



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

US EPA RECORDS CENTER REGION 5



537774

FEB 12 2020

REPLY TO THE ATTENTION OF:

**MEMORANDUM**

**SUBJECT:** ACTION MEMORANDUM - Request for Approval and Funding for Time-Critical Removal Actions at the Battery and Electronics Recycling Inc. Site, Mount Horeb, Dane County, Wisconsin (Site ID #C5QQ)

**FROM:** Ramon Mendoza, On-Scene Coordinator  
Emergency Response Branch 2

**THRU:** Samuel Borries, Chief *Samuel Borries*  
Emergency Response Branch 2

**TO:** Douglas Ballotti, Director  
Superfund & Emergency Management Division

**I. PURPOSE**

The purpose of the Action Memorandum (AM) is to document your approval to expend up to \$539,922 to conduct time-critical removal actions at the Battery and Electronics Recycling Inc. Superfund Site (the Site) in Mount Horeb, Dane County, Wisconsin. The proposed time-critical removal action herein will mitigate threats to public health, welfare, and the environment posed by the presence of uncontrolled hazardous substances at the Site, a former battery recycling, storage and transfer facility. The presence of hazardous substances existing at the Site has been documented, including toxic, corrosive, ignitable, and reactive waste streams.

The response actions proposed herein are necessary to mitigate threats to public health, welfare, and the environment posed by the presence of uncontrolled hazardous substances at the Site. The U.S. Environmental Protection Agency (EPA) documented the presence of hazardous substances at the Site, as defined by Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601(14).

The time-critical removal actions proposed herein are to prepare site plans, including a Work Plan, site-specific Health and Safety Plan (HASP), Emergency Contingency Plan; establish site security and an incident command post; inventory and perform hazard characterization on substances contained in drums and other containers; perform sampling and analysis; and stabilize/contain, transport and dispose off-site any hazardous substances, pollutants and contaminants at a CERCLA-approved disposal facility, in

accordance with EPA's Off-Site Rule (40 Code of Federal Regulations [C.F.R.] § 300.440).

Response actions will be conducted in accordance with Section 104(a)(1) of CERCLA, 42 U.S. Code (USC) § 9604(a)(1) and Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR § 300.415, to abate or eliminate the immediate threat posed to public health and/or the environment by the presence of the hazardous substances at the Site. The uncontrolled conditions of the hazardous substances present at the Site and the potential threats they present require that this action be classified as a time-critical removal action. EPA's actions will require approximately 30 working days to complete.

There are no nationally significant, or precedent-setting issues associated with the Site.

## **II. SITE CONDITIONS AND BACKGROUND**

CERCLIS ID:

Site Name: Battery and Electronics Recycling Inc.

Site ID: C5QQ

State ID:

RCRA ID:

Category: Time-Critical Removal Action

### **A. Site Description**

#### **1. Removal Site evaluation**

According to Wisconsin Department of Natural Resources (WDNR) reports, Battery and Electronics Recycling Inc. (BERI) started operating at the Site as a universal waste handler at a rented warehouse around October or November 2016. The owner and operator of the business stopped paying rent after being informed that his lease would not be renewed. Consequently, the warehouse owners filed an eviction notice against the owner/operator of BERI. BERI was evicted in December 2017 (source Admin Record #9, WNDNR Case Activity Report March 8, 2018).

During an inspection by WDNR inspectors on or about March 8, 2018, WDNR observed hundreds of thousands of batteries in boxes, buckets, crates, drums and on pallets. The most numerous battery types included lithium ion, nickel cadmium, and lead acid. WDNR reported an estimated 100,000 lbs. of abandoned batteries at the Site. The batteries had visible corrosion, and several containers were leaking unknown material onto the floor. The abandoned batteries are currently in Rooms 1, 2 and 3 as shown below (Figure 2, Attachment V). In addition, the Site contains numerous boxes and drums containing computer screens (with cathode ray tubes), circuit boards, and boxes of fluorescent light bulbs.





Rooms 1 and 3 are approximately 100 feet (ft.) x 50 ft. and Room 2 is about 50 ft. x 50 ft. The building roof is of wood construction and there is no sprinkler system (i.e. no fire protection).

