met:

(1) No other hazardous materials may be transported in the same vehicle;
(2) The batteries must be loaded or braced so as to prevent damage and short circuits in transit;
(3) Any other material loaded in the same vehicle must be blocked, braced, or otherwise secured to prevent contact with or damage to the batteries; and
(4) The transport vehicle may not carry material shipped by any person other than the shipper of the batteries.

If any of the above-referenced requirements are not met, the batteries must be shipped as fully-regulated Class 8 Corrosive hazardous materials.

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IATA Dangerous Goods Regulations DGR:

The international transportation of wet and moist charged (moist active) batteries is regulated by the International Air Transport Association (IATA). These regulations also classify these types of batteries as a hazardous material. The batteries must be packed according to IATA Packing Instruction 870.

The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid
Hazardous Class: 8
UN Identification: UN2794
Packing Group: N/A
Label/Placard Required: Corrosive

Contact your Hawker representative for additional information regarding the classification of batteries.

IMDG:

The international transportation of wet and moist charged (moist active) batteries is regulated by the International Maritime Dangerous Goods code (IMDG). These regulations also classify these types of batteries as hazardous material. The batteries must be packed according to IMDG code pages 8120 and 8121. IMDG Code Packing Instruction P801

The shipping information is as follows:

Proper Shipping Name: Batteries, wet, filled with acid
Hazardous Class: 8
UN Identification: UN2794
Packing Group: N/A
Label/Placard Required: Corrosive

Contact your Hawker representative for additional information regarding the classification of batteries.

XV. REGULATORY INFORMATION

UNITED STATES:

EPA SARA Title III:

Section 302 EPCRA Extremely Hazardous Substances (EHS):

Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs. EPCRA Section 302 notification is required if 1000 lbs or more of sulfuric acid is present at one site (40 CFR 370.10). For more information consult 40 CFR Part 355. The quantity of sulfuric acid will vary by battery type. Contact your Hawker representative for additional information.

Section 304 CERCLA Hazardous Substances:

Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.

Section 311/312 Hazard Categorization:

EPCRA Section 312 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of 500 lbs or more and/or if lead is present in quantities of 10,000 lbs or more. For more information consult 40 CFR 370.10 and 40 CFR 370.40.

Section 313 EPCRA Toxic Substances:

40 CFR section 372.38 (b) states: If a toxic chemical is present in an article at a covered facility, a person is not required to consider the quantity of the toxic chemical present in such article when determining whether an applicable threshold has been met under § 372.25, § 372.27, or § 372.28 or determining the amount of release to be reported under § 372.30. This exemption applies whether the person received the article from another person or the person produced the article. However, this exemption applies only to the quantity of the toxic chemical present in the article.

Supplier Notification:

This product contains toxic chemicals, which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to enable you to complete the required reports:

Toxic Chemical	CAS Number	Approximate % by Wt.
Lead	7439-92-1	60
Electrolyte (Sulfuric Acid (H2SO4/H2O))	7664-93-9	10 - 30
* Antimony	7440-36-0	2
* Arsenic	7440-38-2	0.2
Tin	7440-31-5	0.2

See 40 CRG Part 370 for more details.

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

The Section 313 supplier notification requirement does not apply to batteries, which are "consumer products".

* Not present in all battery types. Contact your Hawker representative for additional information.

Safety Data Sheet for Sulfuric Acid

HAWKER

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TSCA:

TSCA Section 8b – Inventory Status: All chemicals comprising this product are either exempt or listed on the TSCA Inventory.

TSCA Section 12b (40 CFR Part 707.60(b)) No notice of export will be required for articles, except PCB articles, unless the Agency so requires in the context of individual section 5, 6, or 7 actions.

TSCA Section 13 (40 CFR Part 707.20): No import certification required (EPA 305-B-99-001, June 1999, Introduction to the Chemical Import Requirements of the Toxic Substances Control Act, Section IV.A).

RCRA:

Spent Lead Acid Batteries are subject to streamlined handling requirements when managed in compliance with 40 CFR section 266.80 or 40 CFR part 273. Waste sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity) and D008 (lead).

CAA:

Hawker supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, Hawker established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

STATE REGULATIONS (US):

Proposition 65:

Warning: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals known to the State of California to cause cancer. Wash hands after handling.

INTERNATIONAL REGULATIONS:

Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2).

Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.

XVI. OTHER INFORMATION

Revised: AA (06-16-16)

NFPA Hazard Rating for Sulfuric Acid:

Flammability (Red) = 0	Reactivity (Yellow) = 2
Health (Blue) = 3	Sulfuric acid is water-reactive if concentrated.

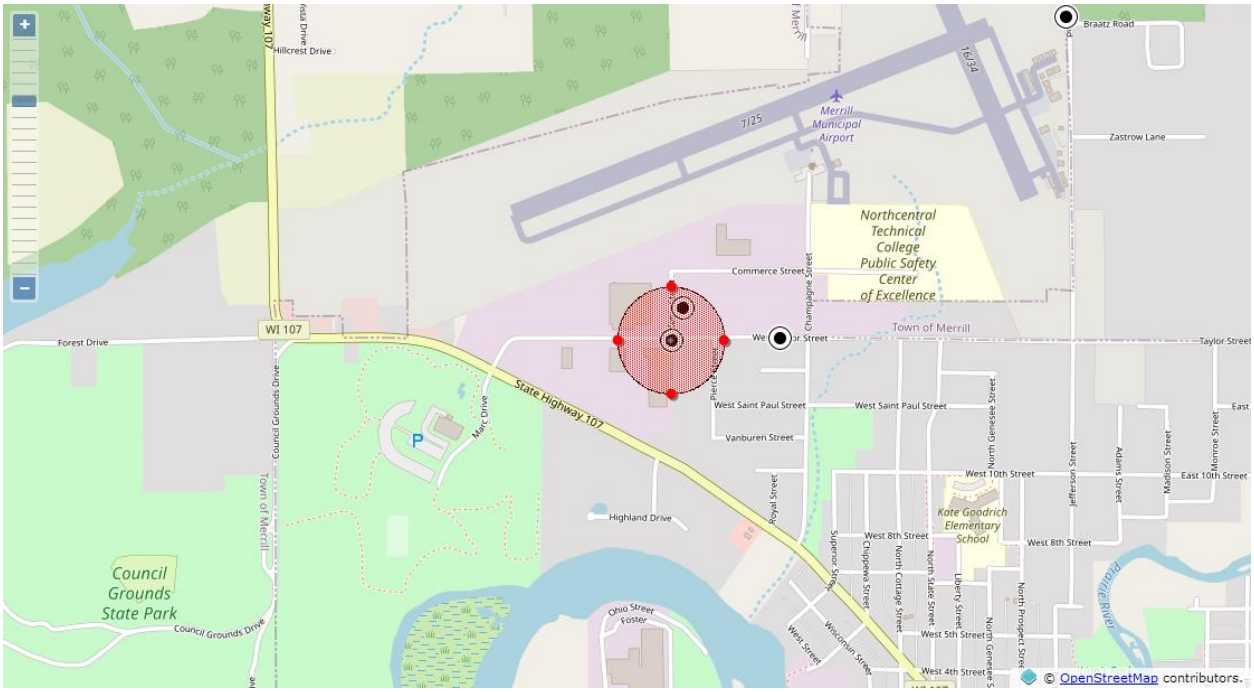
DISCLAIMER

This Safety Data Sheet is created by the manufacturer to comply with the requirements of 29 CFR 1910.1200. To the extent allowed by law, the manufacturer hereby expressly disclaims any liability to any third party, including users of this product, including, but not limited to, consequential or other damages, arising out of the use of, or reliance on, this Safety Data Sheet.

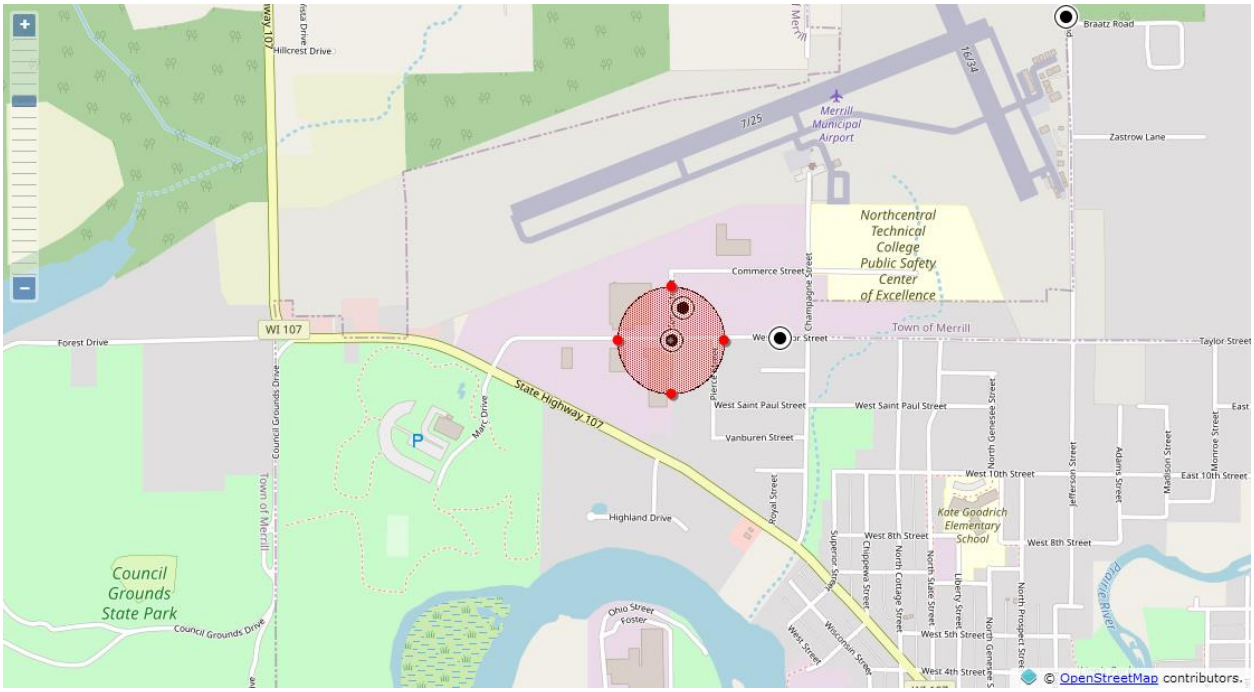
Attachment E

Vulnerability Zone Maps for Sulfuric Acid

A. Worst Case Scenario



B. Re-evaluation Scenario



Lincoln County: Local Emergency Planning Committee (LEPC)

LINCOLN COUNTY
EMERGENCY MANAGEMENT

2023 Off Site Plan: Mitchell Metal Products

Lincoln County Board of Supervisors Chair	Lincoln County Administrative Coordinator	Lincoln County Director of Emergency Management	Lincoln County LEPC Chair
Don Friske	Renee Krueger	Tyler Verhasselt	Richard Burns

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Table of Contents

I. Facility Information

A. Mitchell Metal Products

1. Address: 905 South State Street, PO Box 207, Merrill, WI 54452
2. Phone: (715) 536-7176
3. Facility ID # (Assigned by WEM): 201888

II. Facility Emergency Contacts

A. Tier II Contact:

1. Name: Matt Eder
2. Position: Chief Operating Officer
3. Office Phone: (715) 536-7176 ext. 241
4. Emergency Phone: (715) 297-5483
5. Email: meder@mitchellmetalproducts.com

B. Tier II Emergency Coordinator:

1. Name: James Kelly
2. Position: EHS Specialist
3. Emergency Phone(715) 536-7176 ext. 237
4. Emergency Phone: (520) 313-0373
5. Email: jkelly@mitchellmetalproducts.com

C. Tier II Emergency Contact

1. Name: Jeff Schellhorn
2. Position: Director of Quality
3. Office Phone: (715) 536-7176 ext. 242
4. Emergency Phone: (715) 218-4749
5. Email: jschellhorn@mitchmetalproducts.com

III. Extremely Hazardous Substances (EHS)

A. EHS Chemicals OVER Threshold Planning Quantity (TPQ)

CAS #	Chemical Name	Maximum Daily Quantity (lbs.)	Max. Amount. of Largest Container (lbs.)	Vulnerability Zone (miles)
7664-93-9	Sulfuric Acid	2,078	2,078	< 0.1 miles

IV. Primary Emergency Responders

A. Lincoln County Sheriff's Office

1. Phone: 911 or (715) 563-6272

B. Lincoln County Emergency Communications Center

1. Phone: 911 or (715) 563-6272

C. Lincoln County Emergency Management

1. Phone: (715) 218-0128

D. Merrill Fire Department

1. Phone: 911 or (715) 536-2233

E. Merrill Police Department

1. Phone: 911 or (715) 536-8311

V. Support Available at Facility

A. Chemical Emergency Monitoring Equipment:

1. None

B. Personal Protective Equipment:

1. None

C. Other Equipment or Supplies:

1. None

D. Outside Resources Available:

1. Lincoln County Emergency Management
   a) Pursuant to Lincoln County's Emergency Operations Plan (EOP), the incident commander and/or unified command will identify the need for hazmat response and relay that request to Lincoln County Sheriff's Office (LCSO) Communication Center whom with contact the appropriate team.

      The Tomahawk Fire Department is capable of handling minor hazardous materials incidents; however, if the incident exceeds the ability/capability of Tomahawk Fire Department LCSO Communications Center will request the appropriate agency. Lincoln County contracts with two (2) external hazmat response teams dependent on level of release, for Level B response Oneida County Sheriff Office Hazardous Materials Response Team; whereas, for Level A response Wausau Wisconsin Hazardous Response Team.

      For Level A incidents, the response of Wausau Wisconsin Hazardous Response Team must be requested through the Wisconsin Emergency Management (WEM) State Emergency Operations Center (SEOC). Contact the WEM SEOC Duty Officer at (800) 943-0003 for response.
2. Chemtrec: (800) 424-9300
   a) Unknown response time
3. National Response Center: (800) 424-8802
   a) Unknown response time
4. REI—Spill & Response Recovery: (800) 734-7745
   a) Unknown response time

VI. General information and Assumptions (Disclaimer)

The vulnerability zones set forth in this plan are based on the Environmental Protection Agency's (EPA) Technical Guidance for Hazard Analysis. The zones are based on a credible worst case scenario and identify the potential area for impact should an airborne release of an EHS occur.

A re-evaluation scenario with more realistic parameters has also been computed. Parameters used for both scenarios have been described as part of the hazard analysis summary.

CAMEO Suite software was used in the preparation of vulnerability zones. It should be noted that CAMEO*fm* cannot compute zones greater than 10 miles nor less than 0.1 miles. Thus, results that fall into these situations will be notes as "> 10 miles" or "< 0.1 miles".

The field Incident Commander shall determine the actual response to an incident and the affected area may vary from the planning vulnerability zone identified in this plan. Depending on wind speed and direction, the amount of material released and other pertinent factors, the ACTUAL vulnerability zone may be smaller, and in some instances larger, than the credible worst case vulnerability zone identified herein.

VII. Hazard Analysis Summary

Mitchell Metal Products is a metal manufacturing facility. They manufacture a wide variety of metal parts from custom pieces to metal Christmas wreaths, utilizing several techniques such as stamping, forming, and plating. Operations include metal forming, robotic welding, resistance welding, and staining.

A. Greatest Potential for Release

1. The greatest potential for release would be an accident involving sulfuric acid, which is the only EHS on-site, when being handled.
2. It is unlikely that a large sulfuric acid release would occur and it is unlikely that a release would have off-site consequences. Spills would normally be contained inside the building except perhaps in a fire situation.

B. Vulnerability Zones (by chemical)

Sulfuric Acid (Lead Battery Acid): CAS #7664-93-9			
Amount Released:	2,078 lbs.		
Concentration:	100%		
Physical State:	Liquid (Ambient)		
Diked Area:	No		
Level of Concern (LOC):	0.008 gm/m^3		
LOC Type:	Greenbook LOC		
Worst Case Scenario		**Re-Evaluation Scenario**	
Duration:	10 minutes	**Duration**	10 minutes
Wind Speed:	3.4 mph	**Wind Speed:**	11.9 mph
Ground Roughness:	Rural	**Ground Roughness:**	Urban
Atmospheric Stability Class:	F	**Atmospheric Stability Class:**	D
Risk:	Low	**Risk:**	Low
Consequences:	Low	**Consequences:**	Low
Overall Risk:	Low	**Overall Risk:**	Low
Threat Zone Radius:	< 0.1 miles	**Threat Zone Radius:**	< 0.1 miles

C. Estimation of Population Affected

1. Sulfuric Acid
   a) In the credible worst case scenario the total number of persons that could be affected by a release of the extremely hazardous substance would potentially be any of the eighty-four (84) employees and no other persons or special facilities.
   b) In the re-evaluation scenario the total number of persons that could be affected by a release of the extremely hazardous substance would potentially be any of the eighty-four (84) employees and no other persons or special facilities.
   c) Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.
   d) Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

D. Critical Infrastructure

1. None

E. Hospital

1. None

F. Nursing Homes/Assisted Living Facilities

1. None

G. Schools

1. None

H. Child Care/Day Care

1. None

VIII. Population Protection

The determination to shelter in-place or to evacuate will be made by the on-scene commander as appropriate. The lead time for a hazardous materials incident may be very short. As a result, there may not be time enough for safe evacuation, especially when extremely toxic chemical fumes are involved. An evacuation under these considerations may expose the population to dangerous toxic chemicals and the decision may be made to shelter-in-place. Preferred areas for protective sheltering would be interior hallways, rooms on the side of the building away from where the hazard is approaching. Doors, windows, and other potential air leaks should be sealed up to prevent toxic fumes from entering.

Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.

IX. Special Considerations

A. None

X. Distribution List

- Mitchell Metal Products
- Merrill Fire Department
- Wisconsin Emergency Management Northeast Regional Office
- Oneida County Sheriff Office Hazardous Materials Response Team
- Wausau Wisconsin Hazardous Response Team
- Marathon County Emergency Management

XI. Supporting Documentation

A. Attachments

1. Attachment A, Record of Change and Review
2. Attachment B, Facility Layout and Site Information
3. Attachment C, Transportation Route Map
4. Attachment D, Safety Data Sheet for Sulfuric Acid
5. Attachment F, Vulnerability Zone Map for Sulfuric Acid

Attachment A

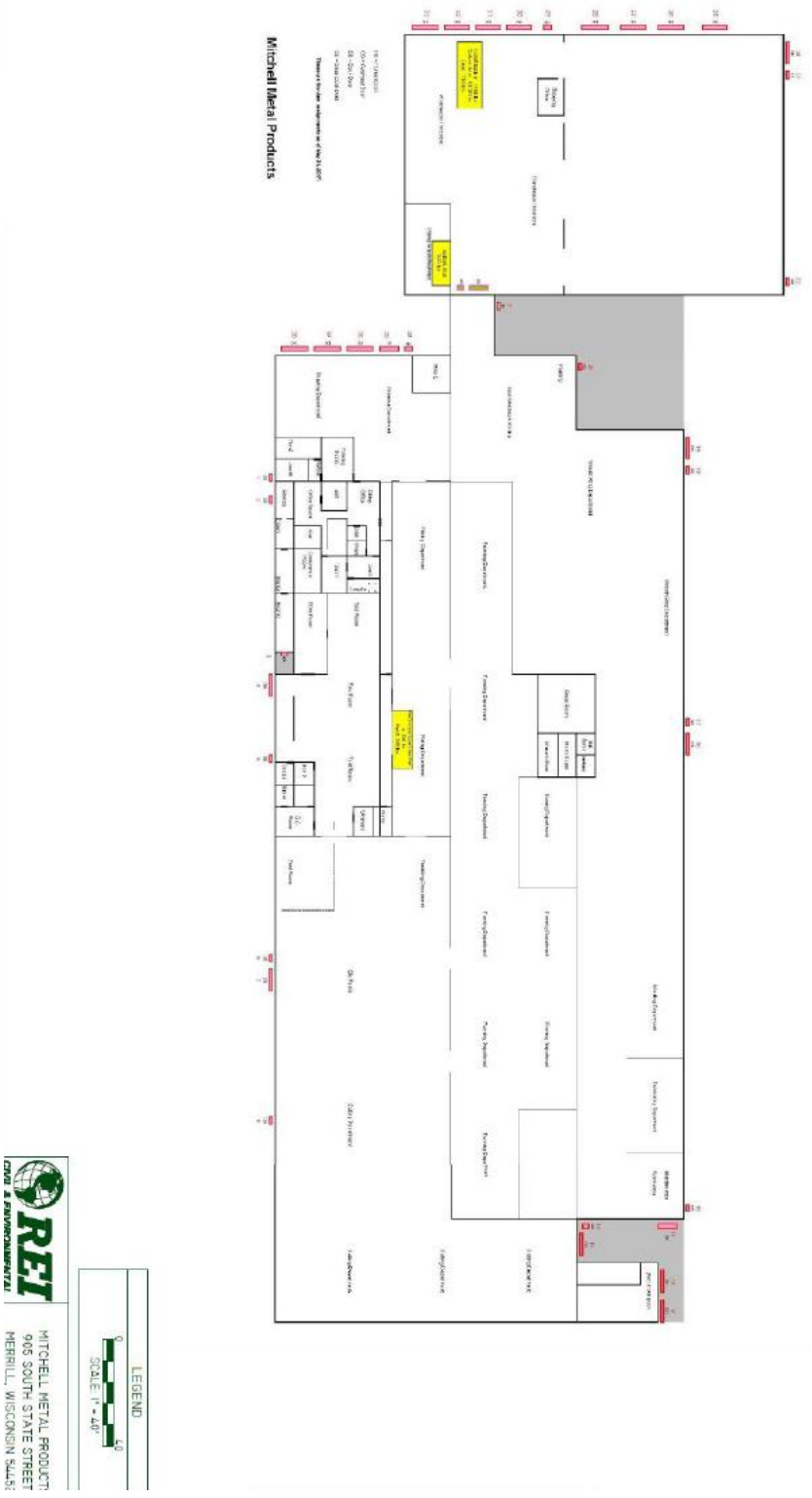
Record of Change/ Review /Signature

Date	Contributor	Description of Change	Page Number(s)
12-5-2023	T. Verhasselt and J. Kelly	Authored plan and reviewed with Mitchell Metal Products for accuracy. Tier II Contact was changed to M. Eder.	Pgs. 1-21

Please see EPCRA Hazardous Materials Off-Site Plan Transmittal Form for approval and signatures.

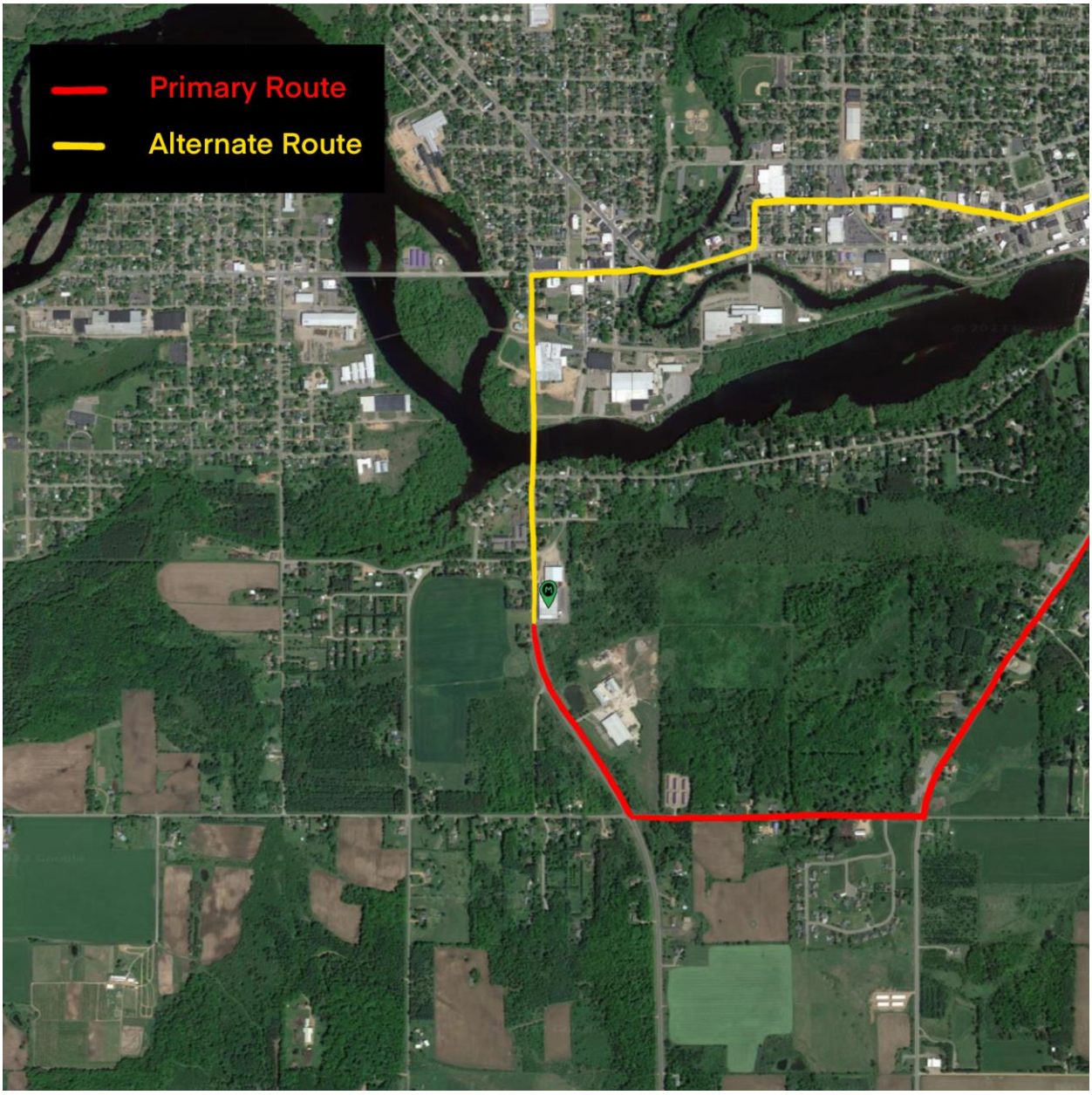
Attachment B

Facility Layout and Site Information



Attachment C

Transportation Route Map



SAFETY DATA SHEET

HYDRITE #1066
Product ID: wt1066
Revised: 06-12-2014
Replaces: 09-01-2011

1. IDENTIFICATION

Product Name:	HYDRITE #1066
Synonyms:	Sulfuric Acid; Oil of Vitriol; Hydrogen Sulfate
CAS Number:	MIXTURE
Recommended Use:	No data available.
Restrictions on Use:	No data available.

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

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

2. HAZARD(S) IDENTIFICATION

Signal Word:	Danger
GHS Classification:	Substance or mixture corrosive to metals Category 1 Skin Corrosion/Irritation Category 1A Serious Eye Damage/Eye Irritation Category 1 Carcinogenicity Category 1A Acute Toxicity - Inhalation Vapour Category 2 Specific Target Organ Systemic Toxicity (STOT) - Repeated Exposure Category 2 Acute Toxicity - Inhalation Dust / Mist Category 3
Hazard Statements:	May be corrosive to metals. Causes severe skin burns and eye damage. Fatal if inhaled. Toxic if inhaled. May cause cancer. May cause damage to organs (teeth, respiratory system) through prolonged or repeated exposure (by inhalation).

Precautionary Statements:

Prevention:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep only in original container. Do not breathe dust, fume, gas, mist, vapors or spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear gloves, eye and face protection and protective clothing. Wear respiratory protection.
Response:	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse

HYDRITE #1066
Product ID: wt1066

skin with water.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.
Specific treatment is urgent (see First Aid on SDS or on this label).
Wash contaminated clothing before reuse.
Absorb spillage to prevent material damage.

Storage: Store in a well-ventilated place. Keep container tightly closed.
Store in a secure manner.
Store in corrosive resistant container with a resistant inner liner.

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

Hazards Not Otherwise Classified: None known.

Percentage of Components with Unknown Acute Toxicity:
Dermal: 93.2 %

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	% by Wt.
Sulfuric Acid	7664-93-9	93.19 %

4. FIRST-AID MEASURES

Eye Contact: If in eyes: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention.

Skin Contact: If on skin: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Do not reuse clothing and shoes until cleaned. Discard contaminated leather articles such as shoes and belt. Do not apply oils or ointments unless ordered by the physician.

Inhalation: If inhaled: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration, preferably mouth-to-mouth. GET MEDICAL ATTENTION IMMEDIATELY.

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

Note to Physicians:
This product contains materials that may cause severe pneumonitis if aspirated. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artifical resuscitation and appropriate chemotherapy if respiration is depressed. Following exposure the patient should be kept under medical review for at least 48 hours as delayed pneumonitis may occur. DO NOT attempt to neutralize the acid with weak bases since the reaction will produce heat that may extend the corrosive injury.

Most Important Symptoms/Effects:

Eye Contact: CORROSIVE-Causes severe irritation and burns. May cause: blurred vision. redness. pain. conjunctivitis. ulcerations. tissue destruction. permanent eye damage. blindness.

Skin Contact: CORROSIVE-Causes severe irritation and burns. Concentrated solutions may cause: severe burns. severe necrosis. permanent skin damage. Prolonged and repeated exposure to dilute solutions may cause irritation, redness, pain and drying and cracking of the skin.

HYDRITE #1066
Product ID: wt1066

Skin Absorption: No data available.

Inhalation: CORROSIVE-Causes severe irritation and burns. Vapors or mists may damage: mucous membranes. respiratory tract. Vapors or mists may cause: coughing. sore throat. shortness of breath. labored breathing. choking. bronchospasms. chemical pneumonitis. pulmonary edema. death. Effects may be delayed. Chronic exposure may cause: dental erosions. discoloration of teeth. bronchitis. bronchial emphysema.

Ingestion: CORROSIVE-Causes severe irritation and burns. May cause damage to the: mouth. throat. esophagus. stomach. gastrointestinal tract. May cause: pain. vomiting. diarrhea. bleeding. labored breathing. burns or perforation of the gastrointestinal tract leading to ulceration and secondary infection. death. Effects may be delayed. Aspiration into the lungs may cause chemical pneumonia and lung damage.

5. FIRE-FIGHTING MEASURES

Extinguishing Media: Carbon dioxide. Dry chemical. Foam.

Fire Fighting Methods: Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers. Do not get water inside containers. Product generates heat upon addition of water, with possible spattering. Neutralize run-off with Lime, Soda Ash, etc., to prevent corrosion of metals and formation of Hydrogen gas. Run-off from fire control may cause pollution.

Fire and Explosion Hazards: Product may react with some metals (ex.: Aluminum, Zinc, Tin, etc.) to release flammable hydrogen gas. Will react with organic materials with evolution of heat and sulfur dioxide. Concentrated acid is a strong oxidizing agent. May cause ignition of combustible materials on contact with generation of sulfur dioxide fumes.

Hazardous Combustion Products: Sulfur oxides.

6. ACCIDENTAL RELEASE MEASURES

Spill Clean-Up Procedures: CORROSIVE MATERIAL. Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit. Contain spill, place into drums for proper disposal. Flush remaining area with water and neutralize with Soda Ash or Lime and dispose of properly. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Empty containers retain product residue (vapor, dust, or liquid) and can be dangerous. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other source of ignition. They may explode and cause injury or death. Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion. Use non-sparking tools.

Storage: CORROSIVE MATERIAL. Store in a cool, well ventilated area, out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers. Do not freeze. Highly corrosive to most metals with evolution of hydrogen gas. Explosive/flammable concentrations of hydrogen gas may accumulate inside metal containers. Elevated temperatures will increase the corrosion rate of most metals. See Section 10 for incompatible materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA Exposure Guidelines:

Component	Limits
Sulfuric Acid	1 mg/m3 TWA

ACGIH Exposure Guidelines:

HYDRITE #1066
Product ID: wt1066

Component	Limits
Sulfuric Acid	0.2 mg/m3 TWA (thoracic fraction)

Engineering Controls: Local exhaust ventilation, process enclosures, or other engineering controls are required when handling or using this product to avoid overexposure. Maintain adequate ventilation. Do not use in closed or confined spaces. Avoid creating dust or mist. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly.

Eye/Face Protection: Wear chemical safety goggles and a full face shield while handling this product. Do not wear contact lenses.

Skin Protection: Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: Acid-proof. Chemical-resistant. Impervious.

Respiratory Protection: Respiratory protection must be worn if ventilation does not eliminate symptoms or keep levels below recommended exposure limits. If exposure limits are exceeded, wear: NIOSH-Approved air-purifying respirator with: Acid gas cartridge and Dust/mist filter. NIOSH-Approved positive pressure supplied air respirator. NIOSH-Approved self-contained breathing apparatus. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

Other Protective Equipment: Eye-wash station. Safety shower. Rubber apron. Chemical safety shoes. Rubber boots. Protective clothing. Full-rubber acid suit.

General Hygiene Conditions: Wash with soap and water before meal times and at the end of each work shift. Food, beverages, and tobacco products should not be carried, stored or consumed where this material is in use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid.
Color: Clear. Colorless to amber.
Odor: Acrid.
Odor Threshold: N.D.
pH: < 2.00 (as is)
Freezing Point (deg. F): ~ -21
Melting Point (deg. F): N.A.
Initial Boiling Point or Boiling Range: ~ 529 °F
Flash Point: N.A.
Flash Point Method: N.A.
Evaporation Rate (nBuAc = 1): < 1
Flammability (solid, gas): N.D.
Lower Explosion Limit: N.A.
Upper Explosion Limit: N.A.
Vapor Pressure (mm Hg): 0.0016 @102F
Vapor Density (air=1): 3.4 (H_2SO_4)
Specific Gravity or Relative Density: 1.835 @ 25C
Solubility in Water: Complete
Partition Coefficient (n-octanol/water): N.D.
Autoignition Temperature: No Data
Decomposition Temperature: N.D.
Viscosity: N.D.
% Volatile (wt%): N.D.
VOC (wt%): 0
VOC (lbs/gal): 0
Fire Point: N.D.

10. STABILITY AND REACTIVITY

Reactivity: No data available.

HYDRITE #1066
Product ID: wt1066

Chemical Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur under normal conditions. May react with certain metals to produce flammable hydrogen gas. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, carbides, etc.

Conditions to Avoid: Avoid contact with heat, sparks, electric arcs, other hot surfaces, and open flames. Contact with organic materials may cause fire and explosions. Contact with water may cause violent reaction with evolution of heat. To dilute: Add product slowly to lukewarm water; not water to product.

Incompatible Materials: Metals. Water. Alkalies. Strong oxidizing agents. Reducing agents. Carbonates. Cyanides. Sulfides. Carbides. Chlorates. Fulminates. Nitrates. Powdered metals. Organic materials. Combustible materials. Nitrogen compounds. Picrates. Bases. Halogens. Alkali metals. and many other reactive substances.

Hazardous Decomposition Products: Sulfur oxides. Sulfuric acid vapors. Hydrogen gas.

11. TOXICOLOGICAL INFORMATION

Component	Oral LD50	Dermal LD50	Inhalation LC50
Sulfuric Acid	Rat: 2140 mg/kg	No Data	2H Rat: 510.0 mg/m3

Acute Toxicity Estimate (ATE):

Inhalation Vapor: 0.5473 mg/L
Inhalation Dust/Mist: 0.5473 mg/L

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

Eye Contact: CORROSIVE-Causes severe irritation and burns. May cause: blurred vision. redness. pain. conjunctivitis. ulcerations. tissue destruction. permanent eye damage. blindness.

Skin Contact: CORROSIVE-Causes severe irritation and burns. Concentrated solutions may cause: severe burns. severe necrosis. permanent skin damage. Prolonged and repeated exposure to dilute solutions may cause irritation, redness, pain and drying and cracking of the skin.

Skin Absorption: No data available.

Inhalation: CORROSIVE-Causes severe irritation and burns. Vapors or mists may damage: mucous membranes. respiratory tract. Vapors or mists may cause: coughing. sore throat. shortness of breath. labored breathing. choking. bronchospasms. chemical pneumonitis. pulmonary edema. death. Effects may be delayed. Chronic exposure may cause: dental erosions. discoloration of teeth. bronchitis. bronchial emphysema.

Ingestion: CORROSIVE-Causes severe irritation and burns. May cause damage to the: mouth. throat. esophagus. stomach. gastrointestinal tract. May cause: pain. vomiting. diarrhea. bleeding. labored breathing. burns or perforation of the gastrointestinal tract leading to ulceration and secondary infection. death. Effects may be delayed. Aspiration into the lungs may cause chemical pneumonia and lung damage.

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

Other: Circulatory collapse with clammy skin, weak and rapid pulse, shallow respirations, and scanty urine may follow skin contact or ingestion. Circulatory shock is often the immediate cause of death. The International Agency for Research on Cancer (IARC) has concluded that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to man, causing cancer of the larynx (the voice box). Although no direct link has been established between exposure to sulfuric acid itself, and cancer in man, exposure to any mist or aerosol during the use of this product should be avoided.

Cancer Information:
This product contains 0.1% or more of the following chemicals listed by NTP, IARC or OSHA as known or possible carcinogens:
Sulfuric acid mist

12. ECOLOGICAL INFORMATION

HYDRITE #1066
Product ID: wt1066

Ecotoxicological Information: No data available.

Chemical Fate Information: No data available.

13. DISPOSAL CONSIDERATIONS

Hazardous Waste Number: D002
Disposal Method: Dispose of in a permitted hazardous waste management facility following all local, state and federal regulations. Since emptied containers retain product residue, follow label warnings even after container is emptied. DO NOT pressurize, cut, weld, solder, drill, grind or expose empty containers to heat, flame, sparks or other sources of ignition.

14. TRANSPORT INFORMATION

DOT (Department of Transportation):

Identification Number:	UN1830
Proper Shipping Name:	SULFURIC ACID
Hazard Class:	8
Packing Group:	II
Label Required:	CORROSIVE
Reportable Quantity (RQ):	1000# (Sulfuric Acid)

15. REGULATORY INFORMATION

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

SARA Title III Section 311/312 Category Hazards:

Immediate (Acute)	Delayed (Chronic)	Fire Hazard	Pressure Release	Reactive
Yes	Yes	No	No	Yes

Regulated Components:

Component	CAS Number	CERCLA RQ	SARA EHS	SARA 313	U.S. HAP	WI HAP	Prop 65
Sulfuric Acid	7664-93-9	Yes	Yes	Yes*	No	Yes	Yes

Note: * Sulfuric acid appears on the Section 313 List. However, the listing only applies to the aerosol forms of sulfuric acid.

16. OTHER INFORMATION

Hazard Rating System
Health: 3*
Flammability: 0
Reactivity: 2
* = Chronic Health Hazard

NFPA Rating System
Health: 3
Flammability: 0
Reactivity: 2
Special Hazard: W

MSDS Abbreviations
N.A. = Not Applicable
N.D. = Not Determined
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound

Safety Data Sheet for Sulfuric Acid

HYDRITE #1066
Product ID: wt1066

C = Ceiling Limit
N.E./Not Estab. = Not Established

MSDS Prepared by: NAO

Reason for Revision: New format. Changes made throughout the SDS.

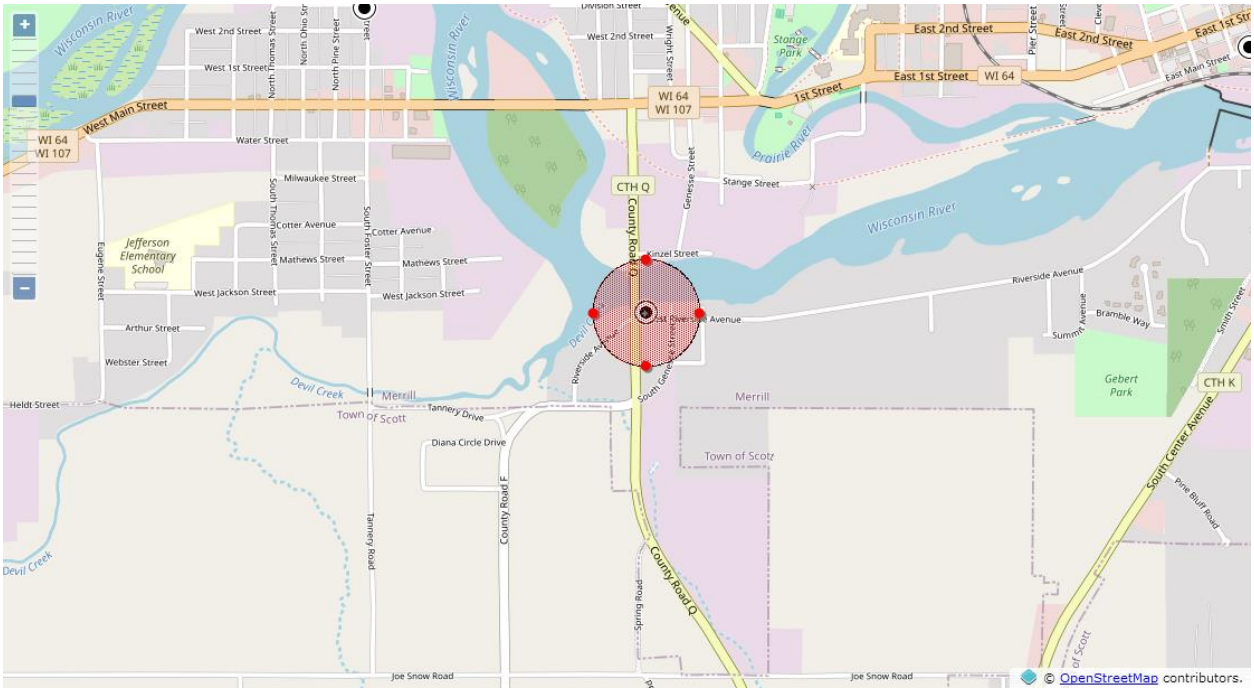
Revised: 06-12-2014
Replaces: 09-01-2011

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

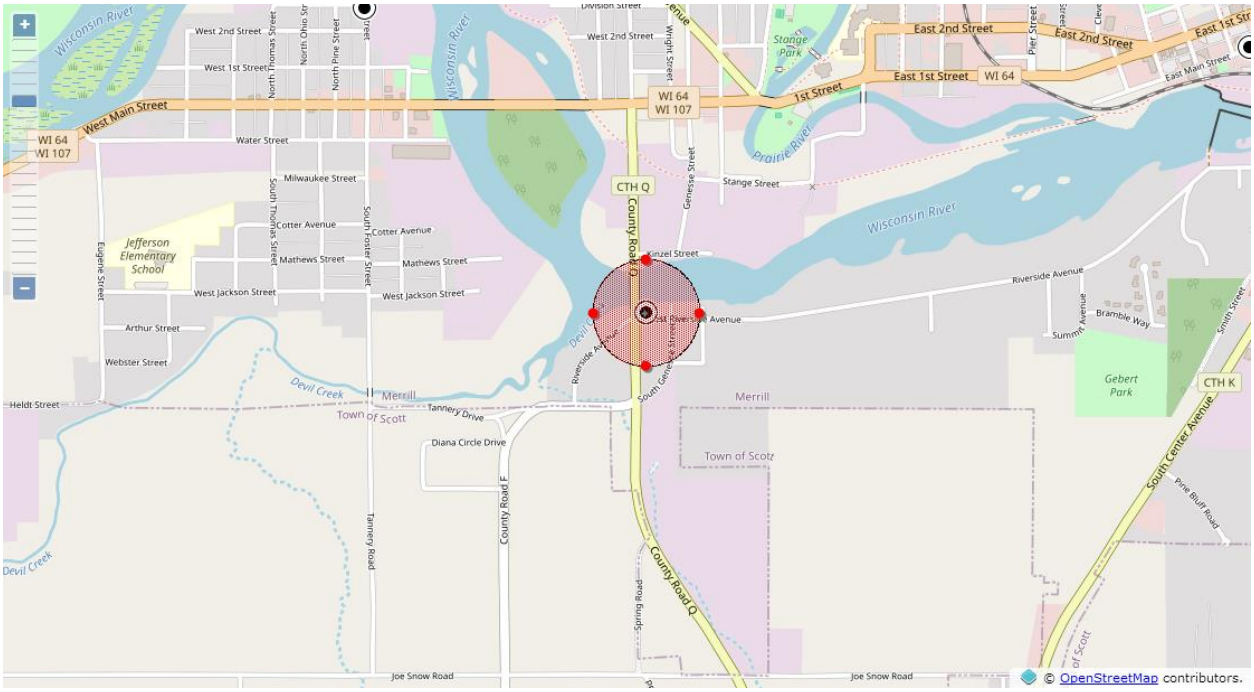
Attachment E

Vulnerability Zone Maps for Sulfuric Acid

A. Worst Case Scenario



B. Re-evaluation Scenario



Lincoln County: Local Emergency Planning Committee (LEPC)

LINCOLN COUNTY
EMERGENCY MANAGEMENT

2023 Off Site Plan: Northern Wire LLC.

Lincoln County Board of Supervisors Chair	**Lincoln County Administrative Coordinator**	**Lincoln County Director of Emergency Management**	**Lincoln County LEPC Chair**
Don Friske	Renee Krueger	Tyler Verhasselt	Richard Burns

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Table of Contents

I. Facility Information

A. Northern Wire LLC.

1. Address: 1100 West Taylor Street, Merrill, WI 54452
2. Phone: (715) 536-5329
3. Facility ID # (Assigned by WEM): 139083

II. Facility Emergency Contacts

A. Tier II Contact:

1. Name: Cory Arndt
2. Position: EHS Consultant
3. Office Phone: (715) 551-9503
4. Emergency Phone: (715) 551-9503
5. Email: carndt@ehs-mgt.com

B. Tier II Emergency Coordinator:

1. Name: Jacob Bartz
2. Position: Production Supervisor
3. Office Phone: (715) 539-5348
4. Emergency Phone: (715) 351-0218
5. Email: jbartz@elginfasteners.com

C. Tier II Emergency Contact:

1. Name: Jim Kaplinski
2. Position: Manager
3. Office Phone: (715) 539-5342
4. Emergency Phone: (715) 539-5342
5. Email: jkaplinski@eglinfasteners.com

III. Extremely Hazardous Substances (EHS)

A. EHS Chemicals OVER Threshold Planning Quantity (TPQ)

CAS #	Chemical Name	Maximum Daily Quantity (lbs.)	Max. Amount. of Largest Container (lbs.)	Vulnerability Zone (miles)
7664-93-9	Sulfuric Acid	1,710	273	< 0.1 miles

IV. Primary Emergency Responders

A. Lincoln County Sheriff's Office

1. Phone: 911 or (715) 563-6272

B. Lincoln County Emergency Communications Center

1. Phone: 911 or (715) 563-6272

C. Lincoln County Emergency Management

1. Phone: (715) 218-0128

D. Merrill Fire Department

1. Phone: 911 or (715) 536-2233

E. Merrill Police Department

1. Phone: 911 or (715) 536-8311

V. Support Available at Facility

A. Chemical Emergency Monitoring Equipment:

1. None

B. Personal Protective Equipment:

1. None

C. Other Equipment or Supplies:

1. None

D. Outside Resources Available:

1. Lincoln County Emergency Management
   a) Pursuant to Lincoln County's Emergency Operations Plan (EOP), the incident commander and/or unified command will identify the need for hazmat response and relay that request to Lincoln County Sheriff's Office (LCSO) Communication Center whom with contact the appropriate team.

      The Tomahawk Fire Department is capable of handling minor hazardous materials incidents; however, if the incident exceeds the ability/capability of Tomahawk Fire Department LCSO Communications Center will request the appropriate agency. Lincoln County contracts with two (2) external hazmat response teams dependent on level of release, for Level B response Oneida County Sheriff Office Hazardous Materials Response Team; whereas, for Level A response Wausau Wisconsin Hazardous Response Team.

      For Level A incidents, the response of Wausau Wisconsin Hazardous Response Team must be requested through the Wisconsin Emergency Management (WEM) State Emergency Operations Center (SEOC). Contact the WEM SEOC Duty Officer at (800) 943-0003 for response.
2. Chemtrec: (800) 424-9300
   a) Unknown response time
3. National Response Center: (800) 424-8802
   a) Unknown response time
4. REI—Spill & Response Recovery: (800) 734-7745
   a) Unknown response time

VI. General information and Assumptions (Disclaimer)

The vulnerability zones set forth in this plan are based on the Environmental Protection Agency's (EPA) Technical Guidance for Hazard Analysis. The zones are based on a credible worst case scenario and identify the potential area for impact should an airborne release of an EHS occur.

A re-evaluation scenario with more realistic parameters has also been computed. Parameters used for both scenarios have been described as part of the hazard analysis summary.

CAMEO Suite software was used in the preparation of vulnerability zones. It should be noted that CAMEO*fm* cannot compute zones greater than 10 miles nor less than 0.1 miles. Thus, results that fall into these situations will be notes as "> 10 miles" or "< 0.1 miles".

The field Incident Commander shall determine the actual response to an incident and the affected area may vary from the planning vulnerability zone identified in this plan. Depending on wind speed and direction, the amount of material released and other pertinent factors, the ACTUAL vulnerability zone may be smaller, and in some instances larger, than the credible worst case vulnerability zone identified herein.

VII. Hazard Analysis Summary

A. Greatest Potential for Release

1. Sulfuric acid being the only extremely hazardous substance over TPQ and therefore poses the greatest potential for release.
2. It is unlikely that a large sulfuric acid release would occur and it is unlikely that a release would have off site consequences. Spills would be contained inside the building except perhaps in a fire situation.

B. Vulnerability Zones (by chemical)

Sulfuric Acid: CAS #7664-93-9			
Amount Released:	273 lbs.		
Concentration:	100%		
Physical State:	Liquid (Ambient)		
Diked Area:	No		
Level of Concern (LOC):	0.008 gm/m^3		
LOC Type:	Greenbook LOC		
Worst Case Scenario		**Re-Evaluation Scenario**	
Duration:	10 minutes	**Duration**	10 minutes
Wind Speed:	3.4 mph	**Wind Speed:**	11.9 mph
Ground Roughness:	Rural	**Ground Roughness:**	Urban
Atmospheric Stability Class:	F	**Atmospheric Stability Class:**	D
Risk:	Low	**Risk:**	Low
Consequences:	Low	**Consequences:**	Low
Overall Risk:	Low	**Overall Risk:**	Low
Threat Zone Radius:	< 0.1 miles	**Threat Zone Radius:**	< 0.1 miles

C. Estimation of Population Affected

1. Sulfuric Acid
    a) In the credible worst case scenario the total number of persons that could be affected by a release of the extremely hazardous substance has the potential to affect any of the ninety-eight (98) full-time employees and no other populations or facilities would be affected.
    b) In the re-evaluation scenario the total number of persons that could be affected by a release of the extremely hazardous substance has the potential to affect any of the ninety-eight (98) full-time employees and no other populations or facilities would be affected.
    c) Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.
    d) Experience indicates that no shelter, isolation, or evacuation would have to take place in conjunction with this extremely hazardous chemical.

D. Critical Infrastructure

a) No special facilities or general populations affected

VIII. Population Protection

The determination to shelter in-place or to evacuate will be made by the on-scene commander as appropriate. The lead time for a hazardous materials incident may be very short. As a result, there may not be time enough for safe evacuation, especially when extremely toxic chemical fumes are involved. An evacuation under these considerations may expose the population to dangerous toxic chemicals and the decision may be made to shelter-in-place. Preferred areas for protective sheltering would be interior hallways, rooms on the side of the building away from where the hazard is approaching. Doors, windows, and other potential air leaks should be sealed up to prevent toxic fumes from entering.

Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.