EPA conducted a removal site evaluation (with START contractors from Tetra Tech) on December 3 and 4, 2019. Samples of residual solids from visible spills were collected and inventory was conducted to supplement the WDNR reports (see Figures 2 and 3). EPA's estimate of the type and quantity of batteries on Site are as follows:

Battery Type of Significant Concern	Number of Cubic Boxes, crates/pallets/Drums*	Estimated Weight (pounds)
Nickel Cadmium	32	46,377 lbs
Lithium Ion	18	26,087 lbs
Lead Acid	1.5	2,174 lbs

EPA determined the metals and other hazardous substances present in the battery types based on standard Material Safety Data Sheets (MSDS) available on the web. Battery contents are as follows (see Attachment VI):

- Standard commercial nickel cadmium batteries contain the following hazardous substances, by weight: cadmium (17%), nickel (25%) and potassium hydroxide (6.2 %). Based on the above table, the estimated amount of hazardous substances in nickel cadmium batteries at the Site is approximately: 7,884 lbs. of cadmium, 11,594 lbs. of nickel and 2,783 lbs. of potassium hydroxide.
- Standard commercial lithium ion batteries contain the following hazardous substances, by weight: copper (15%), aluminum (10%), and lithium cobalt oxide (35%). Based on the above table, the estimated amount of hazardous substances in lithium ion batteries at the Site is approximately: 3,913 lbs. of copper, 2,609 lbs. of aluminum and 9,130 lbs. of lithium cobalt oxide (cobalt).
- Standard commercial lead acid batteries contain lead (70%) and sulfuric acid (about 30%). Based on the above table, the estimated amount of hazardous substances in

lead acid batteries at the Site is approximately: 1,522.6 lbs. of lead and about 957 lbs of sulfuric acid.

About 100 cathode ray tubes from computer monitors were also found. Each monitor contains about 2 lbs. of lead. EPA therefore estimates that these cathode ray tubes collectively contain about 200 lbs of lead. In addition, the Site contains about 7 pallets of e-waste (circuit boards) which contain an unknown amount of copper.

The following table summarizes EPA's estimate of hazardous substances present at the Site:

Hazardous Substances	Estimated Volume (by pound) of Batteries Present at the Site
Lead	1,522 lbs. (+200 lbs from monitors) = 1,722 lbs.
Cadmium	7,884 lbs.
Nickel	11,594 lbs.
Copper	3,913 lbs.
Aluminum	2,609 lbs.
Cobalt	9,130 lbs.
Potassium Hydroxide	2,783 lbs.
Sulfuric Acid	957 lbs.

#### **Threat of fire and release of hazardous substances into the environment**

Lithium-ion batteries are a safety and fire hazard because they contain a flammable electrolyte and may become pressurized when damaged causing them to rupture. Rupture of the battery may also cause short-circuiting. Short-circuiting a battery will cause the cell to overheat and possibly to catch fire and/or explode. Adjacent cells may then overheat and fail, possibly causing the entire battery to ignite or rupture.

During the site assessment, EPA and its contractors observed thousands of commercial size lithium-ion batteries piled in boxes indiscriminately, with no cover on their exposed terminals. EPA found two cubic boxes filled with lithium-ion batteries which appeared to have ruptured and released their electrolytes. The cubic yard boxes are piled up in an unstable manner to the extent that the lithium-ion batteries inside may get crushed and or short-circuited. In addition, lithium batteries are next to boxes of NiCad and other types of batteries which also contain hazardous substances.

The threat of a spontaneous fire or explosion from an accidental short-circuit or rupture of a lithium-ion battery is high and will increase as the ambient temperatures increase, especially during the summer. Such a fire can spread to the rest of the batteries and materials at the Site, including the NiCad, lithium-ion and lead acid batteries and electronic waste. A major fire will release thousands of pounds of the following materials into the surrounding residential area through fugitive air emissions: lead, cadmium, copper, cobalt, nickel, aluminum, potassium hydroxide, and sulfuric acid. The metals may contaminate residential yards through aerial deposition. Once their yards are contaminated, residents may experience long-term exposure through dermal contact, ingestion, and inhalation of contaminated soil or dust.



## **2. Physical location**

The Site is at 325 W. Front Street, Mount Horeb, Wisconsin 53572. It lies in an urban residential and commercial area, about three blocks from the downtown area of Mount Horeb. There are residential homes adjacent to the Site property, between 25 and 40 feet away to the north, west, and south of the Site. There are also sensitive populations, such as a children's Montessori School less than 0.4 miles south of the Site.

The Site is a warehouse which contains hundreds of thousands of batteries (lithium ion, nickel cadmium, alkaline and lead acid) in containers stacked up in three large rooms (1, 2 & 3, see attached Figure 1). The geographical coordinates for the Site are 43.00760210877734 North Latitude and -89.74334970330084 West Longitude.

EPA conducted an Environmental Justice (EJ) analysis for the Site (see Attachment I). Screening of the surrounding area used Region 5's EJ Screen Tool. Region 5 has reviewed environmental and demographic data for the area surrounding the Site and determined there is a low potential for EJ concerns at the Site.

## **3. Site characteristics**

The Site comprises three large rooms in a warehouse currently operated by Don's Dozing LLC (Mr. Duane Steinhauer, owner). Other businesses rent other rooms at the warehouse at the same address. EPA currently has no evidence that these other businesses contributed hazardous substances to the Site. The rooms at the Site are not heated and have no sprinkler or other fire protection systems.