IX. Special Considerations

A. None

X. Distribution List

- Northern Wire LLC.
- Tomahawk Fire Department
- Wisconsin Emergency Management Northeast Regional Office
- Oneida County Sheriff Office Hazardous Materials Response Team
- Wausau Wisconsin Hazardous Response Team
- Marathon County Emergency Management

XI. Supporting Documentation

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Attachment A

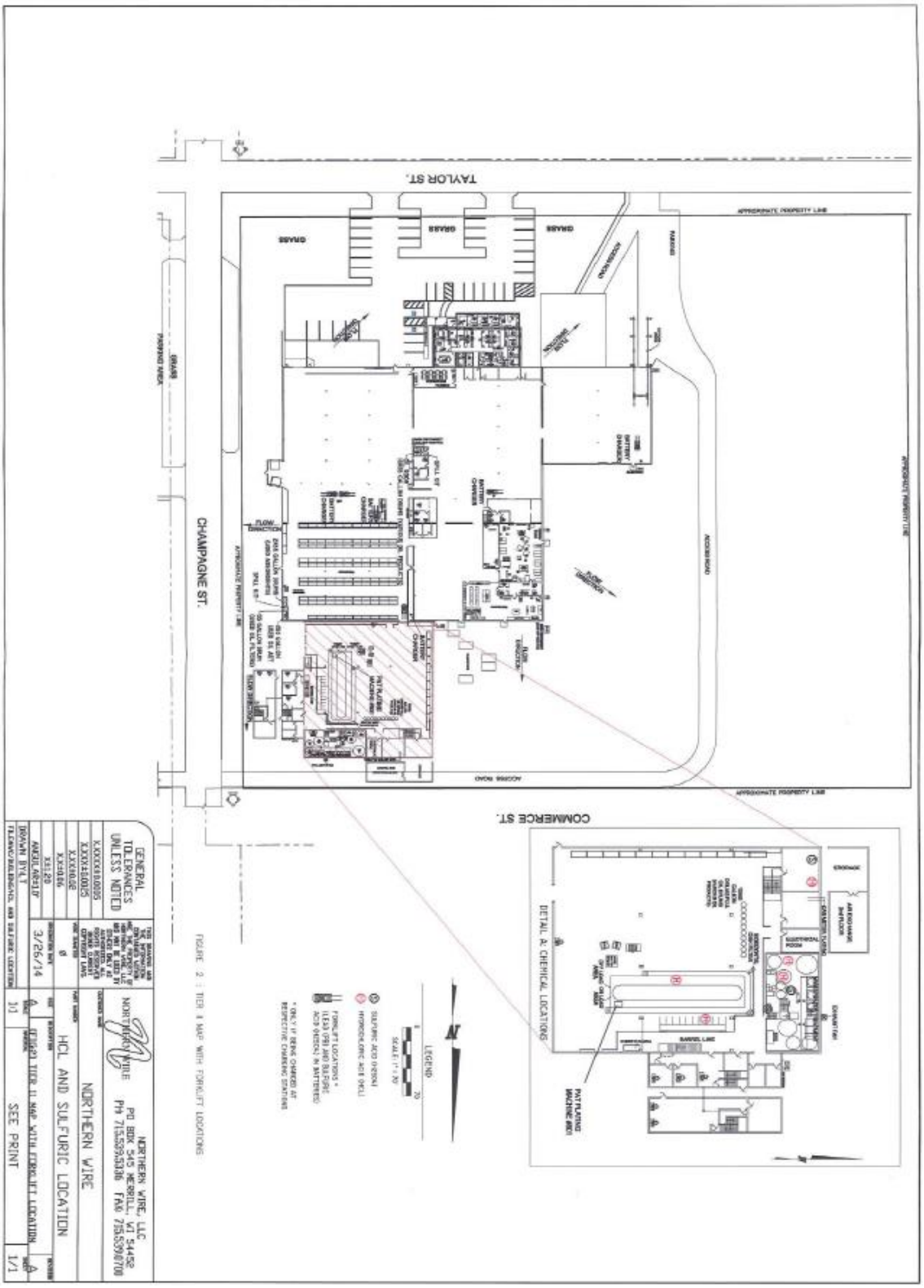
Record of Change/ Review /Signature

Date	Contributor	Description of Change	Page Number(s)
12-5-2023	T. Verhasselt and C. Arndt	Authored plan and reviewed with Northern Wire LLC for accuracy. Maximum daily amount and largest container figures were updated.	Pgs. 1-21

Please see EPCRA Hazardous Materials Off-Site Plan Transmittal Form for approval and signatures.

Attachment B

Facility Layout and Site Information



Attachment C

Transportation Route Map

Safety Data Sheet for Sulfuric Acid

EnerSys Power/Full Solutions

SAFETY DATA SHEET

HAWKER

Form #: SDS 853026
Revised: 05/14/15
Supersedes: NEW
ECO #: 1001584

I. PRODUCT IDENTIFICATION

Chemical Trade Name (as used on label):
Aerospace and defense batteries manufactured using factory modified versions of Cyclon®, Genesis®, SBS, Hawker®, Armasafe Plus®, or Large TPPL.

Chemical Family/Classification:
Sealed Lead Battery

Synonyms:
Sealed Lead Acid Battery, VRLA Battery

Telephone:
For information and emergencies, contact EnerSys Energy Products Environmental, Health & Safety Dept. at 660-429-2165

Manufacturer's Name/Address:
EnerSys Energy Products Inc. (formerly Hawker Energy Products Inc.)
617 N. Ridgeview Drive
Warrensburg, MO 64093-9301

24-Hour Emergency Response Contact:
CHEMTREC DOMESTIC: 800-424-9300 CHEMTREC INT'L: 703-527-3877

II GHS HAZRDS IDENTFICATION

HEALTH		ENVIRONMENTAL	PHYSICAL
Acute Toxicity (Oral/Dermal/Inhalation)	Category 4	Aquatic Chronic 1 Aquatic Acute 1	Explosive Chemical, Division 1.3
Skin Corrosion/Irritation	Category 1A		
Eye Damage	Category 1		
Reproductive	Category 1A		
Carcinogenicity (lead compounds)	Category 1B		
Carcinogenicity (acid mist)	Category 1A		
Specific Target Organ Toxicity (repeated exposure)	Category 2		

GHS LABEL:

HEALTH | ENVIRONMENTAL | PHYSICAL

Hazard Statements

DANGER!

Causes severe skin burns and eye damage.
Causes serious eye damage.
May damage fertility or the unborn child if ingested or inhaled.
May cause cancer if ingested or inhaled.
Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure.
May form explosive air/gas mixture during charging.
Extremely flammable gas (hydrogen).
Explosive, fire, blast, or projection hazard.

Precautionary Statements

Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing, eye protection/face protection.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Causes skin irritation, serious eye damage.
Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid.
Irritating to eyes, respiratory system, and skin.

III. HAZARDOUS INGREDIENTS/IDENTIFY INFORMATION

Components	CAS Number	Approximate % by Weight
Inorganic Lead Compound:		
Lead	7439-92-1	45 - 60
Lead Dioxide	1309-60-0	15 - 25
Tin	7440-31-5	0.1 - 0.2
Sulfuric Acid Electrolyte (Sulfuric Acid/Water)	7664-93-9	15 - 20
Case Material:		5 - 10
Polypropylene	9003-07-0	
Polystyrene	9003-53-6	
Styrene Acrylonitrile	9003-54-7	
Acrylonitrile Butadiene Styrene	9003-56-9	
Styrene Butadiene	9003-55-8	
Polyvinylchloride	9002-86-2	
Polycarbonate, Hard Rubber, Polyethylene	9002-88-4	
Polyphenylene Oxide	25134-01-4	
Polycarbonate/Polyester Alloy	--	
Other:		
Absorbent Glass Mat	--	1 - 2

Inorganic lead and sulfuric acid electrolyte are the primary components of every battery manufactured by EnerSys Energy Products.
There are no mercury or cadmium containing products present in batteries manufactured by EnerSys Energy Products.

Safety Data Sheet for Sulfuric Acid

EnerSys Power/Full Solutions

SAFETY DATA SHEET

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IV. FIRST AID MEASURES

Inhalation:

Sulfuric Acid: Remove to fresh air immediately. If breathing is difficult, give oxygen. Consult a physician

Lead: Remove from exposure, gargle, wash nose and lips; consult physician.

Ingestion:

Sulfuric Acid: Give large quantities of water; do not induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death; consult a physician.

Lead: Consult physician immediately.

Skin:

Sulfuric Acid: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes.

Lead: Wash immediately with soap and water.

Eyes:

Sulfuric Acid and Lead: Flush immediately with large amounts of water for at least 15 minutes while lifting lids. Seek immediate medical attention if eyes have been exposed directly to acid.

V. FIRE FIGHTING MEASURES

Flash Point: N/A | **Flammable Limits:** LEL = 4.1% (Hydrogen Gas) UEL = 74.2% (Hydrogen Gas)

Extinguishing Media: Carbon dioxide; foam; dry chemical. Avoid breathing vapors. Use appropriate media for surrounding fire.

Special Fire Fighting Procedures:

If batteries are on charge, shut off power. Use positive pressure, self-contained breathing apparatus. Water applied to electrolyte generates heat and causes it to spatter. Wear acid-resistant clothing, gloves, face and eye protection.

Note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

Unusual Fire and Explosion Hazards:

Highly flammable hydrogen gas is generated during charging and operation of batteries. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Follow manufacturer's instructions for installation and service.

VI. PRECAUTIONS FOR SAFE HANDLING AND USE

Spill or Leak Procedures:

Stop flow of material, contain/absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of unneutralized acid to sewer. Acid must be managed in accordance with local, state, and federal requirements.

Consult state environmental agency and/or federal EPA.

VII. HANDLING AND STORAGE

Handling:

Unless involved in recycling operations, do not breach the casing or empty the contents of the battery.

There may be increasing risk of electric shock from strings of connected batteries.

Keep containers tightly closed when not in use. If battery case is broken, avoid contact with internal components.

Keep vent caps on and cover terminals to prevent short circuits. Place cardboard between layers of stacked automotive batteries to avoid damage and short circuits.

Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water. Use banding or stretch wrap to secure items for shipping.

Storage:

Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat. Keep away from metallic objects which could bridge the terminals on a battery and create a dangerous short-circuit.

Charging:

There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas.

Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby.

Wear face and eye protection when near batteries being charged.

EnerSys Power/Full Solutions

SAFETY DATA SHEET

HAWKER

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VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits (mg/m3) Note: N.E.= Not Established

INGREDIENTS (Chemical/Common Names)	OSHA PEL	ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Lead and Lead Compounds (inorganic)	0.05	0.05	0.05	0.05	0.05	0.15 (b)
Tin	2	2	2	2	2	N.E
Sulfuric Acid Electrolyte	1	0.2	1	1	0.2	0.05 (c)
Polypropylene	N.E	N.E	N.E	N.E	N.E	N.E
Polystyrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Acrylonitrile	N.E	N.E	N.E	N.E	N.E	N.E
Acrylonitrile Butadiene Styrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Butadiene	N.E	N.E	N.E	N.E	N.E	N.E
Polyvinylchloride	N.E	N.E	N.E	N.E	1	N.E
Polycarbonate, Hard Rubber, Polyethylene	N.E	N.E	N.E	N.E	N.E	N.E
Polyphenylene Oxide	N.E	N.E	N.E	N.E	N.E	N.E
Polycarbonate/Polyester Alloy Rubber, Polyethylene	N.E	N.E	N.E	N.E	N.E	N.E
Absorbent Glass Mat	N.E	N.E	N.E	N.E	N.E	N.E

NOTES:
(b) As inhalable aerosol
(c) Thoracic fraction

Engineering Controls (Ventilation):
Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant.
Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective clothing, eye and face protection when filling, charging or handling batteries. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Charge the batteries in areas with adequate ventilation. General dilution ventilation is acceptable.

Respiratory Protection (NIOSH/MSHA approved):
None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed the PEL, use NIOSH or MSHA-approved respiratory protection.

Skin Protection:
If battery case is damaged, use rubber or plastic acid-resistant gloves with elbow-length gauntlet, acid-resistant apron, clothing and boots.

Eye Protection:
If battery case is damaged, use chemical goggles or face shield.

Other Protection:
Under severe exposure emergency conditions, wear acid-resistant clothing and boots.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Properties Listed Below are for Electrolyte:

Boiling Point:	203 - 240° F	**Specific Gravity (H2O = 1):**	1.215 to 1.350
Melting Point:	N/A	**Vapor Pressure (mm Hg):**	10
Solubility in Water:	100%	**Vapor Density (AIR = 1):**	Greater than 1
Evaporation Rate: (Butyl Acetate = 1)	Less than 1	**% Volatile by Weight:**	N/A
pH:	~1 to 2	**Flash Point:**	Below room temperature (as hydrogen gas)
LEL (Lower Explosive Limit)	4.1% (Hydrogen)	**UEL (Upper Explosive Limit)**	74.2% (Hydrogen)
Appearance and Odor:	Manufactured article; no apparent odor. Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.		

EnerSys Power-Full Solutions

SAFETY DATA SHEET

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X. REACTIVITY DATA

Stability: Stable X Unstable ___

This product is stable under normal conditions at ambient temperature.

Conditions To Avoid: Prolonged overcharge; sources of ignition

Incompatibility: (Materials to avoid)

Sulfuric Acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

Lead Compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.

Hazardous Decomposition Products:

Sulfuric Acid: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, and hydrogen sulfide.

Lead Compounds: High temperatures likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

Hazardous Polymerization:

Will not occur

XI. TOXICOLOGICAL INFORMATION

Routes of Entry:

Sulfuric Acid: Harmful by all routes of entry.

Lead Compounds: Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume. The presence of nascent hydrogen may generate highly toxic arsine gas.

Inhalation:

Sulfuric Acid: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.

Lead Compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Sulfuric Acid: May cause severe irritation of mouth, throat, esophagus and stomach.

Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.

Skin Contact:

Sulfuric Acid: Severe irritation, burns and ulceration.

Lead Compounds: Not absorbed through the skin.

Eye Contact:

Sulfuric Acid: Severe irritation , burns, cornea damage, and blindness.

Lead Components: May cause eye irritation.

Effects of Overexposure - Acute:

Sulfuric Acid: Severe skin irritation, damage to cornea, upper respiratory irritation.

Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscle aches and weakness, sleep disturbances and irritability.

Effects of Overexposure - Chronic:

Sulfuric Acid: Possible erosion of tooth enamel, inflammation of nose, throat and bronchial tubes.

Lead Compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females. Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. Some toxicologists report abnormal conduction velocities in persons with blood lead levels of 50mcg/100 ml or higher. Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues.

Carcinogenicity:

Sulfuric Acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Group 1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may result in the generation of sulfuric acid mist.

Lead Compounds: Lead is listed as a Group 2A carcinogen, likely in animals at extreme doses. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1B. Proof of carcinogenicity in humans is lacking at present.

Medical Conditions Generally Aggravated by Exposure:

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.

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Acute Toxicity:
Inhalation LD50:
Electrolyte: LC50 rat: 375 mg/m3; LC50: guinea pig: 510 mg/m3
Elemental Lead: Acute Toxicity Point Estimate = 4500 ppmV (based on lead bullion)

Oral LD50:
Electrolyte: rat: 2140 mg/kg
Elemental lead: Acute Toxicity Estimate (ATE) = 500 mg/kg body weight (based on lead bullion)

Additional Health Data:

All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion.
Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section 8.
Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the worksite. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home or laundered with personal non-contaminated clothing. This product is intended for industrial use only and should be isolated from children and their environment.

The 19th Amendment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form, as possibly toxic to reproduction.
Risk phrase 61: May cause harm to the unborn child, applies to lead compounds, especially soluble forms.

XII. ECOLOGICAL INFORMATION

Environmental Fate:

Lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow.
Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain.
Most studies include lead compounds and not elemental lead.

Environmental Toxicity: Aquatic Toxicity:

Sulfuric acid:	24-hr LC50, freshwater fish (Brachydanio rerio): 82 mg/L
	96 hr- LOEC, freshwater fish (Cyprinus carpio): 22 mg/L
Lead:	48 hr LC50 (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion

Additional Information:

- No known effects on stratospheric ozone depletion.
- Volatile organic compounds: 0% (by Volume)
- Water Endangering Class (WGK): NA

XIII. DISPOSAL CONSIDERATIONS (UNITED STATES)

Spent batteries: Send to secondary lead smelter for recycling. Spent lead-acid batteries are not regulated as hazardous waste when the requirements of 40 CFR Section 266.80 are met. This should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Electrolyte:
Place neutralized slurry into sealed containers and handle as applicable with state and federal regulations. Large water-diluted spills, after neutralization and testing, should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Following local, State/Provincial, and Federal/National regulations applicable to end-of-life characteristics will be the responsibility of the end-user.

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XIV. TRANSPORT INFORMATION

U.S. DOT:

Excepted from the hazardous materials regulations (HMR) because the batteries meet the requirements of 49 CFR 173.159(f) and 49 CFR 173.159a of the U.S. Department of Transportation's HMR. Battery and outer package must be marked " NONSPILLABLE" or "NONSPILLABLE BATTERY" Battery terminals must be protected against short circuits.

IATA Dangerous Goods Regulations DGR:

Excepted from the dangerous goods regulations because the batteries meet the requirements of Packing Instruction 872 and Special Provisions A67 of the International Air Transportation Association (IATA) Dangerous goods Regulations and International Civil Aviation Organization (ICAO) Technical Instructions. Battery Terminals must be protected against short circuits.

The words " NOT RESTRICTED" , SPECIAL PROVISION A67" must be provided when the air waybill is issued.

IMDG:

Excepted from the dangerous goods regulations for transport by sea because the batteries meet the requirements of Special Provision 238 of the International Maritime Dangerous Goods(IMDG CODE). Battery terminals must be protected against short circuits.

Requirements for Safe Shipping and Handling of Cyclon Cells:

Warning – Electrical Fire Hazard – Protect against shorting. Terminals can short and cause a fire if not insulated during shipping. Cyclon product must be labeled "NONSPILLABLE" during shipping. Follow all federal shipping regulations. See section IX of this sheet and CFR 49 Parts 171 through 180, available online at wwww.gpoaccess.gov.

Requirements for Shipping Cyclon Product as Single Cells:

Protective caps or other durable inert material must be used to insulate each terminal of each cell unless cells are shipping in the original packaging from EnerSys, in full box quantities. Protective caps are available for all cell sizes by contacting EnerSys Customer Service at 1-800-964-2837.

Requirements for Shipping Cyclon Product Assembled Into Multicell Batteries:

Assembled batteries must have short circuit protection during shipping. Exposed terminals, connectors, or lead wires must be insulated with a durable inert material to prevent exposure during shipping.

XV. REGULATORY INFORMATION

UNITED STATES:

EPA SARA Title III:

Section 302 EPCRA Extremely Hazardous Substances (EHS):

Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs. EPCRA Section 302 notification is required if 1000 lbs or more of sulfuric acid is present at one site (40 CFR 370.10). For more information consult 40 CFR Part 355. The quantity of sulfuric acid will vary by battery type. Contact your EnerSys representative for additional information.

Section 304 CERCLA Hazardous Substances:

Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.

Section 311/312 Hazard Categorization:

EPCRA Section 312 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of 500 lbs or more and/or if lead is present in quantities of 10,000 lbs or more. For more information consult 40 CFR 370.10 and 40 CFR 370.40.

Section 313 EPCRA Toxic Substances:

40 CFR section 372.38 (b) states: If a toxic chemical is present in an article at a covered facility, a person is not required to consider the quantity of the toxic chemical present in such article when determining whether an applicable threshold has been met under § 372.25, § 372.27, or § 372.28 or determining the amount of release to be reported under § 372.30. This exemption applies whether the person received the article from another person or the person produced the article. However, this exemption applies only to the quantity of the toxic chemical present in the article.

Supplier Notification:

This product contains toxic chemicals, which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to enable you to complete the required reports:

Toxic Chemical	CAS Number	Approximate % by Wt.
Lead	7439-92-1	45 - 60
Sulfuric Acid Electrolyte (Sulfuric Acid/Water)	7664-93-9	15 - 20
Tin	7440-31-5	0.1 - 0.2

See 40 CFR Part 370 for more details.

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

The Section 313 supplier notification requirement does not apply to batteries, which are "consumer products".

Safety Data Sheet for Sulfuric Acid

EnerSys Power-Full Solutions

SAFETY DATA SHEET

HAWKER

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TSCA:

TSCA Section 8b – Inventory Status: All chemicals comprising this product are either exempt or listed on the TSCA Inventory.

TSCA Section 12b (40 CFR Part 707.60(b)) No notice of export will be required for articles, except PCB articles, unless the Agency so requires in the context of individual section 5, 6, or 7 actions.

TSCA Section 13 (40 CFR Part 707.20): No import certification required (EPA 305-B-99-001, June 1999, Introduction to the Chemical Import Requirements of the Toxic Substances Control Act, Section IV.A).

RCRA:

Spent Lead Acid Batteries are subject to streamlined handling requirements when managed in compliance with 40 CFR section 266.80 or 40 CFR part 273. Waste sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity) and D008 (lead).

CAA:

EnerSys supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, EnerSys established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

STATE REGULATIONS (US):

Proposition 65:

Warning: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals known to the State of California to cause cancer. Wash hands after handling.

INTERNATIONAL REGULATIONS:

Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2).

Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.

XVI. OTHER INFORMATION

Revised: 05/14/2015

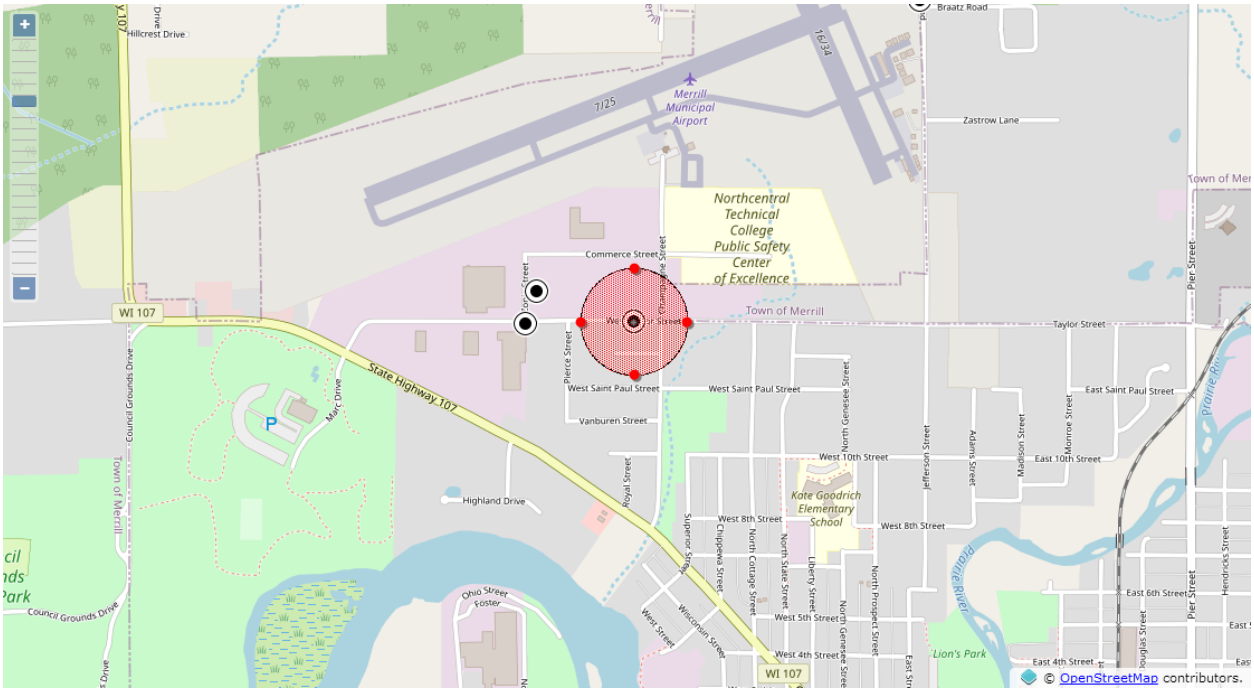
NFPA Hazard Rating for Sulfuric Acid:

Flammability (Red) = 0
Health (Blue) = 3
Reactivity (Yellow) = 2
Sulfuric acid is water-reactive if concentrated.

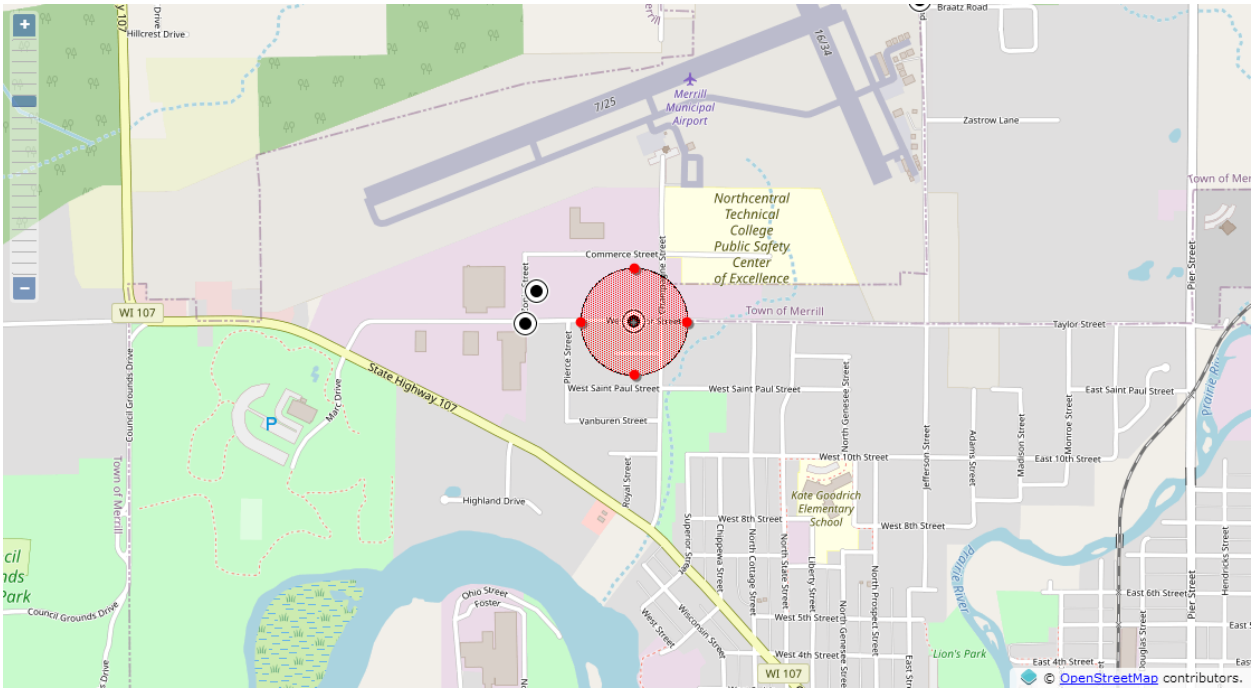
Attachment E

Vulnerability Zone Maps for Nitric Acid

A. Worst Case Scenario



B. Re-evaluation Scenario



Lincoln County: Local Emergency Planning Committee (LEPC)

LINCOLN COUNTY
EMERGENCY MANAGEMENT

FEMA

2023 Off Site Plan: Packaging Corporation of America (PCA)

Lincoln County Board of Supervisors Chair	**Lincoln County Administrative Coordinator**	**Lincoln County Director of Emergency Management**	**Lincoln County LEPC Chair**
Don Friske	Renee Krueger	Tyler Verhasselt	Richard Burns

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Table of Contents

I. Facility Information

A. Packaging Corporation of America

1. Address: N9090 County Road E, Tomahawk, WI 54487
2. Phone: (715) 453-2131
3. Facility ID # (Assigned by WEM): 9159

II. Facility Emergency Contacts

A. Tier II Contact:

1. Name: Kristy Neumann
2. Position: Manager
3. Emergency Phone: (715) 966-1239
4. Email: kneumann@packagingcorp.com

B. Tier II Emergency Coordinator:

1. Name: Nick Spencer
2. Position: Manager
3. Emergency Phone: (715) 966-1662
4. Email: nicolasspencer@packagingcorp.com

C. Tier II Alternative Coordinator:

1. Name: Logan Garski
2. Position: Safety Specialist
3. Emergency Phone: (715) 966-9572
4. Email: logangarski@packagingcorp.com

III. Extremely Hazardous Substances (EHS)

A. EHS Chemicals OVER Threshold Planning Quantity (TPQ)

CAS #	Chemical Name	Maximum Daily Quantity (lbs.)	Max. Amount. of Largest Container (lbs.)	Vulnerability Zone (miles)
7664-41-7	Ammonia (Aqueous)	18,600	18,600	> 10 miles
7664-93-9	Sulfuric Acid (Battery Acid)	4500	4,500	< 0.1 miles

B. EHS Chemicals UNDER Threshold Planning Quantity (TPQ)

CAS #	Chemical Name	Maximum Daily Quantity (lbs.)	Max. Amount. of Largest Container (lbs.)	Vulnerability Zone (miles)
108-91-8	Cyclohexanamine	3,600	3,600	0.1 miles

IV. Primary Emergency Responders

A. Packaging Corporation of America Emergency Response Team

1. Phone: (715) 453-2131 ext. 211

B. Lincoln County Sheriff's Office

1. Phone: 911 or (715) 563-6272

C. Lincoln County Emergency Communications Center

1. Phone: 911 or (715) 563-6272

D. Lincoln County Emergency Management

1. Phone: (715) 218-0128

E. Tomahawk Fire Department

1. Phone: 911 or (715) 453-8180

F. Tomahawk Police Department

1. Phone: 911 or (715) 453-2121

V. Support Available at Facility

A. Chemical Emergency Monitoring Equipment:

1. pH meter—two (2) 85 gallon over packs
2. Bbl. for hydrocarbons
3. Colorimetric Indicator Tubes
4. Multiple gas indicators

B. Personal Protective Equipment:

1. Self-Contained Breathing Apparatus (SCBA)—eight (8)
2. Spare oxygen tanks for SCBA—eight (8)

C. Other Equipment or Supplies:

1. Registered Nurse (RN)—One (1) full-time employee
2. Emergency Medical Technician (EMT)—One (1) full-time employee
3. Emergency Medical Responder (EMR)—Nineteen (19) full-time employees
4. Firefighter—Thirteen (13) full-time employees
5. Hazardous Material (HAZMAT) Technician—Seventeen (17) full-time employees

D. Outside Resources Available:

1. Lincoln County Emergency Management
   a) Pursuant to Lincoln County's Emergency Operations Plan (EOP), the incident commander and/or unified command will identify the need for hazmat response and relay that request to Lincoln County Sheriff's Office (LCSO) Communication Center whom with contact the appropriate team.

      The Tomahawk Fire Department is capable of handling minor hazardous materials incidents; however, if the incident exceeds the ability/capability of Tomahawk Fire Department LCSO Communications Center will request the appropriate agency. Lincoln County contracts with two (2) external hazmat response teams dependent on level of release, for Level B response Oneida County Sheriff Office Hazardous Materials Response Team; whereas, for Level A response Wausau Wisconsin Hazardous Response Team.

      For Level A incidents, the response of Wausau Wisconsin Hazardous Response Team must be requested through the Wisconsin Emergency Management (WEM) State Emergency Operations Center (SEOC). Contact the WEM SEOC Duty Officer at (800) 943-0003 for response.
2. Chemtrec: (800) 424-9300
   a) Unknown response time
3. National Response Center: (800) 424-8802
   a) Unknown response time
4. REI—Spill & Response Recovery: (800) 734-7745
   a) Unknown response time

VI. General information and Assumptions (Disclaimer)

The vulnerability zones set forth in this plan are based on the Environmental Protection Agency's (EPA) Technical Guidance for Hazard Analysis. The zones are based on a credible worst case scenario and identify the potential area for impact should an airborne release of an EHS occur.

A re-evaluation scenario with more realistic parameters has also been computed. Parameters used for both scenarios have been described as part of the hazard analysis summary.

CAMEO Suite software was used in the preparation of vulnerability zones. It should be noted that CAMEO*fm* cannot compute zones greater than 10 miles nor less than 0.1 miles. Thus, results that fall into these situations will be notes as "> 10 miles" or "< 0.1 miles".

The field Incident Commander shall determine the actual response to an incident and the affected area may vary from the planning vulnerability zone identified in this plan. Depending on wind speed and direction, the amount of material released and other pertinent factors, the ACTUAL vulnerability zone may be smaller, and in some instances larger, than the credible worst case vulnerability zone identified herein.

VII. Hazard Analysis Summary

Packaging Corporation of America (PCA) is a paper mill located at N9090 Highway E in Tomahawk, WI. Processes conducted at the facility include but are not limited to pulp and paper mill. Extremely Hazardous Substances (EHS) utilized and stored at the facility include aqueous ammonia, sulfuric acid (battery acid), and cyclohexanamine.

Packaging Corporation of American operates seven (7) days a week utilizing three shifts to provide 24-hour operations consisting of 400 employees. PCA employs its own fire and medical response which includes Hazmat Technicians.

A. Greatest Potential for Release

1. Ammonia (aqueous) at Packaging Corporation of American is present at 18,600 pounds in a concentration of 29% solution and stored in a 18,600 above ground tank.

B. Vulnerability Zones (by chemical)

Ammonia (Aqueous): CAS #7664-41-7			
Amount Released:	18,600 lbs.		
Concentration:	30%		
Physical State:	Gas		
Diked Area:	No		
Level of Concern (LOC):	0.035 gm/m^3		
LOC Type:	Greenbook LOC		
Worst Case Scenario		**Re-Evaluation Scenario**	
Duration:	10 minutes	**Duration**	10 minutes
Wind Speed:	3.4 mph	**Wind Speed:**	11.9 mph
Ground Roughness:	Rural	**Ground Roughness:**	Urban
Atmospheric Stability Class:	F	**Atmospheric Stability Class:**	D
Risk:	Low	**Risk:**	Low
Consequences:	Low	**Consequences:**	Low
Overall Risk:	Low	**Overall Risk:**	Low
Threat Zone Radius:	> 10 miles	**Threat Zone Radius:**	0.4 miles

Sulfuric Acid (Battery Acid): CAS #7664-93-9			
Amount Released:	4,500 lbs.		
Concentration:	100%		
Physical State:	Liquid (Ambient)		
Diked Area:	No		
Level of Concern (LOC):	0.008 gm/m^3		
LOC Type:	Greenbook LOC		
Worst Case Scenario		**Re-Evaluation Scenario**	
Duration:	10 minutes	**Duration**	10 minutes
Wind Speed:	3.4 mph	**Wind Speed:**	11.9 mph
Ground Roughness:	Rural	**Ground Roughness:**	Urban
Atmospheric Stability Class:	F	**Atmospheric Stability Class:**	D
Risk:	Low	**Risk:**	Low
Consequences:	Low	**Consequences:**	Low
Overall Risk:	Low	**Overall Risk:**	Low
Threat Zone Radius:	< 0.1 miles	**Threat Zone Radius:**	< 0.1 miles

AMERCOR 1848 (Cyclohexanamine): CAS #108-91-8			
Amount Released:	12,000 lbs.		
Concentration:	30%		
Physical State:	Liquid (Ambient)		
Diked Area:	No		
Level of Concern (LOC):	0.16 gm/m^3		
LOC Type:	Greenbook LOC		
Worst Case Scenario		**Re-Evaluation Scenario**	
Duration:	10 minutes	**Duration**	10 minutes
Wind Speed:	3.4 mph	**Wind Speed:**	11.9 mph
Ground Roughness:	Rural	**Ground Roughness:**	Urban
Atmospheric Stability Class:	F	**Atmospheric Stability Class:**	D
Risk:	Low	**Risk:**	Low
Consequences:	Low	**Consequences:**	Low
Overall Risk:	Low	**Overall Risk:**	Low
Threat Zone Radius:	0.1 miles	**Threat Zone Radius:**	< 0.1 miles

C. Estimation of Population Affected

1. Ammonia (Aqueous)
   a) In the credible worst case scenario the total number of persons that could be affected by a release of the extremely hazardous substance would be less than 500 employees, less than 3,432 persons in general population and fourteen (14) special facilities.
   b) In the re-evaluation scenario the total number of persons that could be affected by a release of the extremely hazardous substance would be 500 employees and no other populations or facilities affected.
   c) Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.
   d) Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.
2. Sulfuric Acid (Battery Acid)
   a) In the credible worst case scenario the total number of persons that could be affected by a release of the extremely hazardous substance would be less than 10 employees and no other populations or facilities affected.
   b) In the re-evaluation scenario the total number of persons that could be affected by a release of the extremely hazardous substance would be 10 employees and no other populations or facilities affected.
   c) Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.
   d) Experience indicates that no shelter, isolation, or evacuation would have to take place in conjunction with this extremely hazardous chemical. Special Facilities Affected.

D. Critical Infrastructure

1. Samuel & Sons
    a) 1119 Bridge Street, Tomahawk, WI 54487
    b) (715) 453-5326

E. Hospital

1. Aspirus Tomahawk Hospital
    a) 401 W. Mohawk Drive, Tomahawk, WI 54487
    b) (715) 453-7200

F. Nursing Homes/Assisted Living Facilities

1. Country Terrace of Wisconsin
    a) 300 Theiler Drive, Tomahawk, WI 54487
    b) (715) 224-3701
2. Railway Group Home
    a) 18 South Railway Street, Tomahawk, WI 54487
    b) (715) 453-7615
3. Our Way, Inc.
    a) 825 Charles Avenue, Tomahawk, WI 54487
    b) 427 North 5th Street, Tomahawk, WI 54487
    c) (715) 453-8281
4. Milestone Senior Living Tomahawk
    a) 314 East Lincoln Avenue, Tomahawk, WI 54487
    b) (715) 224-3747
5. Riverview Health Services
    a) 428 North 6th Street, Tomahawk, WI 54487
    b) (715) 453-2511
6. Golden Age (Tomahawk Health Services)
    a) 720 East King Road, Tomahawk, WI 54487
    b) (715) 453-2164

G. Schools

1. Tomahawk Elementary School
    a) 1048 East King Road, Tomahawk, WI 54487
    b) (715) 453-2126
2. Tomahawk Middle School
    a) 1048 East King Road, Tomahawk, WI 54487
    b) (715) 453-5371
3. Tomahawk High School
    a) 1048 East King Road, Tomahawk, WI 54487
    b) (715) 453-2106

4. Wisconsin Virtual School
    a) 304 Kaphaem Road, Tomahawk, WI 54487
    b) (715) 453-1953
5. Tomahawk Head Start
    a) 1048 East King Road, Tomahawk, WI 54487
    b) (715) 453-1008

H. Child Care/Day Care

1. Tomahawk Child Care
    a) 648 East Lincoln Avenue, Tomahawk, WI 54487
    b) (715) 453-1602

VIII. Population Protection

The determination to shelter in-place or to evacuate will be made by the on-scene commander as appropriate. The lead time for a hazardous materials incident may be very short. As a result, there may not be time enough for safe evacuation, especially when extremely toxic chemical fumes are involved. An evacuation under these considerations may expose the population to dangerous toxic chemicals and the decision may be made to shelter-in-place. Preferred areas for protective sheltering would be interior hallways, rooms on the side of the building away from where the hazard is approaching. Doors, windows, and other potential air leaks should be sealed up to prevent toxic fumes from entering.

Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.

IX. Distribution List

- Packaging Corporation of America
- Tomahawk Fire Department
- Wisconsin Emergency Management Northeast Regional Office
- Oneida County Sheriff Office Hazardous Materials Response Team
- Wausau Wisconsin Hazardous Response Team
- Oneida County Emergency Management

X. Supporting Documentation

A. Attachments

1. Attachment A, Record of Change and Review
2. Attachment B, Facility Layout and Site Information
3. Attachment C, Transportation Route Map
4. Attachment D, Safety Data Sheet for Ammonia (Aqueous)
5. Attachment E, Safety Data Sheet for Sulfuric Acid (Battery Acid)
6. Attachment F, Vulnerability Zone Map for Ammonia (Aqueous)
7. Attachment G, Vulnerability Zone Map for Sulfuric Acid (Battery Acid)

Attachment A

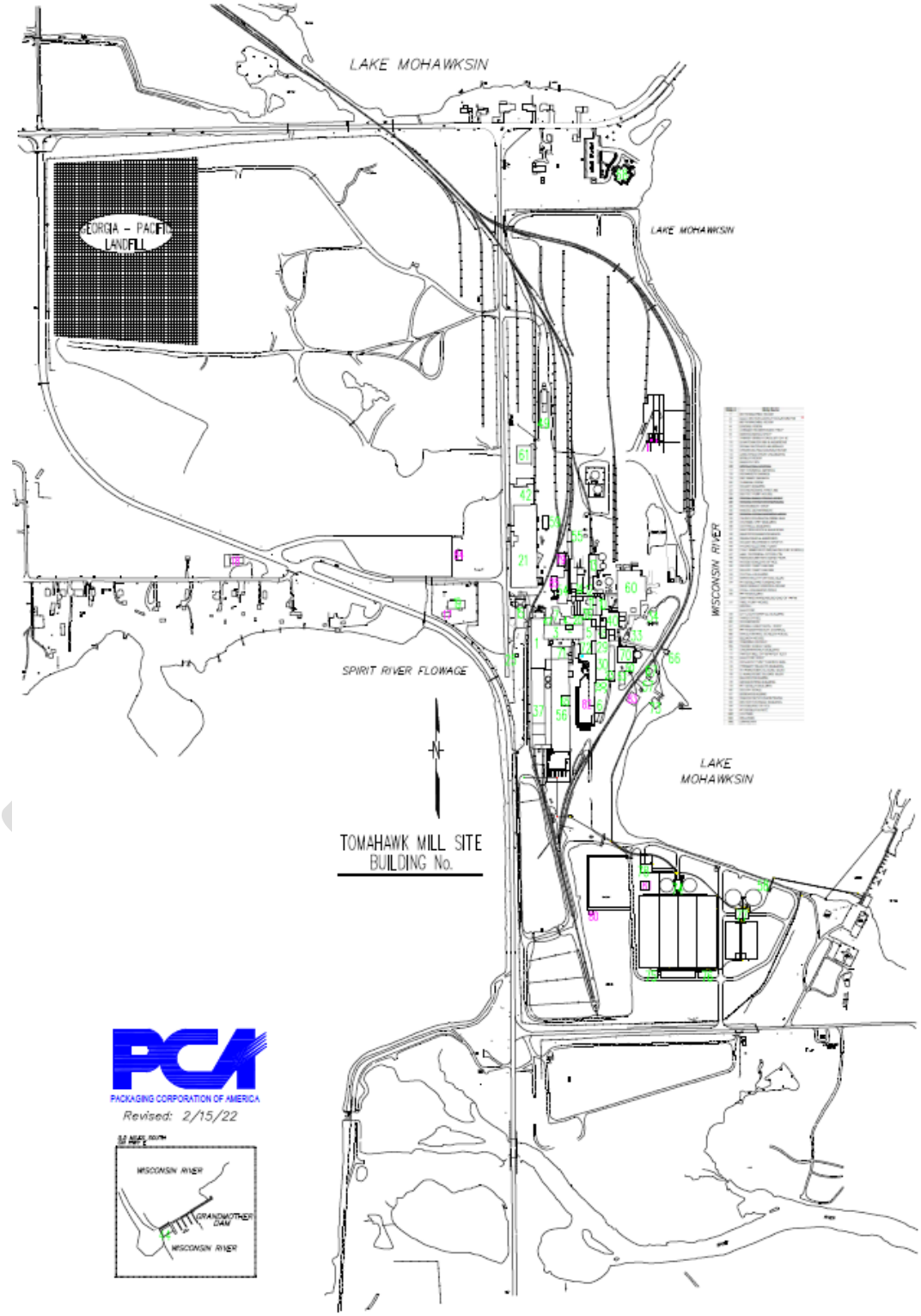
Record of Change/ Review /Signature

Date	Contributor	Description of Change	Page Number(s)

Please see EPCRA Hazardous Materials Off-Site Plan Transmittal Form for approval and signatures.

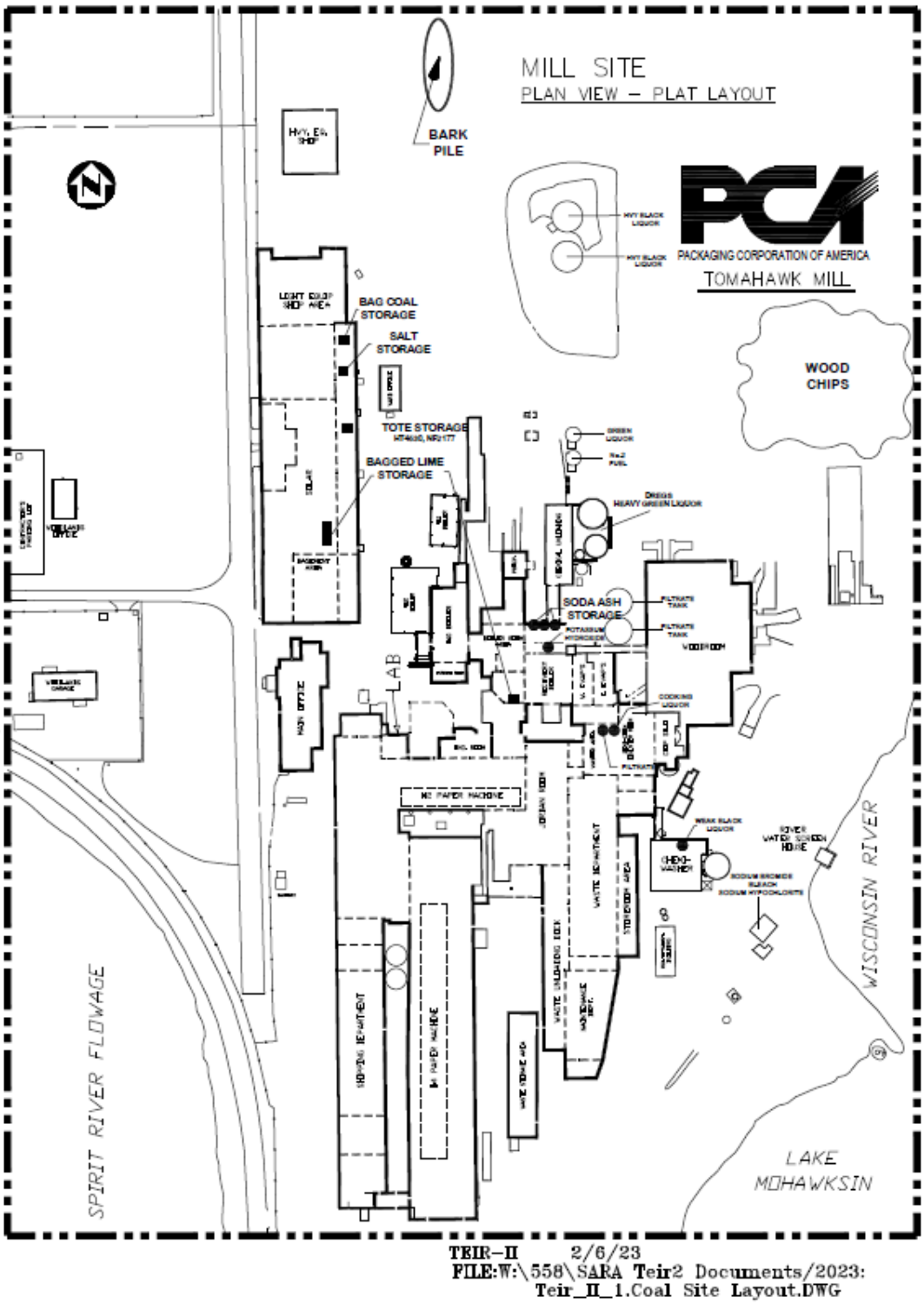
Attachment B

Facility Layout and Site Information



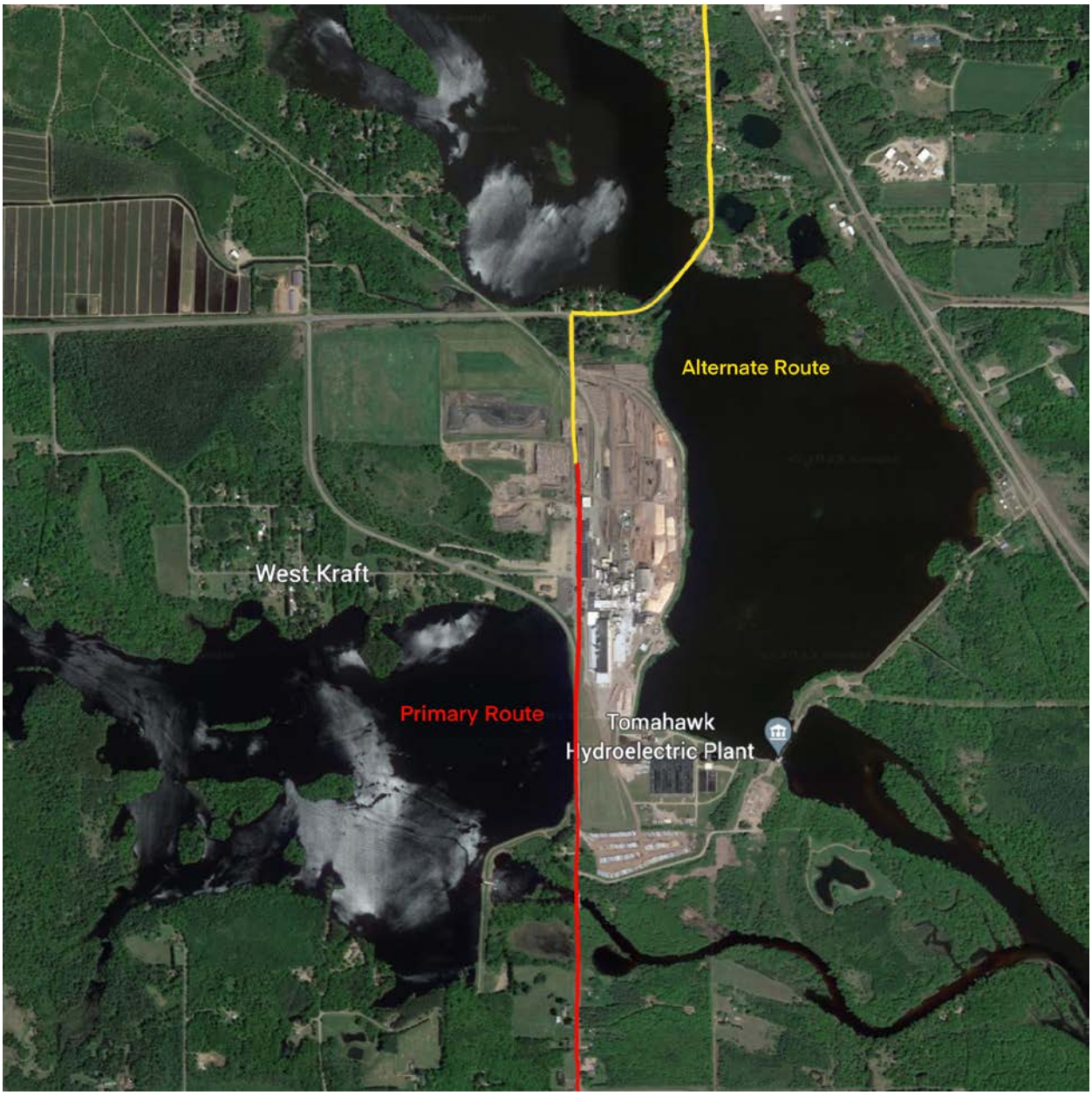
Attachment B cont.

Facility Layout and Site Information



Attachment C

Transportation Route Map



Safety Data Sheet for Ammonia (Aqueous)

AMMONIUM HYDROXIDE
Product ID: NH0026
Revised: 06-07-2022
Replaces: 02-24-2020

1. IDENTIFICATION

Product Identifier Used on the Label:	AMMONIUM HYDROXIDE
Other Identifiers:	Ammonium Hydroxide; Aqueous Ammonia; Ammonia Water; Ammonia Solution
Product ID:	MIXTURE
Recommended Use:	Please follow all Hydrite Technical Literature, Hydrite SDS and Hydrite Product Labels associated with this material's use instructions. If you require further instruction on approved uses for this material, please contact your Hydrite Service Representative.
Restrictions on Use:	It is not recommended that this product be used in a manner that is inconsistent with the Hydrite Technical Literature, the Hydrite SDS or product label associated with this material. If you have questions regarding use of this product, please contact your Hydrite Service Representative.