BERI operated in three large rooms (1, 2 & 3) of the Site warehouse, as indicated in the attached Figure 1.

## **4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant**

A release or threat of release of hazardous substances, pollutants, or contaminants is present at the Site. EPA confirmed the presence of hazardous substances as defined by Section 101(14) of CERCLA including lead, cadmium, nickel, copper, aluminum, cobalt, potassium hydroxide and sulfuric acid. These substances are present in the hundreds of thousands of batteries at the Site. In addition, lead is present in the hundreds of cathode ray tubes and copper in the thousands of circuit boards at the Site.

The on-Site batteries including the lithium-ion batteries are in containers in deteriorated condition. Some containers are showing signs of leaking. Lithium-ion batteries were observed broken open and with spilled contents. The batteries are all stacked in unstable positions inside deteriorating boxes on pallets in close proximity to one another.

Based on the following, there is an increased likelihood of a fire as the ambient air temperature rises during the summer:

- the deteriorated condition of the thousands of lithium-ion batteries on-Site
- these batteries' documented characteristics as a fire hazard
- the unstable and deteriorated storage conditions
- the lack of fire protection at the Site

A fire will result in the release of hazardous substances into the air. These fugitive air emissions can migrate to surrounding residential properties through aerial deposition and contaminate surface soil. Residents may be exposed to these hazardous substances from inhalation during the fire and over a lifetime through dermal contact, ingestion, and inhalation of residential soil. The surrounding residential and Site soils may also be contaminated by run-off from fire-fighting water or foam.

**5. National Priorities List (NPL) status**

The Site is not on the NPL and is not expected to be scored for the NPL.

**6. Maps, pictures and other graphic representations**

This AM includes photographs (Attachment V) and maps (Figure 1).

**B. Other Actions to Date**

**1. Previous actions**

EPA's OSC and contractors conducted a removal site evaluation from December 3 through 4, 2019. Among other activities, they inventoried the batteries and electronic waste abandoned at the Site to supplement the State's 2018 inspection (see Figure 2 and Attachment V).

**2. Current actions**

There are no current response actions being conducted at the Site.

**C. State and Local Authorities' Roles**

**1. State and local actions to date**

WDNR inspectors conducted site visits and inspections of the Site starting on March 8, 2018 and discovered hundreds of thousands of batteries that have apparently been abandoned, in deteriorated condition, with some leaking materials into the environment. On June 19, 2018, the State Department of Justice issued a Summons and Complaint against the facility, Battery Electronics and Recycling Inc. and its owner/operator for violations of the States Universal Waste (UW) Regulations including failure to properly label UW, accumulation of UW beyond one year, failure to properly demonstrate length of time UW has been accumulated, failure to manage batteries to prevent the release of UW into the environment, and operation of a solid waste facility without an operating license.



The enforcement action is ongoing. Since then the owner/operator declared bankruptcy and abandoned operations at the Site.

WDNR inspector followed up with more Site inspections on February 27, 2019 and September 10, 2019 to conduct more detailed inventory of the batteries and cost analysis for the proper disposal of the batteries. An analysis by WDNR indicates the owner and operators of the warehouse and BERI do not appear to have the ability to pay for the cleanup of the Batteries.

## **2. Potential for continued State/local response**

On October 21, 2019, WDNR sent an email request for assistance to the EPA Emergency Removal Branch. WDNR indicated that Site conditions are beyond the State's means to remediate.

### **III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES**

Site conditions present a threat to the public health or welfare, and the environment, and meet the criteria for a time-critical removal action as provided for in 40 C.F.R. § 300.415(b)(1), based on factors in § 300.415(b)(2) of the NCP. These factors include, but are not limited to, the following:

#### **§ 300.415(b)(2)(i) - Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants**

Hazardous substances, pollutants, and contaminants are present at the Site in hundreds of thousands of batteries in deteriorating condition with some leaking, stacked in deteriorating containers in unstable positions. Battery types include commercial size NiCad, lithium-ion and lead acid car batteries. Hazardous substances are also present in hundreds of cathode ray tubes and thousands of electronic computer circuit boards. Hazardous substances present include lead, cadmium, nickel, copper, aluminum, cobalt, potassium hydroxide & sulfuric acid.

A potential exposure to the nearby residents exists. In the event of a fire, thousands of pounds of hazardous substances would be released through fugitive air emissions which will contaminate residential soil through aerial deposition. Exposure to hazardous substances in contaminated soils may occur through ingestion, dermal, and inhalation. Sensitive populations may suffer exposure, including children only 0.4 miles away to the south at a school. Hazardous substances may also be released from firefighting runoff. A more detailed discussion of each hazardous substance follows immediately below including the results of Agency for Toxic Substances and Disease Registry (ATSDR) studies and assessments.