Hydrite Chemical Co.
17385 Golf Parkway
Brookfield, WI 53045
(262) 792-1450

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

2. HAZARD(S) IDENTIFICATION

GHS Classification(s):
Skin Corrosion/Irritation Category 1C
Serious Eye Damage/Eye Irritation Category 1
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3
Acute Toxicity - Oral Category 4

GHS Label Elements:

GHS Hazard Symbols:

Signal Word: Danger

Hazard Statements:
Harmful if swallowed.
Causes severe skin burns and eye damage.
May cause respiratory irritation.

Precautionary Statements:

Prevention:
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

Response:
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

	Immediately call a POISON CENTER or doctor/physician. Specific treatment (see First Aid on SDS or on this label). Wash contaminated clothing before reuse.
Storage:	Store in a well-ventilated place. Keep container tightly closed. Store in a secure manner.
Disposal:	Dispose of in accordance with local, regional and international regulations.
Hazards not otherwise classified:	May react with certain metals to form explosive/flammable hydrogen gas. May be corrosive to certain metals. Ammonium hydroxide is very volatile and may release ammonia as a gas. Ammonia vapor, in concentrations of 16-25% volume by weight in air, is flammable, toxic by inhalation and corrosive. Take all appropriate precautions.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances/Mixtures:

Chemical or Common Name/Synonyms	CAS Number	% by Wt.
Ammonium Hydroxide	1336-21-6	~55 - 62%

Note: CONTAINS ~27-30% AMMONIA (CAS# 7664-41-7).

Note: Any chemical identity and/or exact percentage not expressly stated is being withheld as a trade secret or is due to batch variation.

4. FIRST-AID MEASURES

Description of Necessary Measures:

Eye Contact: If in eyes: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention.

Skin Contact: If on skin: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Do not reuse clothing and shoes until cleaned.

Inhalation: If inhaled: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration. GET MEDICAL ATTENTION IMMEDIATELY.

Ingestion: If swallowed: If fully conscious, drink a quart of water. DO NOT induce vomiting. CALL A PHYSICIAN IMMEDIATELY. If unconscious or in convulsions, take immediately to a hospital or a physician. NEVER induce vomiting or give anything by mouth to an unconscious victim. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. After dilution with water, fruit juice or diluted vinegar may be administered to accomplish neutralization.

Most Important Symptoms/Effects, Acute and Delayed:

Eye Contact: CORROSIVE-Causes severe irritation and burns. Vapors may cause: burns. May cause: corneal damage. conjunctivitis. permanent eye damage. blindness.

Skin Contact: CORROSIVE-Causes severe irritation and burns. Concentrated ammonia may produce liquefication necrosis and deep penetrating burns. Contact may cause: dermatitis (inflammation of the skin).

Skin Absorption: May be harmful if absorbed through skin.

Inhalation: CORROSIVE-Causes severe irritation and burns. May cause damage to the: mouth. throat. nose. lungs. respiratory tract. May cause: chest pain. coughing. asthma. pink frothy sputum. lung fibrosis. running nose. pulmonary edema. chemical pneumonitis. death. Effects may be delayed.

Ingestion: CORROSIVE-Causes severe irritation and burns. May produce systemic effects similar to inhalation. May cause: headache. drowsiness. liver congestion. urinary retention. nausea. vomiting. coma. death. May cause swelling of the: lips. larynx. May cause damage to the: mouth. throat. esophagus.

AMMONIUM HYDROXIDE
Product ID: NH0026

Indication of Immediate Medical Attention and Special Treatment Needed: The conventional symptoms of developing pulmonary edema should be observed regularly. Anyone exposed to ammonia who breathes in short, rapid shallow breaths should be immobilized. In most cases 24 hour bed rest, under the observation of a physician, will be necessary before it can be determined that the victim is out of danger. Anyone who accidentally has been exposed to high or unknown concentrations of ammonia and who has ammonical breath, tightness of the chest, bloodshot eyes with swollen lids, and a cough that may discharge bloody mucous is seriously ill. Medical assistance should be summoned immediately. SUCH A PERSON SHOULD BE IMMOBILIZED AT ONCE, eyes washed, and oxygen administered by a physician. Any sort of movement on the victim's part will aggravate the developing edema and may result in death.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Foam. Carbon dioxide. Dry chemical. Water spray.

Specific Hazards Arising from the Chemical:

Fire and Explosion Hazards: Contact with strong oxidizing agents may cause an explosion. The presence of oil or other combustible materials will increase the fire hazard. The heat of a welding or cutting torch could cause an explosion. Ammonia will combine readily with either silver oxide or mercury to form explosive fulminating compounds. Contact with halogens and chlorates can cause explosions.

Hazardous Combustion Products: Nitrogen oxides. Ammonia.

Special Protective Equipment and Precautions for Fire-Fighters: Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers and disperse vapors. Run-off from fire control may cause pollution.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, Emergency Procedures: CORROSIVE MATERIAL. Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit.

Methods and Materials for Containment and Clean Up: Shut off source of leak if safe to do so. Keep upwind of leak or spill. Contain spill, place into drums for proper disposal. Flush remaining area with water to remove trace residue and dispose of properly. CAUTIOUSLY neutralize remaining residue with dilute acid such as Acetic, Hydrochloric or Sulfuric. Soak up residue with inert absorbent material. Place in non-leaking containers for immediate disposal. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

7. HANDLING AND STORAGE

Precautions for Safe Handling: Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Empty containers retain product residue (vapor, dust, or liquid) and can be dangerous. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other source of ignition. They may explode and cause injury or death. CORROSIVE MATERIAL. Avoid dust or mist formation.

Conditions for Safe Storage, Including any Incompatibilities: CORROSIVE MATERIAL. Store in a cool, well ventilated area, out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers. Keep away from all sources of ignition. Avoid copper bearing fittings on pipes, tanks, etc.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA Exposure Guidelines:

Component	Limits
Ammonium Hydroxide	50 ppm TWA; 35 mg/m3 TWA

AMMONIUM HYDROXIDE
Product ID: NH0026

ACGIH Exposure Guidelines:

Component	Limits
Ammonium Hydroxide	25 ppm TWA; 35 ppm STEL

Note:
Exposure limits for Ammonia: 50 ppm-TWA (OSHA); 25 ppm-TWA, 35 ppm-STEL (ACGIH).

Appropriate Engineering Controls: Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure. Avoid creating dust or mist. Maintain adequate ventilation. Do not use in closed or confined spaces. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly.

Individual Protection Measures:

Eye/Face Protection: Wear chemical safety goggles while handling this product. Do not wear contact lenses. Wear additional eye protection such as a face shield when the possibility exists for eye contact with splashing or spraying liquid, or airborne material.

Skin Protection: Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: Impervious. Chemical-resistant.

Respiratory Protection: Respiratory protection may be required to avoid overexposure when handling this product. If exposure limits are exceeded, wear: NIOSH approved full facepiece respirator with: Ammonia cartridge. NIOSH/MSHA-Approved (or equivalent) full facepiece airline respirator in the positive pressure mode with emergency escape provisions. NIOSH-Approved self-contained breathing apparatus. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

Other Protective Equipment: Eye-wash station. Safety shower. Rubber apron. Chemical safety shoes. Rubber boots. Full body suit. Protective clothing.

General Hygiene Conditions: Wash with soap and water before meal times and at the end of each work shift. Good manufacturing practices require gross amounts of any chemical be removed from skin as soon as practical, especially before eating or smoking.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid.
Color: Clear. Colorless.
Odor: Pungent ammonia odor.
Odor Threshold: N.D.
pH: > 13 (as is)
Freezing Point (deg. F): N.D.
Melting Point (deg. F): N.D.
Initial Boiling Point or Boiling Range: N.A.
Flash Point: N.A.
Flash Point Method: N.A.
Evaporation Rate (nBuAc = 1): N.D.
Flammability (solid, gas): N.D.
Lower Explosion Limit: N.A.
Upper Explosion Limit: N.A.
Vapor Pressure (mm Hg): N.D.
Vapor Density (air=1): N.D.
Specific Gravity or Relative Density: 0.895 @ 25 F
Solubility in Water: Complete
Partition Coefficient (n-octanol/water): N.D.
Auto-ignition Temperature: No Data
Decomposition Temperature: N.D.

AMMONIUM HYDROXIDE
Product ID: NH0026

Viscosity: N.D.
% Volatile (wt%): N.D.
VOC (wt%): N.D.
VOC (lbs/gal): N.D.
Fire Point: N.D.

10. STABILITY AND REACTIVITY

Reactivity: No data available.

Chemical Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur under normal conditions.

Conditions to Avoid (e.g., static discharge, shock, or vibration): Avoid contact with heat, sparks, electric arcs, other hot surfaces, and open flames. Avoid elevated temperatures.

Incompatible Materials: Acids. Strong oxidizing agents. Combustible materials. Halogens or halogen compounds. Oleum. Acrolein. Sodium hydroxide. Chlorates. Chromium trioxide. Ethylene oxide. Boron. Chlorites. Dimethyl trioxide. Phosphorous trioxide. Propylene oxide. Nitrogen tetroxide. Silver nitrate. Silver chloride. Potassium chlorate. Potassium ferricyanide. Dimethyl sulfate. Metals. Copper. Organic Acids. Gaseous or liquid ammonia will vigorously attack, copper, silver, zinc and their alloys. It will combine readily with either silver oxide or mercury to form explosive fulminating compounds. Avoid use of nonferrous metals. Galvanized surfaces. Forms explosive compounds with many heavy metals (gold, silver, mercury, etc.) and their salts, especially halide salts. Sodium hypochlorite. Silver. Zinc. Gold. Brass. Bronze. Aluminum. Mercury. Galvanized steel.

Hazardous Decomposition Products: Ammonia. Nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

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

Symptoms/Effects: Acute, Delayed and Chronic:

Eye Contact: CORROSIVE-Causes severe irritation and burns. Vapors may cause: burns. May cause: corneal damage. conjunctivitis. permanent eye damage. blindness.

Skin Contact: CORROSIVE-Causes severe irritation and burns. Concentrated ammonia may produce liquefication necrosis and deep penetrating burns. Contact may cause: dermatitis (inflammation of the skin).

Skin Absorption: May be harmful if absorbed through skin.

Inhalation: CORROSIVE-Causes severe irritation and burns. May cause damage to the: mouth. throat. nose. lungs. respiratory tract. May cause: chest pain. coughing. asthma. pink frothy sputum. lung fibrosis. running nose. pulmonary edema. chemical pneumonitis. death. Effects may be delayed.

Ingestion: CORROSIVE-Causes severe irritation and burns. May produce systemic effects similar to inhalation. May cause: headache. drowsiness. liver congestion. urinary retention. nausea. vomiting. coma. death. May cause swelling of the: lips. larynx. May cause damage to the: mouth. throat. esophagus.

Numerical Measures of Toxicity:

Component	Oral LD50	Dermal LD50	Inhalation LC50
Ammonium Hydroxide	Rat: 350 mg/kg	No Data	No Data

Acute Toxicity Estimates (ATE):
Oral: 586 mg/kg

Cancer Information:
This product does not contain 0.1% or more of the known or potential carcinogens listed in NTP, IARC, or OSHA.

Medical Conditions Aggravated by Exposure to Product: Eye disorders. Liver disorders. Lung disorders. Respiratory system disorders. Skin disorders. Allergies.

AMMONIUM HYDROXIDE
Product ID: NH0026

Other: Exposure to atmospheric concentrations of ammonia above 5000 pmm in air will produce death by suffocation within minutes. Atmospheric ammonia in concentrations above 2000 ppm will burn and blister the skin after a few seconds of exposure. Excess ammonia in the body is detoxified in the liver by conversion to urea. Those with a history of reduced liver function should avoid exposure to ammonia. Acute or chronic overexposure to this material or its components may cause systemic toxicity, including adverse effects to the kidney, eye, respiratory, cardiovascular and nervous systems.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information: This material is expected to be very toxic to aquatic life. The 96 hour LC50 values for fish are less than 1 mg/L. The 48 hour EC50 values for daphnia are less than 1 mg/L.

Chemical Fate Information: This material is not expected to significantly bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Hazardous Waste Number: D002

Disposal Method: Dispose of in a permitted hazardous waste management facility following all local, state and federal regulations. DO NOT pressurize, cut, weld, solder, drill, grind or expose empty containers to heat, flame, sparks or other sources of ignition.

14. TRANSPORTATION INFORMATION

DOT (Department of Transportation):

Identification Number:	UN2672
Proper Shipping Name:	Ammonia Solution
Hazard class:	8
Packing Group:	III
Marine Pollutant:	Ammonia solution
Label Required:	CORROSIVE
Reportable Quantity (RQ):	100# (Ammonia); 1000# (Ammonium Hydroxide)

15. REGULATORY INFORMATION

TSCA Inventory Status: This product or all components of this product are listed on the EPA/TSCA Inventory of Chemical Substances.

SARA Title III Section 311/312 Category Hazards: Please see Section 2 of this SDS.

Regulated Components:	CAS	CERCLA	SARA	SARA	U.S.	WI	Prop
Component	**Number**	**RQ**	**EHS**	**313**	**HAP**	**HAP**	**65**
Ammonium Hydroxide	1336-21-6	Yes	Yes	Yes	No	Yes	No

Note: * Section 313 threshold and release determinations are based on 10% of the total aqueous ammonia manufactured, processed or otherwise used. This product contains Ammonia (CAS# 7664-41-7) which is subject to 313 reporting requirements. If ammonia is released to the environment, it is subject to EPCRA 302 and 304 reporting requirements: CERCLA RQ of 100 pounds, SARA RQ of 100 pounds, and TPQ of 500 pounds. Ammonia is not an EPA HAP.

16. OTHER INFORMATION

Hazard Rating System

Health:	3*
Flammability:	1
Reactivity:	0

Safety Data Sheet for Ammonia (Aqueous)

AMMONIUM HYDROXIDE
Product ID: NH0026

* = Chronic Health Hazard

NFPA Rating System
Health: 3
Flammability: 1
Reactivity: 0
Special Hazard: None

SDS Abbreviations
N.A. = Not Applicable
N.D. = Not Determined
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound
C = Ceiling Limit
N.E./Not Estab. = Not Established

SDS Prepared by: JAK

Reason for Revision: New format. Changes made throughout the SDS.

Revised: 06-07-2022
Replaces: 02-24-2020

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

Safety Data Sheet for Sulfuric Acid (Battery Acid)

EnerSys

SAFETY DATA SHEET

Form #: SDS 853024
Revised: AD 01/04/19
Supersedes: AC
ECO #: 1002070

I. PRODUCT IDENTIFICATION

Chemical Trade Name (as used on label):
Non-Spillable Lead Acid Battery

Synonyms:
Industrial Battery, Traction Battery, Stationary Battery, Deep Cycle Battery

Manufacturer's Name/Address:
EnerSys
P.O. Box 14145
2366 Bernville Road
Reading, PA 19612-4145

Chemical Family/Classification:
Electric Storage Battery

Telephone:
For information and emergencies, contact EnerSys' Environmental, Health & Safety Dept. at 610-208-1996

24-Hour Emergency Response Contact:
CHEMTREC DOMESTIC: 800-424-9300 CHEMTREC INTL: 703-527-3877

II GHS HAZARDS IDENTIFICATION

HEALTH		ENVIRONMENTAL	PHYSICAL
Acute Toxicity (Oral/Dermal/Inhalation)	Category 4	Aquatic Chronic 1	Explosive Chemical, Division 1.3
Skin Corrosion/Irritation	Category 1A	Aquatic Acute 1	
Eye Damage	Category 1		
Reproductive	Category 1A		
Carcinogenicity (lead compounds)	Category 1B		
Carcinogenicity (arsenic)	Category 1A		
Carcinogenicity (acid mist)	Category 1A		
Specific Target Organ Toxicity (repeated exposure)	Category 2		

GHS LABEL:

HEALTH	ENVIRONMENTAL	PHYSICAL
		

Hazard Statements

DANGER!

Causes severe skin burns and serious eye damage.
May damage fertility or the unborn child if ingested or inhaled.
May cause cancer if ingested or inhaled.
Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure.
May form explosive air/gas mixture during charging.
Extremely flammable gas (hydrogen).
Explosive, fire, blast, or projection hazard.
May cause harm to breast-fed children
Harmful if swallowed, inhaled, or contact with skin
Causes skin irritation, serious eye damage.

Precautionary Statements

Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing, eye protection/face protection.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid.
Irritating to eyes, respiratory system, and skin.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood
Avoid contact during pregnancy/while nursing
Keep away from heat./sparks/open flames/hot surfaces. No smoking

III. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Approximate % by Wt.
Inorganic Lead Compound:		
Lead	7439-92-1	45-60
Lead Dioxide	1309-60-0	15-25
* Antimony	7440-36-0	2
* Arsenic	7440-38-2	0.2
* Calcium	7440-70-2	0.04
* Tin	7440-31-5	0.2
Electrolyte (Sulfuric Acid (H2SO4/H2O))	7664-93-9	10-30
Case Material:		5-10
Polypropylene	9003-07-0	
Polystyrene	9003-53-6	
Styrene Acrylonitrile	9003-54-7	
Acrylonitrile Butadiene Styrene	9003-56-9	
Styrene Butadiene	9003-55-8	
Polyvinylchloride	9002-86-2	
Polycarbonate, Hard Rubber, Polyethylene	9002-88-4	

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Other: Silicon Dioxide (Gel batteries only) Sheet Molding Compound (Glass reinforced polyester)	7631-86-9 --	1-5	

Inorganic lead and electrolyte (sulfuric acid) are the primary components of every battery manufactured by EnerSys.
Other ingredients may be present dependent upon battery type. Contact your EnerSys representative for additional information.

IV. FIRST AID MEASURES

Inhalation:
Sulfuric Acid: Remove to fresh air immediately. If breathing is difficult, give oxygen. Consult a physician.
Lead: Remove from exposure, gargle, wash nose and lips; consult physician.

Ingestion:
Sulfuric Acid: Give large quantities of water; do not induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death; consult a physician.
Lead: Consult physician immediately.

Skin:
Sulfuric Acid: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes.
Lead: Wash immediately with soap and water.

Eyes:
Sulfuric Acid and Lead: Flush immediately with large amounts of water for a least 15 minutes while lifting lids
Seek immediate medical attention if eyes have been exposed directly to acid.

V. FIRE FIGHTING MEASURES

Flash Point: N/A **Flammable Limits:** LEL = 4.1% (Hydrogen Gas) UEL = 74.2%

Extinguishing Media: CO_2; foam; dry chemical. Do not use carbon dioxide directly on cells. Avoid breathing vapors. Use appropriate media for surrounding fire.

Special Fire Fighting Procedures:
If batteries are on charge, shut off power. Use positive pressure, self-contained breathing apparatus. Water applied to electrolyte generates heat and causes it to spatter. Wear acid-resistant clothing, gloves, face and eye protection.
But note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

Unusual Fire and Explosion Hazards:
Highly flammable hydrogen gas is generated during charging and operation of batteries. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Follow manufacturer's instructions for installation and service.

VI. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:
Stop flow of material, contain/absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of unneutralized acid to sewer. Acid must be managed in accordance with local, state, and federal requirements.
Consult state environmental agency and/or federal EPA.

VII. HANDLING AND STORAGE

Handling:
Unless involved in recycling operations, do not breach the casing or empty the contents of the battery. Handle carefully and avoid tipping, which may allow electrolyte leakage. There may be increasing risk of electric shock from strings of connected batteries.
Keep containers tightly closed when not in use. If battery case is broken, avoid contact with internal components.
Keep vent caps on and cover terminals to prevent short circuits. Place cardboard between layers of stacked automotive batteries to avoid damage and short circuits.
Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water. Use banding or stretch wrap to secure items for shipping.

Storage:
Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat. Keep away from metallic objects could bridge the terminals on a battery and create a dangerous short-circuit.

Charging:
There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas.
Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby.
Wear face and eye protection when near batteries being charged.

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VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits (mg/m3) Note: N.E.= Not Established

INGREDIENTS (Chemical/Common Names)	OSHA PEL	ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Lead and Lead Compounds (inorganic)	0.05	0.05	0.05	0.05	0.05	0.15 (b)
Antimony	0.5	0.5	0.5	0.5	0.5	0.5 (b,e)
Arsenic	0.01	0.01	0.002	0.2	0.01	N.E
Calcium	N.E	N.E	N.E	N.E	N.E	N.E
Tin	2	2	2	2	2	N.E
Electrolyte (Sulfuric Acid)	1	0.2	1	1	0.2	0.05 (c)
Polypropylene	N.E	N.E	N.E	N.E	N.E	N.E
Polystyrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Acrylonitrile	N.E	N.E	N.E	N.E	N.E	N.E
Acrylonitrile Butadiene Styrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Butadiene	N.E	N.E	N.E	N.E	N.E	N.E
Polyvinylchloride	N.E	N.E	N.E	N.E	1	N.E
Polycarbonate, Hard Rubber, Polyethylene	N.E	N.E	N.E	N.E	N.E	N.E
Silicon Dioxide (Gel Batteries Only)	N.E	N.E	N.E	N.E	N.E	N.E
Sheet Molding Compound (Glass reinforced polyester)	N.E	N.E	N.E	N.E	N.E	N.E

NOTES:
(b) As inhalable aerosol
(c) Thoracic fraction
(e) Based on OEL;s Of Austria, Belgium, Denmark, France, Netherlands, Switzerland, & U.K.

Engineering Controls (Ventilation):
Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective clothing, eye and face protection when filling, charging or handling batteries. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Charge the batteries in areas with adequate ventilation. General dilution ventilation is acceptable.

Respiratory Protection (NIOSH/MSHA approved):
None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed the PEL, use NIOSH or MSHA-approved respiratory protection.

Skin Protection:
If battery case is damaged, use rubber or plastic acid-resistant gloves with elbow-length gauntlet, acid-resistant apron, clothing and boots.

Eye Protection:
If battery case is damaged, use chemical goggles or face shield.

Other Protection:
In areas where sulfuric acid is handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply. Acid-resistant apron. Under severe exposure emergency conditions, wear acid-resistant clothing and boots. Face shield recommended when adding water or electrolyte to batteries, wash hands after handling.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Properties Listed Below are for Electrolyte:

Boiling Point:	203 - 240° F	**Specific Gravity (H2O = 1):**	1.215 to 1.350
Melting Point:	N/A	**Vapor Pressure (mm Hg):**	10
Solubility in Water:	100%	**Vapor Density (AIR = 1):**	Greater than 1
Evaporation Rate: (Butyl Acetate = 1)	Less than 1	**% Volatile by Weight:**	N/A
pH:	~1 to 2	**Flash Point:**	Below room temperature (as hydrogen gas)
LEL (Lower Explosive Limit)	4.1% (Hydrogen)	**UEL (Upper Explosive Limit)**	74.2% (Hydrogen)
Appearance and Odor:	Manufactured article; no apparent odor. Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.		

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X. STABILITY AND REACTIVITY

Stability: Stable X Unstable ___

This product is stable under normal conditions at ambient temperature

Conditions To Avoid: Prolonged overcharge; sources of ignition

Incompatibility: (Materials to avoid)

Sulfuric Acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

Lead Compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.

Arsenic compounds: strong oxidizers; bromine azide. NOTE: hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.

Hazardous Decomposition Products:

Sulfuric Acid: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, and hydrogen sulfide.

Lead Compounds: High temperatures likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

Hazardous Polymerization:

Will not occur

XI. TOXICOLOGICAL INFORMATION

Routes of Entry:

Sulfuric Acid: Harmful by all routes of entry.

Lead Compounds: Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume. The presence of nascent hydrogen may generate highly toxic arsine gas.

Inhalation:

Sulfuric Acid: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.

Lead Compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Sulfuric Acid: May cause severe irritation of mouth, throat, esophagus and stomach.

Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.

Skin Contact:

Sulfuric Acid: Severe irritation, burns and ulceration.

Lead Compounds: Not absorbed through the skin.

Arsenic Compounds: Contact may cause dermatitis and skin hyper pigmentation.

Eye Contact:

Sulfuric Acid: Severe irritation , burns, cornea damage, and blindness.

Lead Components: May cause eye irritation.

Effects of Overexposure - Acute:

Sulfuric Acid: Severe skin irritation, damage to cornea, upper respiratory irritation.

Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.

Effects of Overexposure - Chronic:

Sulfuric Acid: Possible erosion of tooth enamel, inflammation of nose, throat and bronchial tubes.

Lead Compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females. Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. Some toxicologists report abnormal conduction velocities in persons with blood lead levels of 50mcg/100 ml or higher. Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues.

Carcinogenicity:

Sulfuric Acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Group 1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may result in the generation of sulfuric acid mist.

Lead Compounds: Lead is listed as a Group 2A carcinogen, likely in animals at extreme doses. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1B. Proof of carcinogenicity in humans is lacking at present.

Arsenic: Arsenic is listed by IARC as a Group 1 - carcinogenic to humans. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1A.

Medical Conditions Generally Aggravated by Exposure:

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.

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Acute Toxicity:
Inhalation LD50:
Electrolyte: LC50 rat: 375 mg/m3; LC50: guinea pig: 510 mg/m3
Elemental Lead: Acute Toxicity Point Estimate = 4500 ppmV (based on lead bullion)
Elemental Arsenic: No data

Oral LD50:
Electrolyte: rat: 2140 mg/kg
Elemental Lead: Acute Toxicity Estimate (ATE) = 500 mg/kg body weight (based on lead bullion)
Elemental Arsenic: LD50 mouse: 145 mg/kg
Elemental Antimony: LD50 rat: 100 mg/kg

Additional Health Data:

All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion.
Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section 8.
Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the worksite. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home or laundered with personal non-contaminated clothing. This product is intended for industrial use only and should be isolated from children and their environment.

The 19th Amendment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form, as possibly toxic to reproduction.
Risk phrase 61: May cause harm to the unborn child, applies to lead compounds, especially soluble forms.

XII. ECOLOGICAL INFORMATION

Environmental Fate:

Lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow.
Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain.
Most studies include lead compounds and not elemental lead.

Environmental Toxicity: Aquatic Toxicity:

Sulfuric acid:	24-hr LC50, freshwater fish (Brachydanio rerio): 82 mg/L
	96 hr- LOEC, freshwater fish (Cyprinus carpio): 22 mg/L
Lead:	48 hr LC50 (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion
Arsenic:	24 hr LC50, freshwater fish (Carrassius auratus) >5000 g/L.

Additional Information:

- No known effects on stratospheric ozone depletion.
- Volatile organic compounds: 0% (by Volume)
- Water Endangering Class (WGK): NA

XIII. DISPOSAL CONSIDERATIONS (UNITED STATES)

Spent batteries: Send to secondary lead smelter for recycling. Spent lead-acid batteries are not regulated as hazardous waste when the requirements of 40 CFR Section 266.80 are met. This should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Electrolyte:

Place neutralized slurry into sealed containers and handle as applicable with state and federal regulations. Large water-diluted spills, after neutralization and testing, should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Following local, State/Provincial, and Federal/National regulations applicable to end-of-life characteristics will be the responsibility of the end-user.

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XIV. TRANSPORT INFORMATION

U.S. DOT:

Excepted from the hazardous materials regulations (HMR) because the batteries meet the requirements of 49 CFR 173.159(f) and 49 CFR 173.159a of the U.S. Department of Transportation/s HMR. Battery and outer package must be marked " NONSPILLABLE" or "NONSPILLABLE BATTERY" Battery terminals must be protected against short circuits.

IATA Dangerous Goods Regulations DGR:

Excepted from the dangerous goods regulations because the batteries meet the requirements of Packing Instruction 872 and Special Provisions A67 of the International Air Transportation Association (IATA) Dangerous goods Regulations and International Civil Aviation Organization (ICAO) Technical Instructions. Battery Terminals must be protected against short circuits.

The words " NOT RESTRICTED" , SPECIAL PROVISION A67" must be provided on an airway bill when air waybill is issued.

IMDG:

Excepted from the dangerous goods regulations for transport by sea because the batteries meet the requirements of Special Provision 238 of the International Maritime Dangerous Goods(IMDG CODE). Battery terminals must be protected against short circuits.

XV. REGULATORY INFORMATION

UNITED STATES:

EPA SARA Title III:

Section 302 EPCRA Extremely Hazardous Substances (EHS):

Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs. EPCRA Section 302 notification is required if 1000 lbs or more of sulfuric acid is present at one site (40 CFR 370.10). For more information consult 40 CFR Part 355. The quantity of sulfuric acid will vary by battery type. Contact your EnerSys representative for additional information.

Section 304 CERCLA Hazardous Substances:

Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.

Section 311/312 Hazard Categorization:

EPCRA Section 312 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of 500 lbs or more and/or if lead is present in quantities of 10,000 lbs or more. For more information consult 40 CFR 370.10 and 40 CFR 370.40.

Section 313 EPCRA Toxic Substances:

40 CFR section 372.38 (b) states: If a toxic chemical is present in an article at a covered facility, a person is not required to consider the quantity of the toxic chemical present in such article when determining whether an applicable threshold has been met under § 372.25, § 372.27, or § 372.28 or determining the amount of release to be reported under § 372.30. This exemption applies whether the person received the article from another person or the person produced the article. However, this exemption applies only to the quantity of the toxic chemical present in the article.

Supplier Notification:

This product contains toxic chemicals, which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to enable you to complete the required reports:

Toxic Chemical	CAS Number	Approximate % by Wt.
Lead	7439-92-1	60
Electrolyte (Sulfuric Acid (H2SO4/H2O))	7664-93-9	10 - 30
* Antimony	7440-36-0	2
* Arsenic	7440-38-2	0.2
Tin	7440-31-5	0.2

See 40 CRG Part 370 for more details.

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

The Section 313 supplier notification requirement does not apply to batteries, which are "consumer products".

* Not present in all battery types. Contact your EnerSys representative for additional information.

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TSCA:

TSCA Section 8b – Inventory Status: All chemicals comprising this product are either exempt or listed on the TSCA Inventory.

TSCA Section 12b (40 CFR Part 707.60(b)) No notice of export will be required for articles, except PCB articles, unless the Agency so requires in the context of individual section 5, 6, or 7 actions.

TSCA Section 13 (40 CFR Part 707.20): No import certification required (EPA 305-B-99-001, June 1999, Introduction to the Chemical Import Requirements of the Toxic Substances Control Act, Section IV.A).

RCRA:

Spent Lead Acid Batteries are subject to streamlined handling requirements when managed in compliance with 40 CFR section 266.80 or 40 CFR part 273. Waste sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity) and D008 (lead).

CAA:

EnerSys supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, EnerSys established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

STATE REGULATIONS (US):

Proposition 65:

Warning: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals known to the State of California to cause cancer. Wash hands after handling.

INTERNATIONAL REGULATIONS:

Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2).

Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.

Article 33 (1) of the REACH regulation (Reg. EC 1907/2006), which entered into force on 1st of June 2007 in the European Union, requires that manufacturers communicate the presence of Substances of Very High Concern (SVHC) in articles (lead batteries) in concentration greater than 0.1% by weight.

Effective the 27th of June 2018, the European Chemical Agency (ECHA) updated the Candidate List with the inclusion of Lead Metal (CAS No.: 7439-92-1). This inclusion of Lead as an SVHC applies to all of EnerSys Lead based battery products regardless of the design (Flooded, Gel, AGM, etc…).

XVI. OTHER INFORMATION

Revised: AD 01/04/19

NFPA Hazard Rating for Sulfuric Acid:

Flammability (Red) = 0	Reactivity (Yellow) = 2
Health (Blue) = 3	Sulfuric acid is water-reactive if concentrated.

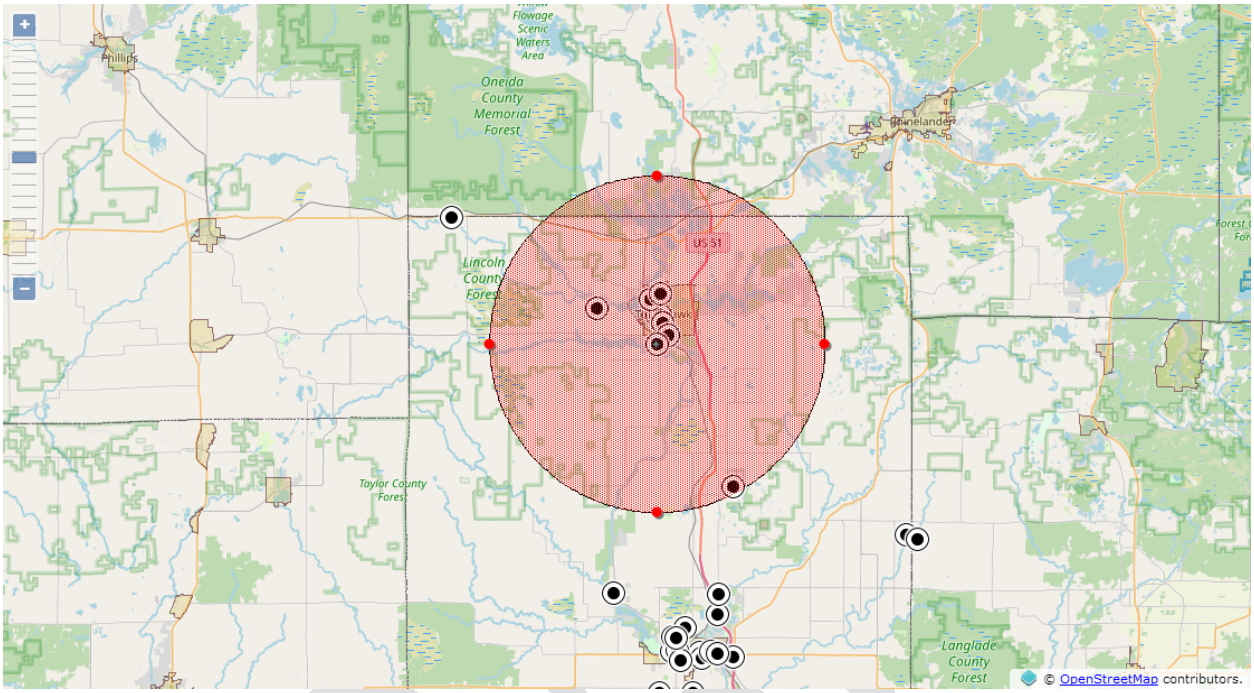
DISCLAIMER

This Safety Data Sheet is created by the manufacturer to comply with the requirements of 29 CFR 1910.1200. To the extent allowed by law, the manufacturer hereby expressly disclaims any liability to any third party, including users of this product, including, but not limited to, consequential or other damages, arising out of the use of, or reliance on, this Safety Data Sheet.

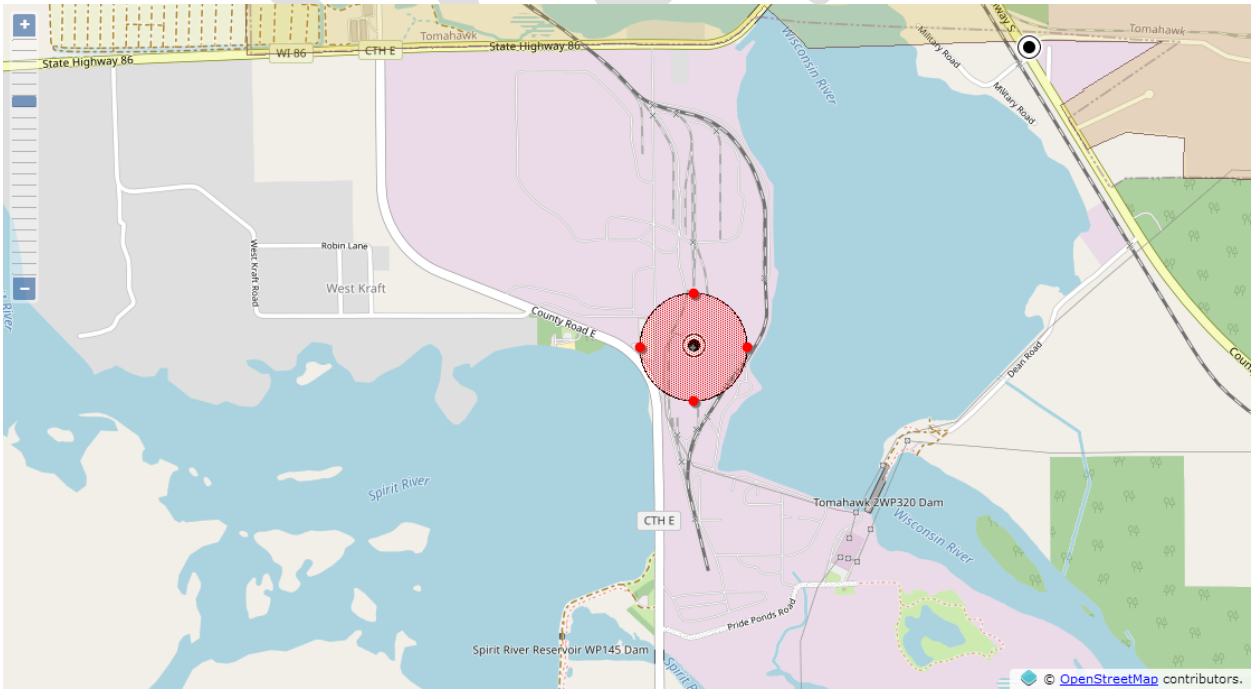
Attachment F

Vulnerability Zone Maps for Ammonia (Aqueous)

A. Worst Case Scenario



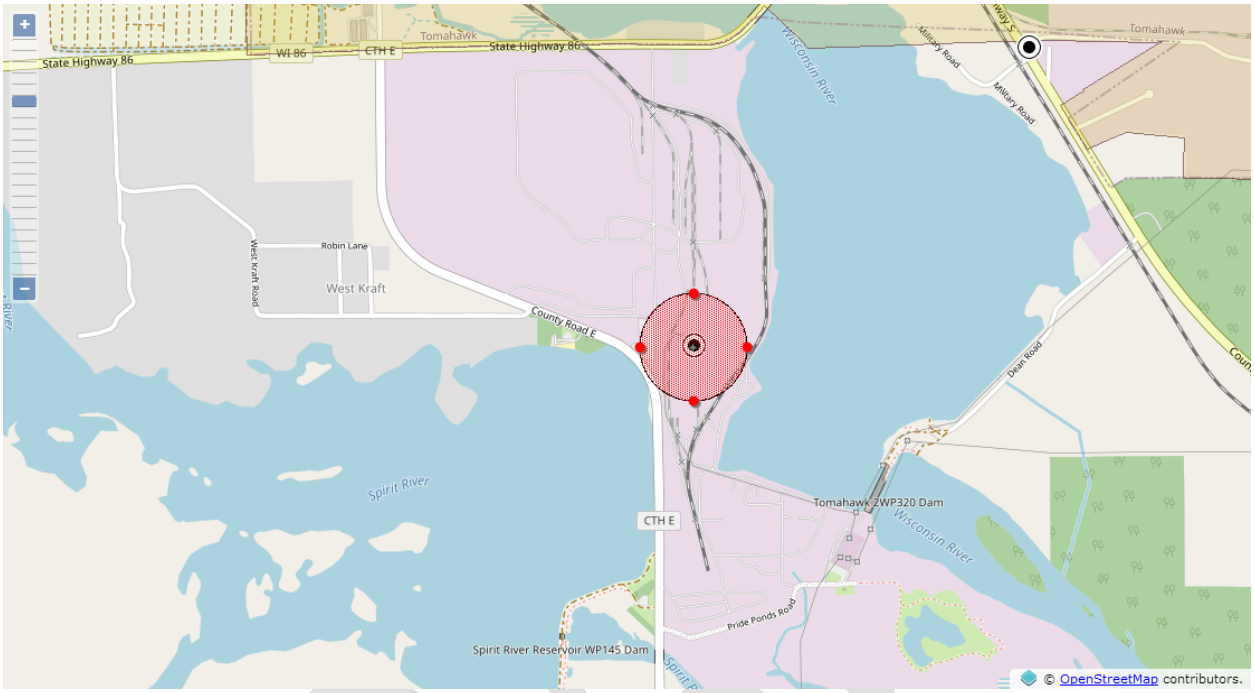
B. Re-evaluation Scenario



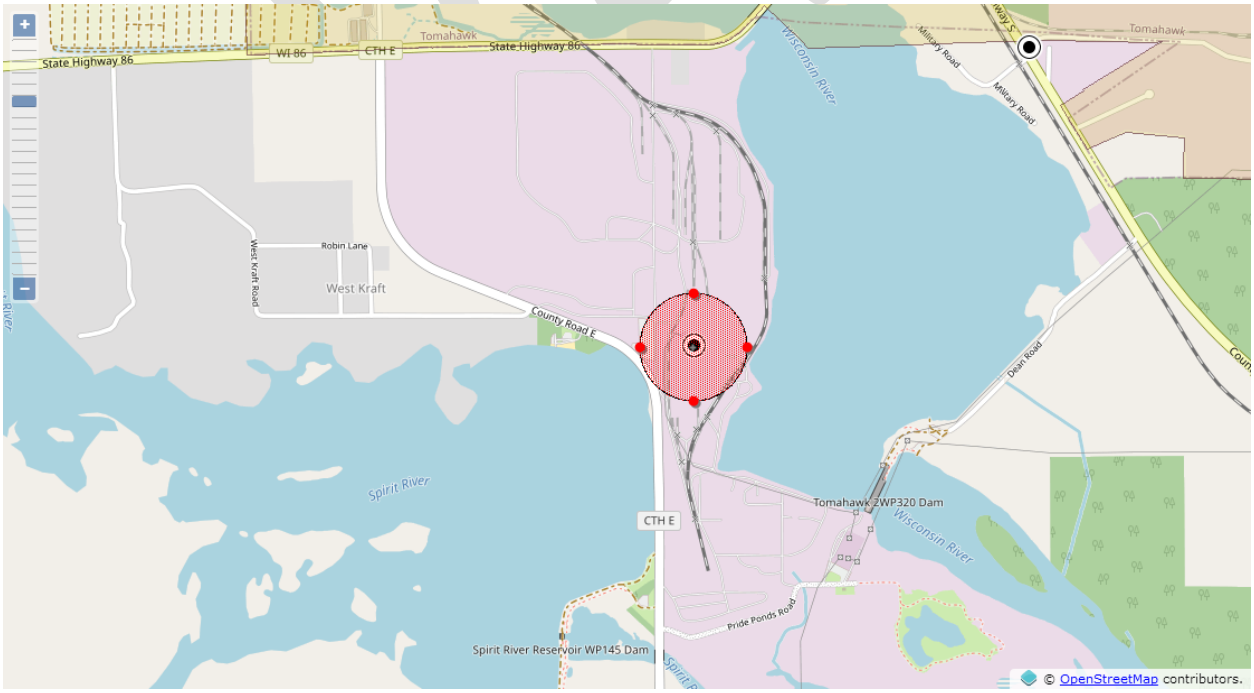
Attachment G

Vulnerability Zone Maps for Sulfuric Acid (Battery Acid)

C. Worst Case Scenario



D. Re-evaluation Scenario



Lincoln County: Local Emergency Planning Committee (LEPC)

LINCOLN COUNTY
EMERGENCY MANAGEMENT

FEMA

2023 Off Site Plan: Samuel, Son & Company (USA) Inc.

Lincoln County Board of Supervisors Chair	**Lincoln County Administrative Coordinator**	**Lincoln County Director of Emergency Management**	**Lincoln County LEPC Chair**
Don Friske	Renee Krueger	Tyler Verhasselt	Richard Burns

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I. Facility Information

A. Samuel, Son & Company (USA) Inc.

1. Address: 1119 A Bridge Street, Highway CC, Tomahawk, WI 54487
2. Phone: (715) 453-5326
3. Facility ID # (Assigned by WEM): 91786

II. Facility Emergency Contacts

A. Tier II Contact:

1. Name: Paul Maguire
2. Position: EHS Specialist
3. Office Phone: (715) 453-5326 ext. 12459
4. Emergency Phone: (715) 966-0392
5. Email: paul.maguire@samuel.com

B. Tier II Emergency Coordinator:

1. Name: Mike Winkler
2. Position: EHS Manager
3. Office Phone: (715) 735-9311 ext. 12426
4. Emergency Phone: (715) 701-6441
5. Email: mike.winkler@samuel.com

III. Extremely Hazardous Substances (EHS)

A. EHS Chemicals OVER Threshold Planning Quantity (TPQ)

CAS #	Chemical Name	Maximum Daily Quantity (lbs.)	Max. Amount. of Largest Container (lbs.)	Vulnerability Zone (miles)
7697-37-2	Nitric Acid	1,691	900	0.3 miles
7664-93-9	Sulfuric Acid	3,950	3,950	< 0.1 miles

IV. Primary Emergency Responders

A. Lincoln County Sheriff's Office

1. Phone: 911 or (715) 563-6272

B. Lincoln County Emergency Communications Center

1. Phone: 911 or (715) 563-6272

C. Lincoln County Emergency Management

1. Phone: (715) 218-0128

D. Tomahawk Fire Department

1. Phone: 911 or (715) 453-8180

E. Tomahawk Police Department

1. Phone: 911 or (715) 453-2121

V. Support Available at Facility

A. Chemical Emergency Monitoring Equipment:

1. None

B. Personal Protective Equipment:

1. None

C. Other Equipment or Supplies:

1. None

D. Outside Resources Available:

1. Lincoln County Emergency Management
   a) Pursuant to Lincoln County's Emergency Operations Plan (EOP), the incident commander and/or unified command will identify the need for hazmat response and relay that request to Lincoln County Sheriff's Office (LCSO) Communication Center whom with contact the appropriate team.

      The Tomahawk Fire Department is capable of handling minor hazardous materials incidents; however, if the incident exceeds the ability/capability of Tomahawk Fire Department LCSO Communications Center will request the appropriate agency. Lincoln County contracts with two (2) external hazmat response teams dependent on level of release, for Level B response Oneida County Sheriff Office Hazardous Materials Response Team; whereas, for Level A response Wausau Wisconsin Hazardous Response Team.

      For Level A incidents, the response of Wausau Wisconsin Hazardous Response Team must be requested through the Wisconsin Emergency Management (WEM) State Emergency Operations Center (SEOC). Contact the WEM SEOC Duty Officer at (800) 943-0003 for response.
2. Chemtrec: (800) 424-9300
   a) Unknown response time
3. National Response Center: (800) 424-8802
   a) Unknown response time
4. REI—Spill & Response Recovery: (800) 734-7745
   a) Unknown response time

VI. General information and Assumptions (Disclaimer)

The vulnerability zones set forth in this plan are based on the Environmental Protection Agency's (EPA) Technical Guidance for Hazard Analysis. The zones are based on a credible worst case scenario and identify the potential area for impact should an airborne release of an EHS occur.

A re-evaluation scenario with more realistic parameters has also been computed. Parameters used for both scenarios have been described as part of the hazard analysis summary.

CAMEO Suite software was used in the preparation of vulnerability zones. It should be noted that CAMEO*fm* cannot compute zones greater than 10 miles nor less than 0.1 miles. Thus, results that fall into these situations will be notes as "> 10 miles" or "< 0.1 miles".

The field Incident Commander shall determine the actual response to an incident and the affected area may vary from the planning vulnerability zone identified in this plan. Depending on wind speed and direction, the amount of material released and other pertinent factors, the ACTUAL vulnerability zone may be smaller, and in some instances larger, than the credible worst case vulnerability zone identified herein.

VII. Hazard Analysis Summary

A. Greatest Potential for Release

1. Nitric acid is in the electropolishing and waste water pre-treatment room where the chemicals are stored. The room is engineered to containerize all spills and keep them from entering the sanitary sewer or getting outside. The room is engineered to be closed off, including vents over the processes. Production is stable throughout the year.

B. Vulnerability Zones (by chemical)

Nitric Acid: CAS #7697-37-2			
Amount Released:	900 lbs.		
Concentration:	100%		
Physical State:	Liquid (Ambient)		
Diked Area:	No		
Level of Concern (LOC):	0.026 gm/m^3		
LOC Type:	Greenbook LOC		
Worst Case Scenario		**Re-Evaluation Scenario**	
Duration:	10 minutes	**Duration**	10 minutes
Wind Speed:	3.4 mph	**Wind Speed:**	11.9 mph
Ground Roughness:	Rural	**Ground Roughness:**	Urban
Atmospheric Stability Class:	F	**Atmospheric Stability Class:**	D
Risk:	Low	**Risk:**	Low
Consequences:	Low	**Consequences:**	Low
Overall Risk:	Low	**Overall Risk:**	Low
Threat Zone Radius:	0.3 miles	**Threat Zone Radius:**	< 0.1 miles

Sulfuric Acid: CAS #7664-93-9			
Amount Released:	3,950 lbs.		
Concentration:	100%		
Physical State:	Liquid (Ambient)		
Diked Area:	No		
Level of Concern (LOC):	0.008 gm/m^3		
LOC Type:	Greenbook LOC		
Worst Case Scenario		**Re-Evaluation Scenario**	
Duration:	10 minutes	**Duration**	10 minutes
Wind Speed:	3.4 mph	**Wind Speed:**	11.9 mph
Ground Roughness:	Rural	**Ground Roughness:**	Urban
Atmospheric Stability Class:	F	**Atmospheric Stability Class:**	D
Risk:	Low	**Risk:**	Low
Consequences:	Low	**Consequences:**	Low
Overall Risk:	Low	**Overall Risk:**	Low
Threat Zone Radius:	< 0.1 miles	**Threat Zone Radius:**	< 0.1 miles

C. Estimation of Population Affected

1. Nitric Acid
    a) In the credible worst case scenario the total number of persons that could be affected by a release of the extremely hazardous substance would be 40 employees and no other populations or facilities affected.
    b) In the re-evaluation scenario the total number of persons that could be affected by a release of the extremely hazardous substance would be 40 employees or less and no other populations or facilities affected.
    c) Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.
    d) Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.
2. Sulfuric Acid
    a) In the credible worst case scenario the total number of persons that could be affected by a release of the extremely hazardous substance would be less than 10 employees and no other populations or facilities affected.
    b) In the re-evaluation scenario the total number of persons that could be affected by a release of the extremely hazardous substance would be 10 employees and no other populations or facilities affected.
    c) Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.
    d) Experience indicates that no shelter, isolation, or evacuation would have to take place in conjunction with this extremely hazardous chemical.

D. Critical Infrastructure

a) None affected

VIII. Population Protection

The determination to shelter in-place or to evacuate will be made by the on-scene commander as appropriate. The lead time for a hazardous materials incident may be very short. As a result, there may not be time enough for safe evacuation, especially when extremely toxic chemical fumes are involved. An evacuation under these considerations may expose the population to dangerous toxic chemicals and the decision may be made to shelter-in-place. Preferred areas for protective sheltering would be interior hallways, rooms on the side of the building away from where the hazard is approaching. Doors, windows, and other potential air leaks should be sealed up to prevent toxic fumes from entering.

Experience indicates that shelter space would need to be provided for only 30% of the population within the initial isolation and evacuation zones and the remaining 70% would seek shelter with family and friends outside the risk zone.

Roles and responsibilities relative to evacuation and sheltering may be found in the Lincoln County Emergency Operations Plan.