**Lead:** lead is present in the lead acid batteries and cathode ray tube monitors at the Site. Lead can affect almost every organ and system in the body. The main target for lead toxicity is the

nervous system, both in adults and children. Long-term exposure in adults can result in decreased performance in some tests that measure functions of the nervous system. It may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people and can cause anemia.

Exposure to high lead levels can severely damage the brain and kidneys of adults or children and ultimately cause death. In pregnant women, high levels of exposure to lead may cause miscarriage. High level exposure in men can damage the organs responsible for sperm production. The Department of Health and Human Services (DHHS) has determined that lead and lead compounds are reasonably anticipated to be human carcinogens and the EPA has determined that lead is a probable human carcinogen (ATSDR, CAS # 7439-92-1, August 2007).

**Cadmium:** cadmium is present in the nickel cadmium batteries at the Site. Cadmium is a natural element in the earth's crust. It is usually found as a mineral, combined with other elements such as oxygen (cadmium oxide), chlorine (cadmium chloride), or sulfur (cadmium sulfate, cadmium sulfide). Breathing high levels of cadmium can severely damage the lungs. Eating food or drinking water with very high cadmium levels severely irritates the stomach, leading to vomiting and diarrhea.

Long-term exposure to lower levels of cadmium in air, food, or water leads to a buildup of cadmium in the kidneys and possible kidney disease. Other long-term effects are lung damage and fragile bones. The health effects in children are expected to be similar to effects seen in adults: kidney, lung, and bone damage depending on the route of exposure. The DHHS has determined that cadmium and cadmium compounds are known human carcinogens.

**Copper:** copper is present in the lithium ion batteries and computer circuit boards at the Site. Copper is a metal that occurs naturally throughout the environment, in rocks, soil, water, and air. Copper is an essential element in plants and animals (including humans), which means it is necessary for us to live. Therefore, plants and animals must absorb some copper from eating, drinking, and breathing. Copper is used to make many kinds of products like wire, plumbing pipes, batteries, computer circuit boards, and sheet metal.

Copper does not break down in the environment. Copper compounds however can break down and release free copper into the air, water, and foods. High levels of copper can be harmful. Breathing high levels of copper can cause irritation of your nose and throat. Ingesting high levels of copper can cause nausea, vomiting, and diarrhea. Very-high doses of copper can cause damage to your liver and kidneys and can even cause death.

**Cobalt:** cobalt is present in the lithium ion batteries at the Site. Cobalt is a naturally occurring element found in rocks, soil, water, plants, and animals. Cobalt compounds are used to make lithium ion batteries; to color glass, ceramics and paints; and as a drier for porcelain enamel and paints.

The general population is exposed to low levels of cobalt in air, water, and food. Cobalt has both beneficial and harmful effects on health. At low levels, it is part of vitamin B12, which is



essential for good health. At high levels, it may harm the lungs and heart. This chemical has been found in at least 426 of 1,636 NPL sites identified by EPA.

**Nickel:** nickel is found in the nickel cadmium batteries at the Site. Nickel is a naturally occurring element. Pure nickel is a hard, silvery-white metal used to make stainless steel and other metal alloys.

Skin effects are the most common effects of nickel exposure in people who are sensitive to nickel. Workers who breathe very large amounts of nickel compounds have developed chronic bronchitis and lung and nasal sinus cancers. Nickel has been found in at least 882 out of 1,636 NPL sites identified by EPA.

**Aluminum:** aluminum is present in the lithium ion batteries at the Site. Everyone is exposed to low levels of aluminum from food, air, water, and soil. Exposure to high levels of aluminum may result in respiratory and neurological problems. Aluminum (in compounds combined with other elements) has been found in at least 596 out of 1,636 NPL sites identified by EPA.

**Potassium Hydroxide:** potassium hydroxide is present as a liquid electrolyte in the nickel cadmium batteries at the Site. According to the material safety data sheet, potassium hydroxide is a strong alkaline corrosive that may cause severe burns to skin tissue if spilled. In addition, eye contact with potassium hydroxide may cause permanent blindness. Ingestion may cause damage to the throat area. Finally, inhalation of mists will result in irritation to the nasal mucus membranes, and respiratory tract tissues.

**Sulfuric acid:** Sulfuric acid is present as a liquid electrolyte in the lead acid batteries at the Site. Contact with sulfuric acid will burn skin. Breathing sulfuric acid can result in tooth erosion and respiratory tract irritation. Drinking sulfuric acid will burn the mouth, throat and stomach and can result in death.

Sulfuric acid in the eyes will cause the eyes to water and burn. People who have breathed large quantities of sulfuric acid at work have shown an increase in cancers of the larynx. The International Agency for Research on Cancer (IARC) has determined that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to humans.

**§ 300.415(b)(2)(iii) - Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release**

EPA and WDNR personnel and contractors conducted inspections of the Site. The inspections documented the following conditions at the Site:

- NiCad Batteries are in deteriorated condition with signs of corrosion. Pallets are stored next to lithium ion batteries. Some of these pallets are piled up in unstable positions.

- Lithium ion batteries have broken casings with their materials released (in cubic yard boxes).
- Boxes of batteries (especially the NiCad and lithium ion batteries) are showing signs of breakage so that electrolytes (suspected to be potassium hydroxide) have been spilled onto the floor.
- Cubic boxes of batteries have tilted over onto other boxes. A major collapse may crush and release hazardous substances from batteries inside.

**§ 300.415(b)(2)(vi) - Threat of fire or explosion**

Lithium-ion batteries have been documented to be a safety and fire hazard because they contain a flammable electrolyte and may become pressurized when they are damaged causing them to rupture. The battery rupturing may also cause short-circuiting. Short-circuiting a battery will cause the cell to overheat and possibly to catch fire and/or explode. Adjacent cells may then overheat and fail, possibly causing the entire battery to ignite or rupture.

The Site has no fire suppression system. Even a small fire resulting from combustion of a few lithium ion batteries can quickly spread to all the batteries at the Site.

During the Site visits, EPA observed thousands of commercial size lithium-ion batteries that are piled up in boxes indiscriminately with no cover on their exposed terminals. EPA found two cubic boxes filled with lithium-ion batteries which appeared to have ruptured and released their electrolytes. The cubic yard boxes are piled up in an unstable manner, to the extent that the lithium-ion batteries may get crushed and/or short-circuit. In addition, lithium ion batteries are located next to boxes of NiCad and other types of batteries which contain hazardous substances.

The threat of a spontaneous fire or explosion from an accidental short-circuit or rupture of a lithium-ion battery is high and will increase as ambient temperatures rise, especially during the summer. Such a fire can spread to the rest of the batteries and materials at the Site, including the NiCad, lithium-ion and lead acid batteries, as well as electronic waste. A major fire will release thousands of pounds of the following materials into the surrounding residential area through fugitive air emissions: lead, cadmium, copper, cobalt, nickel, aluminum, potassium hydroxide, and sulfuric acid. The metals may contaminate residential yards through aerial deposition. Once residential properties are contaminated, residents may experience long-term exposure to released hazardous substances through dermal contact, ingestion, and inhalation of contaminated soil or dust.

**§ 300.415(b)(2)(vii) - The availability of other appropriate federal or State response mechanisms to respond to the release**

On October 21, 2019, WDNR requested EPA assistance at the Site. WDNR had ordered the owner and operators to clean up the Site, but then determined that none of the parties



have the ability to pay. WDNR indicated it does not have the financial resources to immediately mitigate the Site's threat of release.

#### **IV. ENDANGERMENT DETERMINATION**

Given Site conditions, the nature of the known and suspected hazardous substances on-Site, and the potential exposure pathways described in Sections II and III above, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response actions selected in this Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

#### **V. PROPOSED ACTIONS**

##### **A. Proposed Actions**

##### **1. Proposed action description**

The response actions described in this memorandum directly address the actual or threatened release of hazardous substances, pollutants, or contaminants at the Site which may pose an imminent and substantial endangerment to public health or welfare or to the environment. The proposed action involves the consolidation and packaging of materials for transportation and off-site disposal or recycling.

The OSC proposes to undertake the following actions to mitigate threats posed by the presence of hazardous substances at the Site:

1. Develop and implement a site-specific HASP, including an Air Monitoring Plan, and a Site Emergency Contingency Plan.
2. Develop and implement a Site Security Plan.
3. Develop and implement a Workplan to address the scope of work.
4. Inventory and perform hazard characterization on all hazardous substances, including abandoned batteries.
5. Perform sampling and analysis.
6. Conduct assessments of the batteries, cathode ray tubes, computer boards and other material to determine the cost-benefit of recycling versus disposal. Conduct recycling to the extent feasible.
7. Consolidate and package hazardous substances, pollutants and contaminants for transportation and off-site disposal in accordance with the EPA Off-Site Rule, 40 C.F.R. § 300.440.

8. Take any other response actions to address any release or threatened release of a hazardous substance, pollutant or contaminant that the EPA OSC determines may pose an imminent and substantial endangerment to the public health or the environment.

The OSC will conduct removal actions in a manner not inconsistent with the NCP. The OSC will initiate planning for provision of post-removal site control consistent with the provisions of NCP § 300.415(l).

The threats posed by uncontrolled substances considered hazardous meet the criteria listed in NCP § 300.415(b)(2), and the response actions proposed herein are consistent with any long-term remedial actions which may be required. Elimination of hazardous substances, pollutants and contaminants that pose a substantial threat of release is expected to minimize substantial requirements for post-removal Site controls.