IX. Distribution List

- Samuel, Son & Company (USA) Inc.
- Tomahawk Fire Department
- Wisconsin Emergency Management Northeast Regional Office
- Oneida County Sheriff Office Hazardous Materials Response Team
- Wausau Wisconsin Hazardous Response Team
- Oneida County Emergency Management

X. Supporting Documentation

A. Attachments

1. Attachment A, Record of Change and Review
2. Attachment B, Facility Layout and Site Information
3. Attachment C, Transportation Route Map
4. Attachment D, Safety Data Sheet for Nitric Acid
5. Attachment E, Safety Data Sheet for Sulfuric Acid
6. Attachment F, Vulnerability Zone Map for Nitric Acid
7. Attachment G, Vulnerability Zone Map for Sulfuric Acid

Attachment A

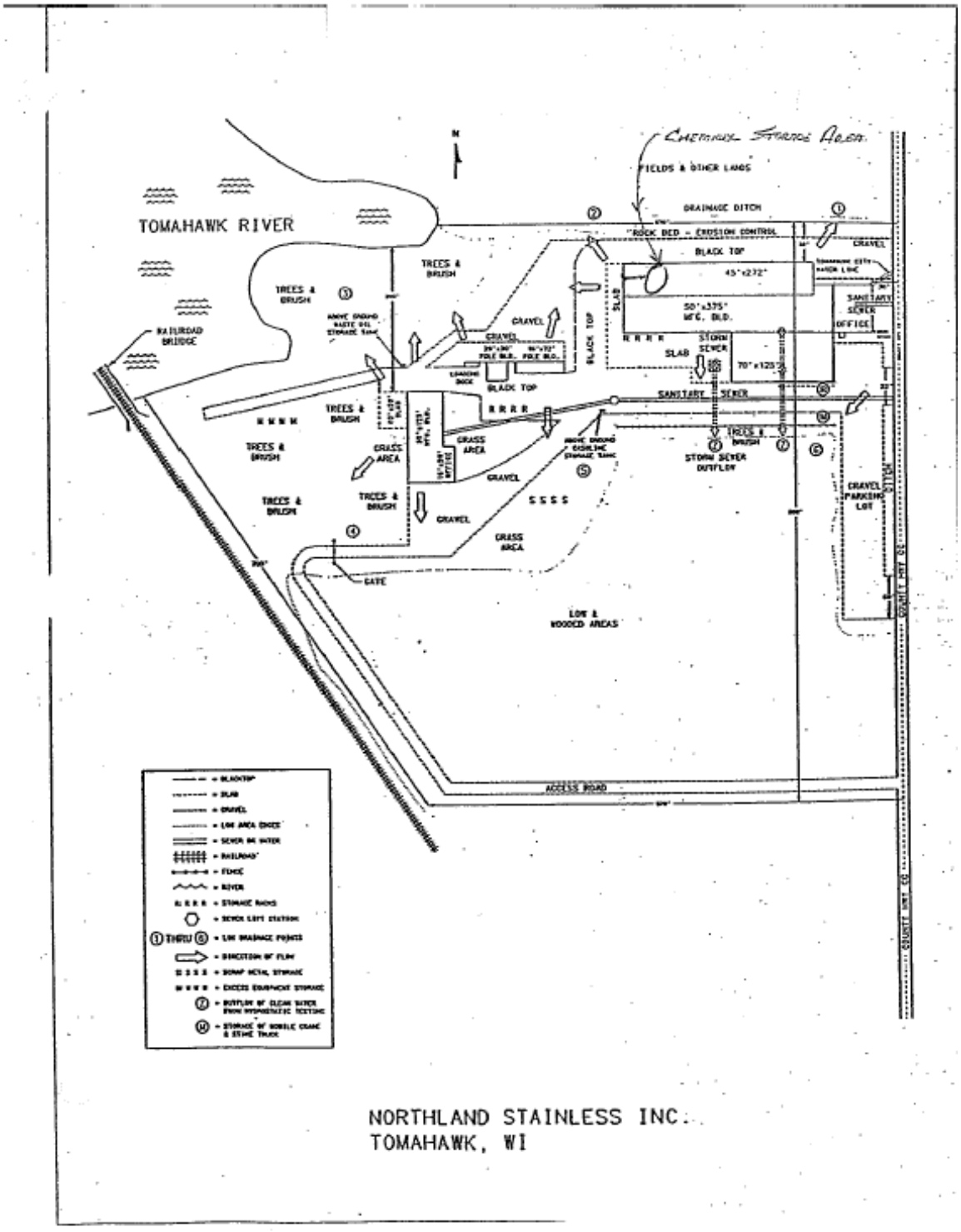
Record of Change/ Review /Signature

Date	Contributor	Description of Change	Page Number(s)

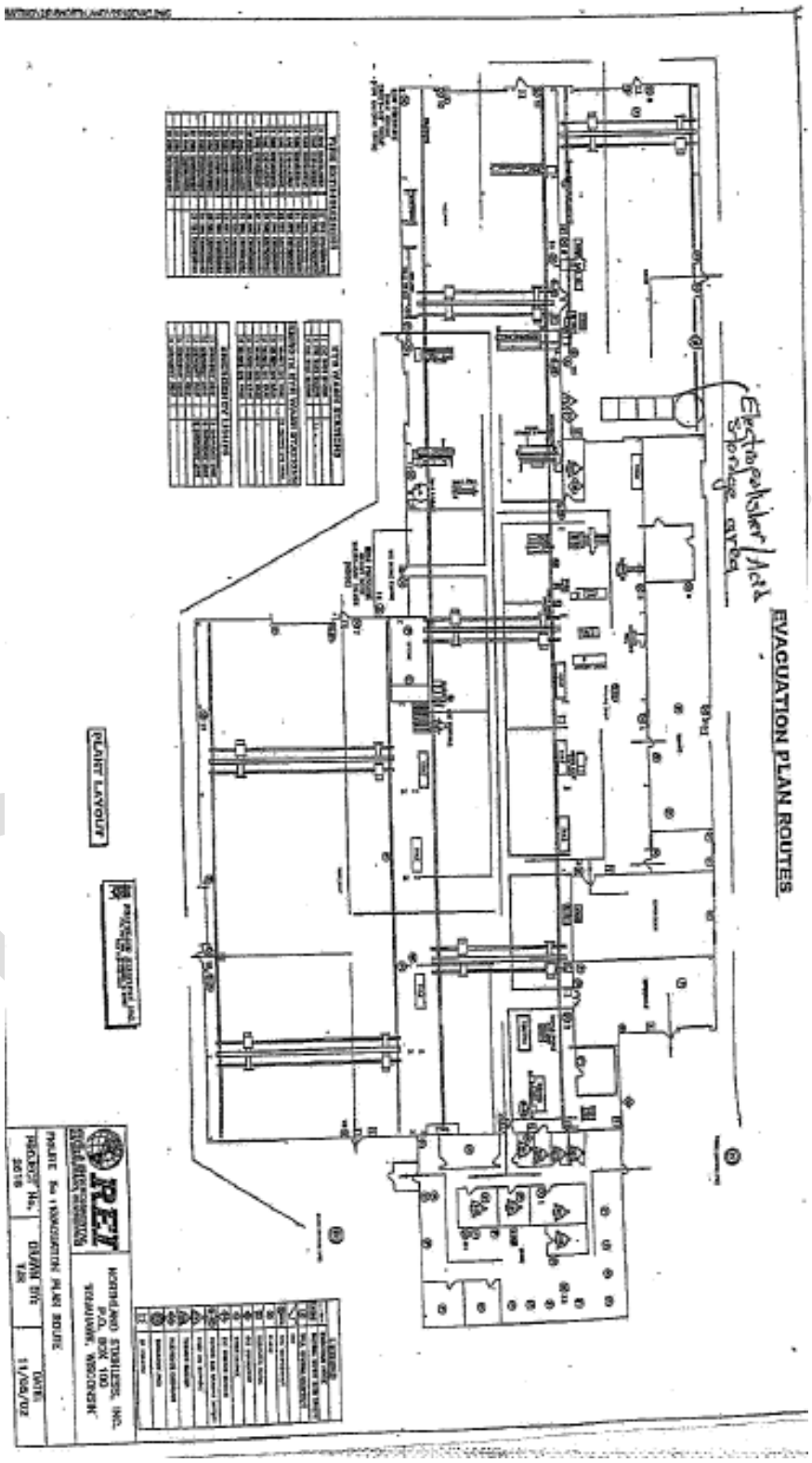
Please see EPCRA Hazardous Materials Off-Site Plan Transmittal Form for approval and signatures.

Attachment B

Facility Layout and Site Information

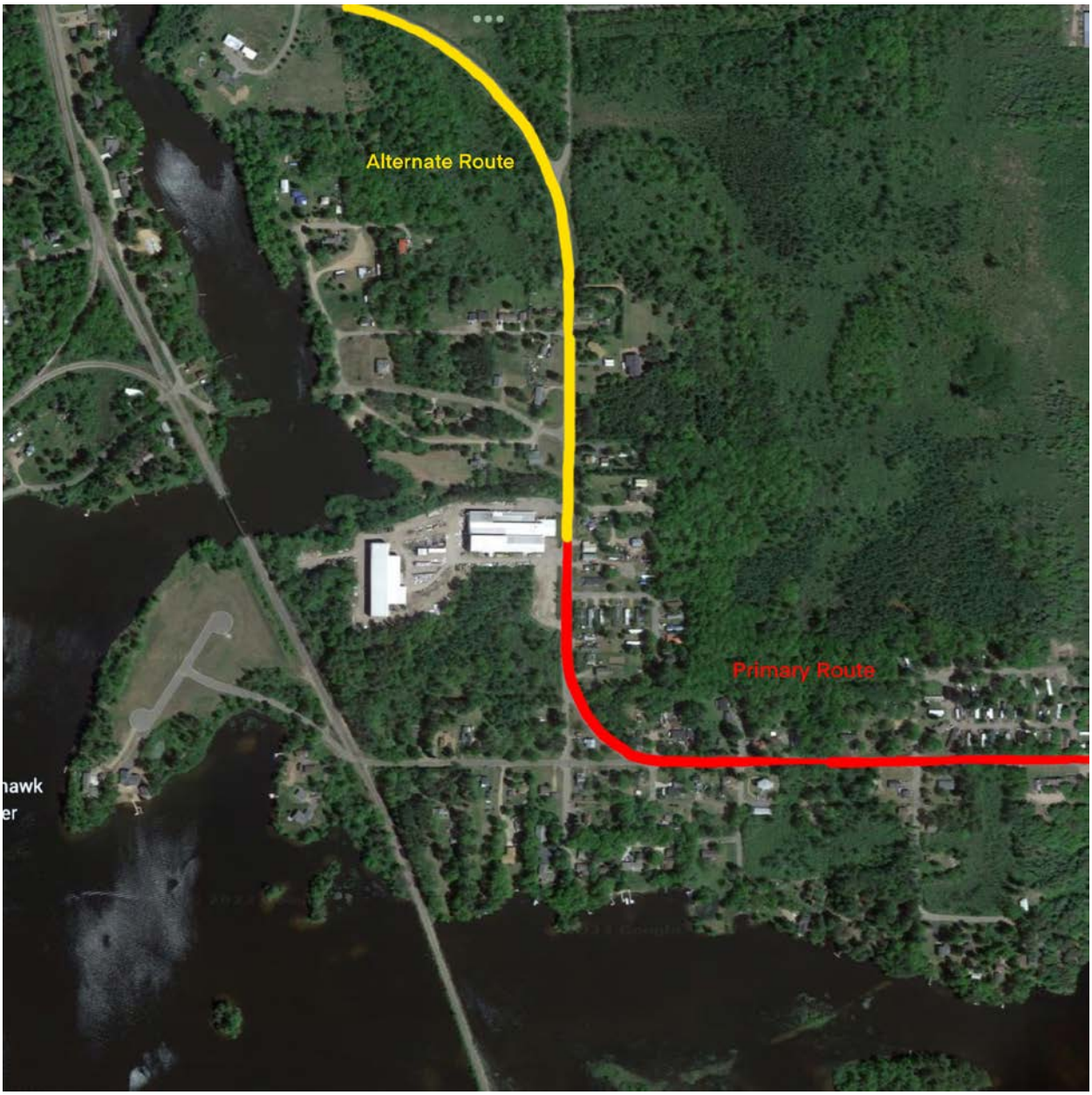


Facility Layout and Site Information



Attachment C

Transportation Route Map



WAUSAU CHEMICAL CORPORATION
SAFETY DATA SHEET

Nitric Acid-57% (38 °Baume)

1. Product and Company Identification

Product Name	Nitric Acid-57% (38 'Baume)
Synonyms	Aqua fortis, azotic acid
MSDS Number	D20082
Company Identification	Wausau Chemical Corporation 2001 North River Drive Wausau, WI 54403
Telephone	Wausau Chemical Corporation – 715.842.2285 CHEMTREC – 800.424.9300

NFPA diamond and HMIS ratings for this product may be found in section 16 of this Safety Data Sheet.

2. Hazards Identification

Form	Liquid
Color	Colorless to light yellow
Odor	Pungent, irritating
OSHA/HCS Status	Material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200); corrosive, target organ effect (lungs, teeth, cardiovascular system)
GHS Classification	Oxidizing liquids (Category 3) Skin corrosion (Category 1A) Serious eye damage (Category 1)
Pictogram	
Signal Word	Danger
Hazard Statement(s)	
H272	May intensify fire; oxidizer.
H314	Causes severe skin burns and eye damage.
Precautionary Statement(s)	
P210	Keep away from heat.
P220	Keep/Store away from clothing/ combustible materials.
P221	Take any precaution to avoid mixing with combustibles.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

WAUSAU CHEMICAL CORPORATION
SAFETY DATA SHEET

Potential Acute Health Effects

Inhalation	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion	Harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin burns.
Eyes	Causes severe eye burns.

See section 11 for more detailed information on health effects and symptoms

3. Composition/Information on Ingredients

Ingredient Name	CAS Number	WT %
Nitric Acid	7697-37-2	56-58
Water	7732-18-5	42-44

4. First Aid Measures

Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
Skin Contact	Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.
Inhalation	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Protection of First Aid Personnel	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wear gloves while removing contaminated clothing. If it is suspected that dust, vapor, mist, or gas is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.

5. Fire-fighting Measures

Flammability of the Product	Not flammable or combustible
Flash Point (Method)	None
Auto Ignition Temperature	None

Extinguishing Media

Suitable	Flooding quantities of water spray, dry chemical, carbon dioxide, or alcohol-resistant foam.
Special Fire-fighting Procedures & Hazards	Do not use solid water spray near ruptured tanks or spills. Water may react with acid and cause splattering. Wear chemical protective clothing and positive pressure self-contained breathing apparatus. Approach upwind to avoid toxic vapors.
Unusual Fire & Explosion Hazards	Nitrogen oxides could be present from vented or ruptured tanks. If water stream is added, considerable heat could be generated and splattering could occur.

6. Accidental Release Measures

Personal Precautions	Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
Environmental Precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Spill	Contain spillage, and then place in container for disposal according to local regulations.

WAUSAU CHEMICAL CORPORATION
SAFETY DATA SHEET

7. Handling and Storage

Handling	Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.
Storage	Keep containers tightly closed in a dry and well-ventilated area.

8. Exposure Controls/Personal Protection

Ingredient Name	ACGIH TLV	OSHA PEL
Nitric Acid	2 ppm – TWA	2 ppm – TWA

Engineering Measures	Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure. Maintain adequate ventilation. Keep levels below exposure limits.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Respiratory	Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
Eyes and Face	Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards.
Skin	Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

9. Physical and Chemical Properties

Appearance	Colorless to light yellow liquid
Odor	Pungent, irritating
pH	Less than 1
Water Solubility	100%
Vapor Density (air = 1)	Not applicable
Evaporation rate (butyl acetate = 1)	Not applicable
Boiling Point (°F)	244 °F (117.8 °C)
Freezing Point (°F)	-44 °F (-42.2 °C)
Specific Gravity (H_20 = 1 @ 70 °F)	1.330
Vapor Pressure (mm Hg, 20 °C)	Less than 1
Volatile Organic (VOC) Content	Not applicable

10. Stability and Reactivity

Stable: X Unstable: Hazardous Polymerization: Occurs: Does Not Occur: X

Conditions to Avoid	None known
Materials to Avoid	Most metals, metallic powders, carbides, hydrogen sulfide, turpentine, organic acids, combustibles, organics, and readily oxidized materials.
Decomposition Products	Nitrogen oxides and possible hydrogen.

WAUSAU CHEMICAL CORPORATION
SAFETY DATA SHEET

11. Toxicological Information

Eye	Causes severe eye burns.
Nitric Acid	Eyes – no data available
Dermal	May be harmful if absorbed through skin. Causes skin burns.
Nitric Acid	Dermal LD50 – no data available
	Skin corrosion/irritation: rabbit – extremely corrosive and destructive to tissue (Draize Test)
Inhalation	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Nitric Acid	Inhalation LC50 – no data available
Oral	Harmful if swallowed.
Nitric Acid	Oral LD50 – human – 430 mg/kg

Potential Chronic Health Effects

Carcinogenicity	No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible, or confirmed human carcinogen by IARC, ACGIH, NTP, or OSHA.
Mutagenicity	No data available
Teratogenicity	No data available
Fertility Effects	Reproductive toxicity - rat – Oral
	Effects on Newborn: Biochemical and metabolic.
	Developmental Toxicity - rat – Oral
	Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Over-exposure Signs/Symptoms

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may provoke the following symptoms: spasm, inflammation and edema of the bronchi, spasm, inflammation and edema of the larynx, pneumonitis, pulmonary edema. Symptoms and signs of poisoning are: burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting, pulmonary edema. Effects may be delayed., Large doses may cause: conversion of hemoglobin to methemoglobin, producing cyanosis, marked fall in blood pressure, leading to collapse, coma, and possibly death.

12. Ecological Information

Biodegradability	No data available
Ecotoxicity	Toxicity to fish:
	LC50 - Asterias rubens - 100 - 330 mg/l - 48 h

13. Disposal Considerations

Waste Disposal	Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.
RCRA	No component of this product is listed as a hazardous waste.

14. Transportation

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

WAUSAU CHEMICAL CORPORATION
SAFETY DATA SHEET

US DOT 49 CFR 172.101	Non-bulk Shipments (Drums/Totes)	Bulk Shipments (Tank Trucks/Rail Cars)
Proper Shipping Name	Nitric Acid	Same
Hazard Class	8	Same
Identification Number	UN2031	Same
Packing Group	II	Same
Reportable Quantities	RQ=1000 lbs.	Same
Placards/Labels	Corrosive	Same

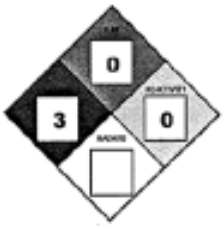
15. Regulatory Information

CERCLA / SARA Emergency Reporting	A spill or release of this material may trigger the emergency release reporting requirements under CERCLA (40 CFR Part 300) and/or SARA Title III (40 CFR Part 355). State or local reporting requirements may differ from federal requirements. Consult counsel for further guidance on your responsibilities under these laws. **Nitric Acid CERCLA reporting amount – 1000 lbs.**
SARA Title III Section 313	The following components are subject to reporting levels established by SARA Title III, Section 313: **Nitric Acid (CAS# 7697-37-2)**
Clean Water Act (CWA) Section 311	The following chemicals are listed under Section 311 as hazardous substances requiring the submission of a National Pollutant Discharge Elimination System (NPDES) permit application to EPA. **Nitric Acid**
TSCA – Toxic Substances Control Act	All components of this product are listed on the Toxic Substances Control Act Inventory or are excluded from listing requirements.
RCRA – Resource Conservation and Recovery Act	The requirements of the federal hazardous waste regulations do not apply unless the waste fails to pass any of EPA's four tests for determining hazardous wastes. Note: If this product is altered, it is the responsibility of the user to determine whether the material meets the criteria for hazardous waste at the time of disposal. **No components listed**
State Regulations	
Massachusetts	**RTK Substances:** The following components are listed: Nitric Acid (CAS #7697-37-2)
New Jersey	**RTK Substances:** The following components are listed: Nitric Acid (CAS #7697-37-2)
Pennsylvania	**RTK Substances:** The following components are listed: Nitric Acid (CAS #7697-37-2)
California	**Proposition 65:** This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. Other Information

Date of Issue	12/6/2013 | 4/7/2015-updated GHS classification and corresponding statements, section 2 | 6/13/2016-reviewed for accuracy (ST)

NFPA



Safety Data Sheet for Nitric Acid

WAUSAU CHEMICAL CORPORATION
SAFETY DATA SHEET

HMIS

HEALTH	**3**
FLAMMABILITY	**0**
PHYSICAL HAZARD	**2**
PPE	

Caution: NFPA and HMIS ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although these ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them.

The customer is responsible for determining the PPE code for this material.

Notice to Reader

The information contained herein is given in good faith, but no warranty, representation, inducement, or license of any kind is made, except that the information is accurate to the best of Wausau Chemical Corporation's knowledge, or is obtained from sources believed by Wausau Chemical Corporation to be reliable and accurate. Wausau Chemical Corporation does not assume any legal responsibility for use or reliance upon the information being furnished. Customers are encouraged to conduct their own tests. Before using any product, read the container label directions, as well as, the Safety Data Sheet.

Attachment E

Safety Data Sheet for Sulfuric Acid

EnerSys

SAFETY DATA SHEET

Form #: SDS 853024
Revised: AD 01/04/19
Supersedes: AC
ECO #: 1002070

I. PRODUCT IDENTIFICATION

Chemical Trade Name (as used on label):
Non-Spillable Lead Acid Battery

Synonyms:
Industrial Battery, Traction Battery, Stationary Battery, Deep Cycle Battery

Manufacturer's Name/Address:
EnerSys
P.O. Box 14145
2366 Bernville Road
Reading, PA 19612-4145

Chemical Family/Classification:
Electric Storage Battery

Telephone:
For information and emergencies, contact EnerSys' Environmental, Health & Safety Dept. at 610-208-1996

24-Hour Emergency Response Contact:
CHEMTREC DOMESTIC: 800-424-9300 CHEMTREC INTL: 703-527-3877

II GHS HAZARDS IDENTIFICATION

HEALTH		ENVIRONMENTAL	PHYSICAL
Acute Toxicity (Oral/Dermal/Inhalation)	Category 4	Aquatic Chronic 1	Explosive Chemical, Division 1.3
Skin Corrosion/Irritation	Category 1A	Aquatic Acute 1	
Eye Damage	Category 1		
Reproductive	Category 1A		
Carcinogenicity (lead compounds)	Category 1B		
Carcinogenicity (arsenic)	Category 1A		
Carcinogenicity (acid mist)	Category 1A		
Specific Target Organ Toxicity (repeated exposure)	Category 2		

GHS LABEL:

HEALTH	ENVIRONMENTAL	PHYSICAL
		

Hazard Statements

DANGER!

Causes severe skin burns and serious eye damage.
May damage fertility or the unborn child if ingested or inhaled.
May cause cancer if ingested or inhaled.
Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure.
May form explosive air/gas mixture during charging.
Extremely flammable gas (hydrogen).
Explosive, fire, blast, or projection hazard.
May cause harm to breast-fed children
Harmful if swallowed, inhaled, or contact with skin
Causes skin irritation, serious eye damage.

Precautionary Statements

Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing, eye protection/face protection.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Contact with internal components may cause irritation or severe burns. Avoid contact with internal acid.
Irritating to eyes, respiratory system, and skin.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood
Avoid contact during pregnancy/while nursing
Keep away from heat./sparks/open flames/hot surfaces. No smoking

III. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Approximate % by Wt.
Inorganic Lead Compound:		
Lead	7439-92-1	45-60
Lead Dioxide	1309-60-0	15-25
* Antimony	7440-36-0	2
* Arsenic	7440-38-2	0.2
* Calcium	7440-70-2	0.04
* Tin	7440-31-5	0.2
Electrolyte (Sulfuric Acid (H2SO4/H2O))	7664-93-9	10-30
Case Material:		5-10
Polypropylene	9003-07-0	
Polystyrene	9003-53-6	
Styrene Acrylonitrile	9003-54-7	
Acrylonitrile Butadiene Styrene	9003-56-9	
Styrene Butadiene	9003-55-8	
Polyvinylchloride	9002-86-2	
Polycarbonate, Hard Rubber, Polyethylene	9002-88-4	

Safety Data Sheet for Sulfuric Acid

EnerSys
Energy Full Solutions

SAFETY DATA SHEET

Form #: SDS 853024
Revised: AD 01/04/19
Supersedes: AC
ECO #: 1002070

Other: Silicon Dioxide (Gel batteries only) Sheet Molding Compound (Glass reinforced polyester)	7631-86-9 --	1-5	

Inorganic lead and electrolyte (sulfuric acid) are the primary components of every battery manufactured by EnerSys.
Other ingredients may be present dependent upon battery type. Contact your EnerSys representative for additional information.

IV. FIRST AID MEASURES

Inhalation:
Sulfuric Acid: Remove to fresh air immediately. If breathing is difficult, give oxygen. Consult a physician.
Lead: Remove from exposure, gargle, wash nose and lips; consult physician.

Ingestion:
Sulfuric Acid: Give large quantities of water; do not induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death; consult a physician.
Lead: Consult physician immediately.

Skin:
Sulfuric Acid: Flush with large amounts of water for at least 15 minutes; remove contaminated clothing completely, including shoes. If symptoms persist, seek medical attention. Wash contaminated clothing before reuse. Discard contaminated shoes.
Lead: Wash immediately with soap and water.

Eyes:
Sulfuric Acid and Lead: Flush immediately with large amounts of water for a least 15 minutes while lifting lids
Seek immediate medical attention if eyes have been exposed directly to acid.

V. FIRE FIGHTING MEASURES

Flash Point: N/A **Flammable Limits:** LEL = 4.1% (Hydrogen Gas) UEL = 74.2%

Extinguishing Media: CO_2; foam; dry chemical. Do not use carbon dioxide directly on cells. Avoid breathing vapors. Use appropriate media for surrounding fire.

Special Fire Fighting Procedures:
If batteries are on charge, shut off power. Use positive pressure, self-contained breathing apparatus. Water applied to electrolyte generates heat and causes it to spatter. Wear acid-resistant clothing, gloves, face and eye protection.
But note that strings of series connected batteries may still pose risk of electric shock even when charging equipment is shut down.

Unusual Fire and Explosion Hazards:
Highly flammable hydrogen gas is generated during charging and operation of batteries. To avoid risk of fire or explosion, keep sparks or other sources of ignition away from batteries. Do not allow metallic materials to simultaneously contact negative and positive terminals of cells and batteries. Follow manufacturer's instructions for installation and service.

VI. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:
Stop flow of material, contain/absorb small spills with dry sand, earth, and vermiculite. Do not use combustible materials. If possible, carefully neutralize spilled electrolyte with soda ash, sodium bicarbonate, lime, etc. Wear acid-resistant clothing, boots, gloves, and face shield. Do not allow discharge of unneutralized acid to sewer. Acid must be managed in accordance with local, state, and federal requirements.
Consult state environmental agency and/or federal EPA.