#### Off-Site Rule

All hazardous substances, pollutants, or contaminants removed off-site pursuant to this removal action for treatment, storage, and disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by EPA, with the EPA Off-Site Rule, 40 C.F.R. § 300.440.

#### **2. Contribution to remedial performance**

The proposed action should not impede future remedial performance.

#### **3. Engineering Evaluation/Cost Analysis (EE/CA)**

Not Applicable.

#### **4. Applicable or relevant and appropriate requirements (ARARs)**

All applicable, relevant, and appropriate requirements (ARARs) of Federal and State laws will be complied with to the extent practicable considering the exigencies of the circumstances. On December 30, 2019, EPA sent a letter to Jason Lowery of the WDNR, asking for Wisconsin ARARs which may apply. WDNR responded on January 2, 2020. (See AR).

#### **5. Project Schedule**

The time-critical removal actions will require approximately 30 working days to complete.

#### **B. Removal Project Ceiling Estimate – Extramural Costs:**

The Detailed Cleanup Contractor Cost Estimate is presented in Attachment III and the Independent Government Cost Estimate is presented in Attachment IV. Estimated project costs are summarized below:



<u>Regional Removal Allowance Costs:</u>	
Total Cleanup Contractor Costs (Includes a 20% contingency)	<b>\$389,045</b>
<u>Other Extramural Costs Not Funded from the Regional Allowance</u>	
Total START, including multiplier costs	<b>\$60,890</b>
Subtotal, Extramural Costs	<b>\$449,935</b>
Extramural Costs Contingency (20% of Subtotal, Extramural Costs)	<b>\$89,987</b>
<b>TOTAL REMOVAL ACTION PROJECT CEILING</b>	<b>\$539,922</b>

The response actions described in this memorandum directly address the actual or threatened release of hazardous substances, pollutants, or contaminants at the site which may pose an imminent and substantial endangerment to public health or welfare or to the environment. These response actions do not impose a burden on affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

**VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

Given Site conditions, the nature of the hazardous substances and pollutants or contaminants documented on-Site, and the potential exposure pathways to nearby populations described in Section II, III, and IV, above, actual or threatened releases of hazardous substances and pollutants or contaminants from this Site, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment, increasing the potential that hazardous substances will be released and thereby threatening the adjacent population and the environment.

**VII. OUTSTANDING POLICY ISSUES**

None.

**VIII. ENFORCEMENT**

For administrative purposes, information concerning the enforcement strategy for this Site is contained in the Confidential Enforcement Addendum. Estimated EPA intramural costs are \$66,960.

The total EPA costs of this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be \$993,891<sup>1</sup>.

$$(\$539,922 + \$66,960) + (63.77\% \times \$606,882) = \$993,891$$

## IX. RECOMMENDATION

This decision document represents the selected removal action for the Battery and Electronics Recycling Inc. Site, in Mount Horeb, Dane County, Wisconsin, developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based upon the Administrative Record for the Site.

Conditions at the Site meet the NCP § 300.415(b)(2) criteria for a time-critical removal action. The total project ceiling, if approved, will be \$539,922, of which, as much as \$479,032 may be used from the Regional removal allowance. I recommend your approval of the proposed removal action. You may indicate your decision by signing below.

APPROVE \_\_\_\_\_

  
Douglas Ballotti, Director

Superfund & Emergency Management Division

DATE: \_\_\_\_\_

2/10/2020

DISAPPROVE \_\_\_\_\_

Douglas Ballotti, Director

Superfund & Emergency Management Division

DATE: \_\_\_\_\_

Enforcement Addendum

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<sup>1</sup> Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States right to cost recovery.



Figures:

- 1 – Site Location Map
- 2 – Site Layout and Battery Inventory
- 3 – Preliminary Lab Results EPA

Attachments:

- I. Environmental Justice Analysis
- II. Administrative Record Index
- III. Detailed Cleanup Contractor Estimate
- IV. Independent Government Cost Estimate
- V. WDNR Case Activity Report and Photo Log
- VI. MSDS Sheets for Batteries

cc: S. Ridenour, U.S. EPA, 5104A, (Steve Ridenour/DC/USEPA/US)  
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ERB Delivery Order File, SE-5J, (Sam Chummar/R5/USEPA/US), (Steve  
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N. Hicks, C-14J, (Nola Hicks/R5/USEPA/US)



**ENFORCEMENT ADDENDUM**  
**Enforcement Sensitive - Do Not Release - Not Subject to Discovery - FOIA Exempt**

Battery and Electronics Recycling, Inc. (C5QQ)  
Mt. Horeb, Dane County, Wisconsin  
February 4, 2020

**A. PRP Search Tasks**

1. EPA has conducted a preliminary Potentially Responsible Party (PRP) search to identify Site owners and operators and evaluate the status of corporate PRPs. The Regional Enforcement Team held a kick-off meeting on November 5, 2019 to discuss the enforcement actions to be taken at the Battery and Electronic Recycling, Inc. (BERI) Site (the Site) in Mt. Horeb, Wisconsin. The Site consists of a portion of a warehouse property containing abandoned batteries and e-waste.

BERI operated at multiple locations including Deerfield, Wisconsin; Aurora, Illinois; and Sparks, Nevada. When BERI ceased operation at 610 Wedvick Road, Deerfield, Wisconsin, it leased and moved all business operations and inventory to the Site. BERI operated at the Site until it was evicted in December 2017.

During an inspection by Wisconsin Department of Natural Resources (WDNR) inspectors on March 8, 2018, WDNR observed hundreds of thousands of batteries in boxes, buckets, crates, drums and on pallets. The most numerous battery types were lithium ion, nickel cadmium, and lead acid. On June 19, 2018, the Wisconsin Department of Justice (WDOJ) issued Summonses and Complaints against BERI and its owner/operator for violations of the State's Universal Waste (UW) regulations. The BERI owner/operator declared bankruptcy and abandoned the Site.

WDNR followed up with more Site inspections on February 27, 2019 and September 10, 2019, to conduct a more detailed inventory of the batteries and a cost analysis for their proper disposal. The analysis by WDNR and WDOJ indicates the owner and operators of the warehouse and BERI do not appear to have the ability to pay for the cleanup of the batteries.

a. *Site Location and Property Description*

The Site is at 325 West Front Street, Mount Horeb, Dane County, Wisconsin 53572. The Site includes three rooms at the west end of an industrial warehouse. The other portions of the warehouse are currently occupied by tenants. The Site is bordered by residential property on the north and west, commercial property on the east, and Military Ridge State Trail on the south.

The Site covers Parcel Number 157/0606-114-8260-9. A Warranty Deed for this parcel was recorded on October 4, 1993 at Volume 24735 Page 1. A portion of the southern end of the warehouse may overlap with Parcel Number 157/0606-114-8275-2. A Quit Claim Deed for this parcel was recorded on January 17, 1995 at Volume 29214 Page 71.

BERI operated at the Site from approximately October 2016 until November 2017. BERI used the Site to store batteries and e-waste, which are now abandoned at the Site. WDNR observed lead acid, nickle-cadmium, lithium, and alkaline batteries on-Site.

b. *Current and Past Site Ownership Identification/Notification*

Don's Dozing LLC is the current owner of the Parcel Numbers 157/0606-114-8260-9 and 157/0606-114-8275-2. Don's Dozing LLC was conveyed Parcel # 157/0606-114-8260-9 through a Warranty Deed, recorded on October 4, 1993 as document number 2523274. Don's Dozing LLC was conveyed Parcel # 157/0606-114-8275-2 through a Quit Claim Deed, recorded on January 17, 1995 as document number 2656015.

Don's Dozing LLC is a limited liability company with a registration date of July 20, 1999. As of July 1, 2019, Don's Dozing LLC is listed as delinquent with the Wisconsin Department of Financial Institutions (WDFI). This status means that the corporation has not filed its annual report with WDFI.

Don's Dozing LLC's principal office is at 912 Erin Street, Madison, Wisconsin 53715 (Owner-Duane and Rosann Steinhauer). Its registered agent is Donald Steinhauer at 103 North Fourth Street, Mount Horeb, Wisconsin 53572. The company is owned by brothers Don and Duane Steinhauer.

EPA sent Don's Dozing LLC a combination general notice and information request letter on December 12, 2019. United States Parcel Service (USPS) did not deliver the document. EPA sent the document to Duane Steinhauer via email on December 30, 2019.

c. *Site Operation Identification/Notification*

Battery & Electronics Recycling Inc. (BERI) or Michael Cerett operated at the Site from October 2016 until November 2017, when BERI was evicted from the property. Mr. Cerett was BERI's owner. BERI was a domestic business corporation in Wisconsin. It registered with WDFI on October 19, 2012.

Legacy Tax & Financial Services Inc. is listed as BERI's registered agent, at 1001 West Main Street, Sun Prairie, Wisconsin 53590. As of December 10, 2018, BERI is listed as delinquent with WDFI. Mr. Cerett stated that BERI is no longer in business, since November/December 2017.



EPA sent BERI and Mr. Cerett a combination general notice and information request letter on December 12, 2019. Mr. Cerett responded to the letter on December 30, 2019 and on January 10, 2020.

d. *Site Owner/Operator Liability/Financial Viability Determination*

For each party identified under a., b., or c. of this section, the Region has determined based on publicly available information whether: (1) the party may be liable under Section 107(a) of CERCLA; and (2) the party may be financially capable of performing or paying for all, or a portion of, the initial non-emergency response action at the site.