VII. HANDLING AND STORAGE

Handling:
Unless involved in recycling operations, do not breach the casing or empty the contents of the battery. Handle carefully and avoid tipping, which may allow electrolyte leakage. There may be increasing risk of electric shock from strings of connected batteries.
Keep containers tightly closed when not in use. If battery case is broken, avoid contact with internal components.
Keep vent caps on and cover terminals to prevent short circuits. Place cardboard between layers of stacked automotive batteries to avoid damage and short circuits.
Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water. Use banding or stretch wrap to secure items for shipping.

Storage:
Store batteries in cool, dry, well-ventilated areas with impervious surfaces and adequate containment in the event of spills. Batteries should also be stored under roof for protection against adverse weather conditions. Separate from incompatible materials. Store and handle only in areas with adequate water supply and spill control. Avoid damage to containers. Keep away from fire, sparks and heat. Keep away from metallic objects could bridge the terminals on a battery and create a dangerous short-circuit.

Charging:
There is a possible risk of electric shock from charging equipment and from strings of series connected batteries, whether or not being charged. Shut-off power to chargers whenever not in use and before detachment of any circuit connections. Batteries being charged will generate and release flammable hydrogen gas. Charging space should be ventilated. Keep battery vent caps in position. Prohibit smoking and avoid creation of flames and sparks nearby. Wear face and eye protection when near batteries being charged.

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VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits (mg/m3) Note: N.E.= Not Established

INGREDIENTS (Chemical/Common Names)	OSHA PEL	ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Lead and Lead Compounds (inorganic)	0.05	0.05	0.05	0.05	0.05	0.15 (b)
Antimony	0.5	0.5	0.5	0.5	0.5	0.5 (b,e)
Arsenic	0.01	0.01	0.002	0.2	0.01	N.E
Calcium	N.E	N.E	N.E	N.E	N.E	N.E
Tin	2	2	2	2	2	N.E
Electrolyte (Sulfuric Acid)	1	0.2	1	1	0.2	0.05 (c)
Polypropylene	N.E	N.E	N.E	N.E	N.E	N.E
Polystyrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Acrylonitrile	N.E	N.E	N.E	N.E	N.E	N.E
Acrylonitrile Butadiene Styrene	N.E	N.E	N.E	N.E	N.E	N.E
Styrene Butadiene	N.E	N.E	N.E	N.E	N.E	N.E
Polyvinylchloride	N.E	N.E	N.E	N.E	1	N.E
Polycarbonate, Hard Rubber, Polyethylene	N.E	N.E	N.E	N.E	N.E	N.E
Silicon Dioxide (Gel Batteries Only)	N.E	N.E	N.E	N.E	N.E	N.E
Sheet Molding Compound (Glass reinforced polyester)	N.E	N.E	N.E	N.E	N.E	N.E

NOTES:
(b) As inhalable aerosol
(c) Thoracic fraction
(e) Based on OEL;s Of Austria, Belgium, Denmark, France, Netherlands, Switzerland, & U.K.

Engineering Controls (Ventilation):
Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously to avoid spills. Make certain vent caps are on securely. Avoid contact with internal components. Wear protective clothing, eye and face protection when filling, charging or handling batteries. Do not allow metallic materials to simultaneously contact both the positive and negative terminals of the batteries. Charge the batteries in areas with adequate ventilation. General dilution ventilation is acceptable.

Respiratory Protection (NIOSH/MSHA approved):
None required under normal conditions. When concentrations of sulfuric acid mist are known to exceed the PEL, use NIOSH or MSHA-approved respiratory protection.

Skin Protection:
If battery case is damaged, use rubber or plastic acid-resistant gloves with elbow-length gauntlet, acid-resistant apron, clothing and boots.

Eye Protection:
If battery case is damaged, use chemical goggles or face shield.

Other Protection:
In areas where sulfuric acid is handled in concentrations greater than 1%, emergency eyewash stations and showers should be provided, with unlimited water supply. Acid-resistant apron. Under severe exposure emergency conditions, wear acid-resistant clothing and boots. Face shield recommended when adding water or electrolyte to batteries, wash hands after handling.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Properties Listed Below are for Electrolyte:

Boiling Point:	203 - 240° F	**Specific Gravity (H2O = 1):**	1.215 to 1.350
Melting Point:	N/A	**Vapor Pressure (mm Hg):**	10
Solubility in Water:	100%	**Vapor Density (AIR = 1):**	Greater than 1
Evaporation Rate: (Butyl Acetate = 1)	Less than 1	**% Volatile by Weight:**	N/A
pH:	~1 to 2	**Flash Point:**	Below room temperature (as hydrogen gas)
LEL (Lower Explosive Limit)	4.1% (Hydrogen)	**UEL (Upper Explosive Limit)**	74.2% (Hydrogen)
Appearance and Odor:	Manufactured article; no apparent odor. Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.		

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X. STABILITY AND REACTIVITY

Stability: Stable X Unstable ___

This product is stable under normal conditions at ambient temperature

Conditions To Avoid: Prolonged overcharge; sources of ignition

Incompatibility: (Materials to avoid)

Sulfuric Acid: Contact with combustibles and organic materials may cause fire and explosion. Also reacts violently with strong reducing agents, metals, sulfur trioxide gas, strong oxidizers and water. Contact with metals may produce toxic sulfur dioxide fumes and may release flammable hydrogen gas.

Lead Compounds: Avoid contact with strong acids, bases, halides, halogenates, potassium nitrate, permanganate, peroxides, nascent hydrogen and reducing agents.

Arsenic compounds: strong oxidizers; bromine azide. NOTE: hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.

Hazardous Decomposition Products:

Sulfuric Acid: Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, and hydrogen sulfide.

Lead Compounds: High temperatures likely to produce toxic metal fume, vapor, or dust; contact with strong acid or base or presence of nascent hydrogen may generate highly toxic arsine gas.

Hazardous Polymerization:

Will not occur

XI. TOXICOLOGICAL INFORMATION

Routes of Entry:

Sulfuric Acid: Harmful by all routes of entry.

Lead Compounds: Hazardous exposure can occur only when product is heated, oxidized or otherwise processed or damaged to create dust, vapor or fume. The presence of nascent hydrogen may generate highly toxic arsine gas.

Inhalation:

Sulfuric Acid: Breathing of sulfuric acid vapors or mists may cause severe respiratory irritation.

Lead Compounds: Inhalation of lead dust or fumes may cause irritation of upper respiratory tract and lungs.

Ingestion:

Sulfuric Acid: May cause severe irritation of mouth, throat, esophagus and stomach.

Lead Compounds: Acute ingestion may cause abdominal pain, nausea, vomiting, diarrhea and severe cramping. This may lead rapidly to systemic toxicity and must be treated by a physician.

Skin Contact:

Sulfuric Acid: Severe irritation, burns and ulceration.

Lead Compounds: Not absorbed through the skin.

Arsenic Compounds: Contact may cause dermatitis and skin hyper pigmentation.

Eye Contact:

Sulfuric Acid: Severe irritation , burns, cornea damage, and blindness.

Lead Components: May cause eye irritation.

Effects of Overexposure - Acute:

Sulfuric Acid: Severe skin irritation, damage to cornea, upper respiratory irritation.

Lead Compounds: Symptoms of toxicity include headache, fatigue, abdominal pain, loss of appetite, muscular aches and weakness, sleep disturbances and irritability.

Effects of Overexposure - Chronic:

Sulfuric Acid: Possible erosion of tooth enamel, inflammation of nose, throat and bronchial tubes.

Lead Compounds: Anemia; neuropathy, particularly of the motor nerves, with wrist drop; kidney damage; reproductive changes in males and females. Repeated exposure to lead and lead compounds in the workplace may result in nervous system toxicity. Some toxicologists report abnormal conduction velocities in persons with blood lead levels of 50mcg/100 ml or higher. Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues.

Carcinogenicity:

Sulfuric Acid: The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Group 1 carcinogen, a substance that is carcinogenic to humans. This classification does not apply to liquid forms of sulfuric acid or sulfuric acid solutions contained within a battery. Inorganic acid mist (sulfuric acid mist) is not generated under normal use of this product. Misuse of the product, such as overcharging, may result in the generation of sulfuric acid mist.

Lead Compounds: Lead is listed as a Group 2A carcinogen, likely in animals at extreme doses. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1B. Proof of carcinogenicity in humans is lacking at present.

Arsenic: Arsenic is listed by IARC as a Group 1 - carcinogenic to humans. Per the guidance found in OSHA 29 CFR 1910.1200 Appendix F, this is approximately equivalent to GHS Category 1A.

Medical Conditions Generally Aggravated by Exposure:

Overexposure to sulfuric acid mist may cause lung damage and aggravate pulmonary conditions. Contact of sulfuric acid with skin may aggravate diseases such as eczema and contact dermatitis. Lead and its compounds can aggravate some forms of kidney, liver and neurologic diseases.

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Acute Toxicity:
Inhalation LD50:
Electrolyte: LC50 rat: 375 mg/m3; LC50: guinea pig: 510 mg/m3
Elemental Lead: Acute Toxicity Point Estimate = 4500 ppmV (based on lead bullion)
Elemental Arsenic: No data

Oral LD50:
Electrolyte: rat: 2140 mg/kg
Elemental Lead: Acute Toxicity Estimate (ATE) = 500 mg/kg body weight (based on lead bullion)
Elemental Arsenic: LD50 mouse: 145 mg/kg
Elemental Antimony: LD50 rat: 100 mg/kg

Additional Health Data:

All heavy metals, including the hazardous ingredients in this product, are taken into the body primarily by inhalation and ingestion.
Most inhalation problems can be avoided by adequate precautions such as ventilation and respiratory protection covered in Section 8.
Follow good personal hygiene to avoid inhalation and ingestion: wash hands, face, neck and arms thoroughly before eating, smoking or leaving the worksite. Keep contaminated clothing out of non-contaminated areas, or wear cover clothing when in such areas. Restrict the use and presence of food, tobacco and cosmetics to non-contaminated areas. Work clothes and work equipment used in contaminated areas must remain in designated areas and never taken home or laundered with personal non-contaminated clothing. This product is intended for industrial use only and should be isolated from children and their environment.

The 19th Amendment to EC Directive 67/548/EEC classified lead compounds, but not lead in metal form, as possibly toxic to reproduction.
Risk phrase 61: May cause harm to the unborn child, applies to lead compounds, especially soluble forms.

XII. ECOLOGICAL INFORMATION

Environmental Fate:

Lead is very persistent in soil and sediments. No data on environmental degradation. Mobility of metallic lead between ecological compartments is slow. Bioaccumulation of lead occurs in aquatic and terrestrial animals and plants but little bioaccumulation occurs through the food chain. Most studies include lead compounds and not elemental lead.

Environmental Toxicity: Aquatic Toxicity:

Sulfuric acid:	24-hr LC50, freshwater fish (Brachydanio rerio): 82 mg/L
	96 hr- LOEC, freshwater fish (Cyprinus carpio): 22 mg/L
Lead:	48 hr LC50 (modeled for aquatic invertebrates): <1 mg/L, based on lead bullion
Arsenic:	24 hr LC50, freshwater fish (Carrassius auratus) >5000 g/L.

Additional Information:

- No known effects on stratospheric ozone depletion.
- Volatile organic compounds: 0% (by Volume)
- Water Endangering Class (WGK): NA

XIII. DISPOSAL CONSIDERATIONS (UNITED STATES)

Spent batteries: Send to secondary lead smelter for recycling. Spent lead-acid batteries are not regulated as hazardous waste when the requirements of 40 CFR Section 266.80 are met. This should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Electrolyte:

Place neutralized slurry into sealed containers and handle as applicable with state and federal regulations. Large water-diluted spills, after neutralization and testing, should be managed in accordance with approved local, state and federal requirements. Consult state environmental agency and/or federal EPA.

Following local, State/Provincial, and Federal/National regulations applicable to end-of-life characteristics will be the responsibility of the end-user.

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XIV. TRANSPORT INFORMATION

U.S. DOT:

Excepted from the hazardous materials regulations (HMR) because the batteries meet the requirements of 49 CFR 173.159(f) and 49 CFR 173.159a of the U.S. Department of Transportation/s HMR. Battery and outer package must be marked " NONSPILLABLE" or "NONSPILLABLE BATTERY" Battery terminals must be protected against short circuits.

IATA Dangerous Goods Regulations DGR:

Excepted from the dangerous goods regulations because the batteries meet the requirements of Packing Instruction 872 and Special Provisions A67 of the International Air Transportation Association (IATA) Dangerous goods Regulations and International Civil Aviation Organization (ICAO) Technical Instructions. Battery Terminals must be protected against short circuits.

The words " NOT RESTRICTED" , SPECIAL PROVISION A67" must be provided on an airway bill when air waybill is issued.

IMDG:

Excepted from the dangerous goods regulations for transport by sea because the batteries meet the requirements of Special Provision 238 of the International Maritime Dangerous Goods(IMDG CODE). Battery terminals must be protected against short circuits.

XV. REGULATORY INFORMATION

UNITED STATES:

EPA SARA Title III:

Section 302 EPCRA Extremely Hazardous Substances (EHS):

Sulfuric acid is a listed "Extremely Hazardous Substance" under EPCRA, with a Threshold Planning Quantity (TPQ) of 1,000 lbs. EPCRA Section 302 notification is required if 1000 lbs or more of sulfuric acid is present at one site (40 CFR 370.10). For more information consult 40 CFR Part 355. The quantity of sulfuric acid will vary by battery type. Contact your EnerSys representative for additional information.

Section 304 CERCLA Hazardous Substances:

Reportable Quantity (RQ) for spilled 100% sulfuric acid under CERCLA (Superfund) and EPCRA (Emergency Planning and Community Right to Know Act) is 1,000 lbs. State and local reportable quantities for spilled sulfuric acid may vary.

Section 311/312 Hazard Categorization:

EPCRA Section 312 Tier Two reporting is required for non-automotive batteries if sulfuric acid is present in quantities of 500 lbs or more and/or if lead is present in quantities of 10,000 lbs or more. For more information consult 40 CFR 370.10 and 40 CFR 370.40.

Section 313 EPCRA Toxic Substances:

40 CFR section 372.38 (b) states: If a toxic chemical is present in an article at a covered facility, a person is not required to consider the quantity of the toxic chemical present in such article when determining whether an applicable threshold has been met under § 372.25, § 372.27, or § 372.28 or determining the amount of release to be reported under § 372.30. This exemption applies whether the person received the article from another person or the person produced the article. However, this exemption applies only to the quantity of the toxic chemical present in the article.

Supplier Notification:

This product contains toxic chemicals, which may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. If you are a manufacturing facility under SIC codes 20 through 39, the following information is provided to enable you to complete the required reports:

Toxic Chemical	CAS Number	Approximate % by Wt.
Lead	7439-92-1	60
Electrolyte (Sulfuric Acid (H2SO4/H2O))	7664-93-9	10 - 30
* Antimony	7440-36-0	2
* Arsenic	7440-38-2	0.2
Tin	7440-31-5	0.2

See 40 CRG Part 370 for more details.

If you distribute this product to other manufacturers in SIC Codes 20 through 39, this information must be provided with the first shipment of each calendar year.

The Section 313 supplier notification requirement does not apply to batteries, which are "consumer products".

* Not present in all battery types. Contact your EnerSys representative for additional information.

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TSCA:

TSCA Section 8b – Inventory Status: All chemicals comprising this product are either exempt or listed on the TSCA Inventory.

TSCA Section 12b (40 CFR Part 707.60(b)) No notice of export will be required for articles, except PCB articles, unless the Agency so requires in the context of individual section 5, 6, or 7 actions.

TSCA Section 13 (40 CFR Part 707.20): No import certification required (EPA 305-B-99-001, June 1999, Introduction to the Chemical Import Requirements of the Toxic Substances Control Act, Section IV.A).

RCRA:

Spent Lead Acid Batteries are subject to streamlined handling requirements when managed in compliance with 40 CFR section 266.80 or 40 CFR part 273. Waste sulfuric acid is a characteristic hazardous waste; EPA hazardous waste number D002 (corrosivity) and D008 (lead).

CAA:

EnerSys supports preventative actions concerning ozone depletion in the atmosphere due to emissions of CFC's and other ozone depleting chemicals (ODC's), defined by the USEPA as Class I substances. Pursuant to Section 611of the Clean Air Act Amendments (CAAA) of 1990, finalized on January 19, 1993, EnerSys established a policy to eliminate the use of Class I ODC's prior to the May 15, 1993 deadline.

STATE REGULATIONS (US):

Proposition 65:

Warning: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Batteries also contain other chemicals known to the State of California to cause cancer. Wash hands after handling.

INTERNATIONAL REGULATIONS:

Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2).

Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.

Article 33 (1) of the REACH regulation (Reg. EC 1907/2006), which entered into force on 1st of June 2007 in the European Union, requires that manufacturers communicate the presence of Substances of Very High Concern (SVHC) in articles (lead batteries) in concentration greater than 0.1% by weight.

Effective the 27th of June 2018, the European Chemical Agency (ECHA) updated the Candidate List with the inclusion of Lead Metal (CAS No.: 7439-92-1). This inclusion of Lead as an SVHC applies to all of EnerSys Lead based battery products regardless of the design (Flooded, Gel, AGM, etc…).

XVI. OTHER INFORMATION

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NFPA Hazard Rating for Sulfuric Acid:

Flammability (Red) = 0	Reactivity (Yellow) = 2
Health (Blue) = 3	Sulfuric acid is water-reactive if concentrated.

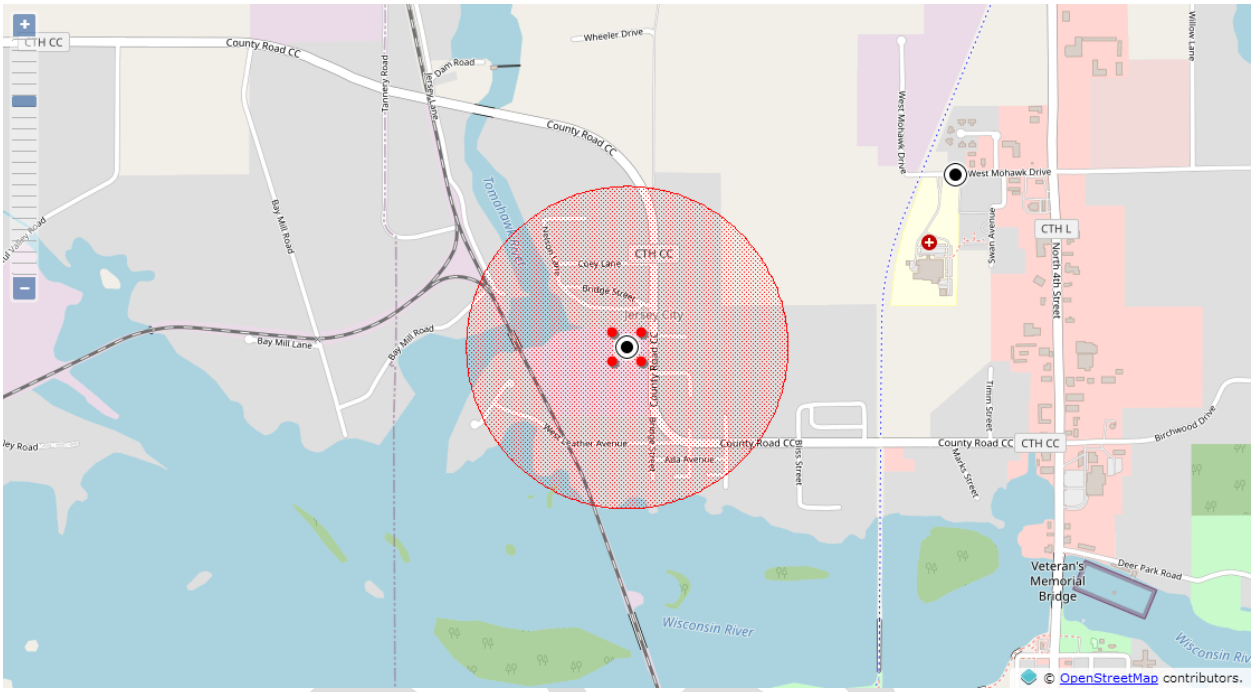
DISCLAIMER

This Safety Data Sheet is created by the manufacturer to comply with the requirements of 29 CFR 1910.1200. To the extent allowed by law, the manufacturer hereby expressly disclaims any liability to any third party, including users of this product, including, but not limited to, consequential or other damages, arising out of the use of, or reliance on, this Safety Data Sheet.

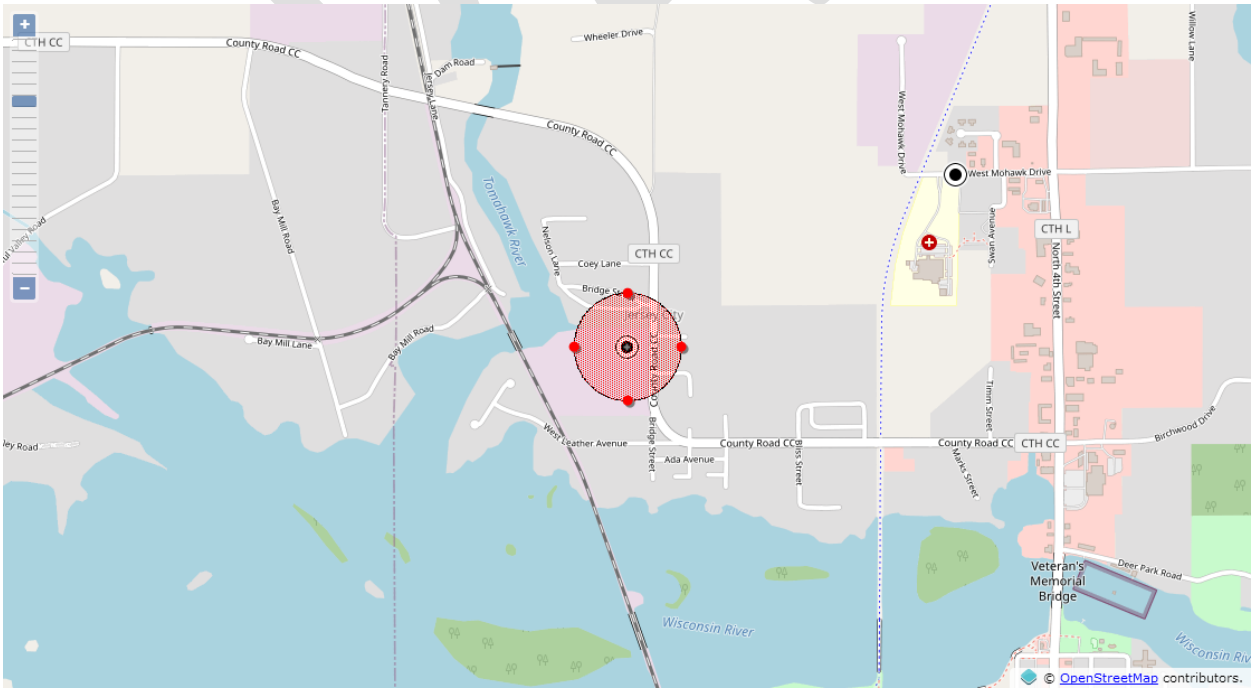
Attachment F

Vulnerability Zone Maps for Nitric Acid

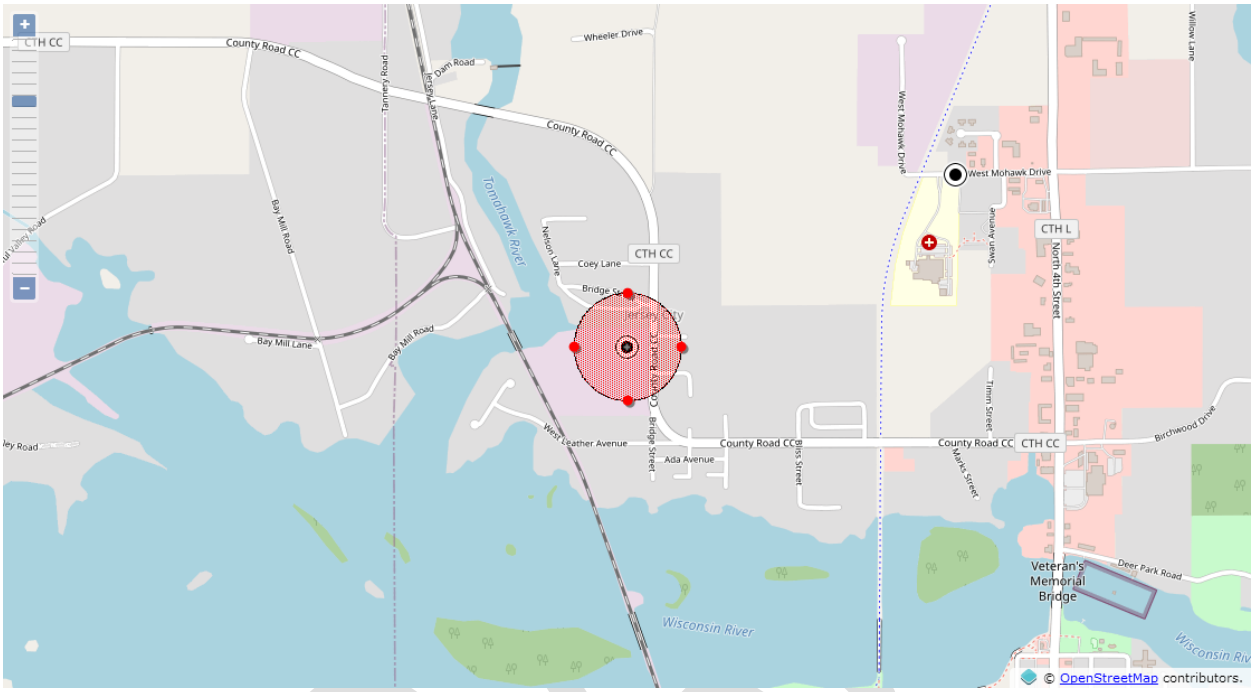
A. Worst Case Scenario



B. Re-evaluation Scenario



C. Worst Case Scenario



D. Re-evaluation Scenario