Don's Dozing LLC as Site owner is a liable company. Based on publicly available information, Don's Dozing LLC has limited assets. The 325 West Front Street, Mount Horeb, Wisconsin property is the only asset discovered. Thus, based on a limited review, Don's Dozing LLC may lack the ability to pay for the cleanup. EPA has requested tax records to determine whether Don's Dozing LLC can afford to pay for the cleanup. Don's Dozing LLC has not yet provided the requested records.

BERI is administratively dissolved with WDFI, as of December 10, 2018. Mr. Cerett stated that BERI is no longer in business since November/December 2017. Michael Cerett's Chapter 13 Bankruptcy filing indicates BERI had debts that amount to \$200,000.

Michael Cerett filed for Chapter 13 Bankruptcy in the U.S. Bankruptcy Court, Western District of Wisconsin (Madison) on January 9, 2019 Case Number: 3:19-BK-10053.

e. *Arranger/Transporter (A/T) Identification/Notification*

i. *general CERCLA liability*

The Region has determined, based on readily available information such as Site records, that there are arranger/transporter (A/T) PRPs at the Site. The Region has not determined whether these A/T PRPs are liable for and capable of performing the initial, non-emergency response action at the Site.

Mr. Cerett provided EPA a list of over 300 companies that shipped electronics, metals, and/or batteries to BERI. EPA also acquired some BERI files from WDNR and reviewed them. These files consisted of miscellaneous business files from BERI's Deerfield, Wisconsin, Aurora, Illinois, and Sparks, Nevada operations. They are predominately from 2008-2014. The BERI files contain limited information regarding invoices or Bills of Ladings (BOLs) after 2014.

EPA has not yet performed a volumetric ranking or waste in/waste out analysis of the BOLs' inventory content, because EPA has not linked these shipments directly to Site wastes. There are a handful of BOLs from October 2016 regarding shipments from the Deerfield, Wisconsin location to the Site, but these BOLs contain no description of the shipped materials other than poundage. No BOLs or invoice paperwork link Site waste to any specific arranger. Based on files reviewed, it does not appear that A/T PRPs shipped waste directly to the Site. Some waste containers at the Site do bear corporate information on them and EPA will follow up with those corporations, as discussed below.

*ii. SREA defenses*

Congress passed the Superfund Recycling Equity Act (SREA) to encourage recycling and provide protection to parties who believed they were not doing anything improper engaging the services of a recycling company. SREA provides a defense to CERCLA liability in certain situations, though it is an affirmative defense (one which a PRP must establish by providing evidence). At this time, based on the limited information available, EPA can only note that this defense potentially applies.

According to WDNR, information regarding the initial (9/15/2014) Notice of Violations (NOV) sent to BERI would not have been posted on a WDNR website, or on EPA's Enforcement and Compliance History Online database (ECHO). The first listing in a regulatory agency system of significant noncompliance for BERI is 6/2/2016, based off when WDOJ accepted WDNR's referral. Viewed recently, ECHO listed three BERI visits from 11/2015 to 2/2016. ECHO states there were no violations or compliance issues found at these visits, though WDNR states this information is incorrect. But any person viewing ECHO would only see information stating no violations or compliance issues at BERI. See Section 127(c)(6)(C) of CERCLA, 42 U.S.C. §§ 9627(c)(6)(C).

2. The Agency will further evaluate Arranger/Transporter (A/T) PRPs and develop a strategy that considers SREA, the time and resource cost, and the potential cost recovery. Some containers holding waste at the Site bore information linking them to specific corporations. Where those corporations also appear on the list of known BERI A/T PRPs, EPA may send those corporations 104(e) information requests to determine their liability under CERCLA generally and the applicability of a SREA defense.

**B. Notification of PRPs of Potential Liability and of the Required Removal Action**

1. Combination General Notice and Information Request Letters were sent on December 12, 2019 to Don's Dozing (c/o Duane Steinhauer), BERI (c/o Michael Cerett), and Michael Cerett.
2. The Agency will conduct future notice activities as warranted.



**C. Decision Whether to Issue an Order**

1. The Agency has not identified financially viable PRPs and does not anticipate issuing an Order at this time.

**D. Cost Recovery Strategy**

1. The Agency has requested financial information from the Site owner and the operator. The Agency intends to determine an ability to pay for Don's Dozing, BERI, and Mr. Cerett and recover costs from the Owner/Operator as necessary.

2. The Agency will further evaluate Arranger/Transporter (A/T) PRPs and develop a strategy that considers SREA, the time and resource cost, and the potential cost recovery.

FIGURE 1

SITE LOCATION MAP (residential/business area and Montessori Children's School 0.4 Miles Away)

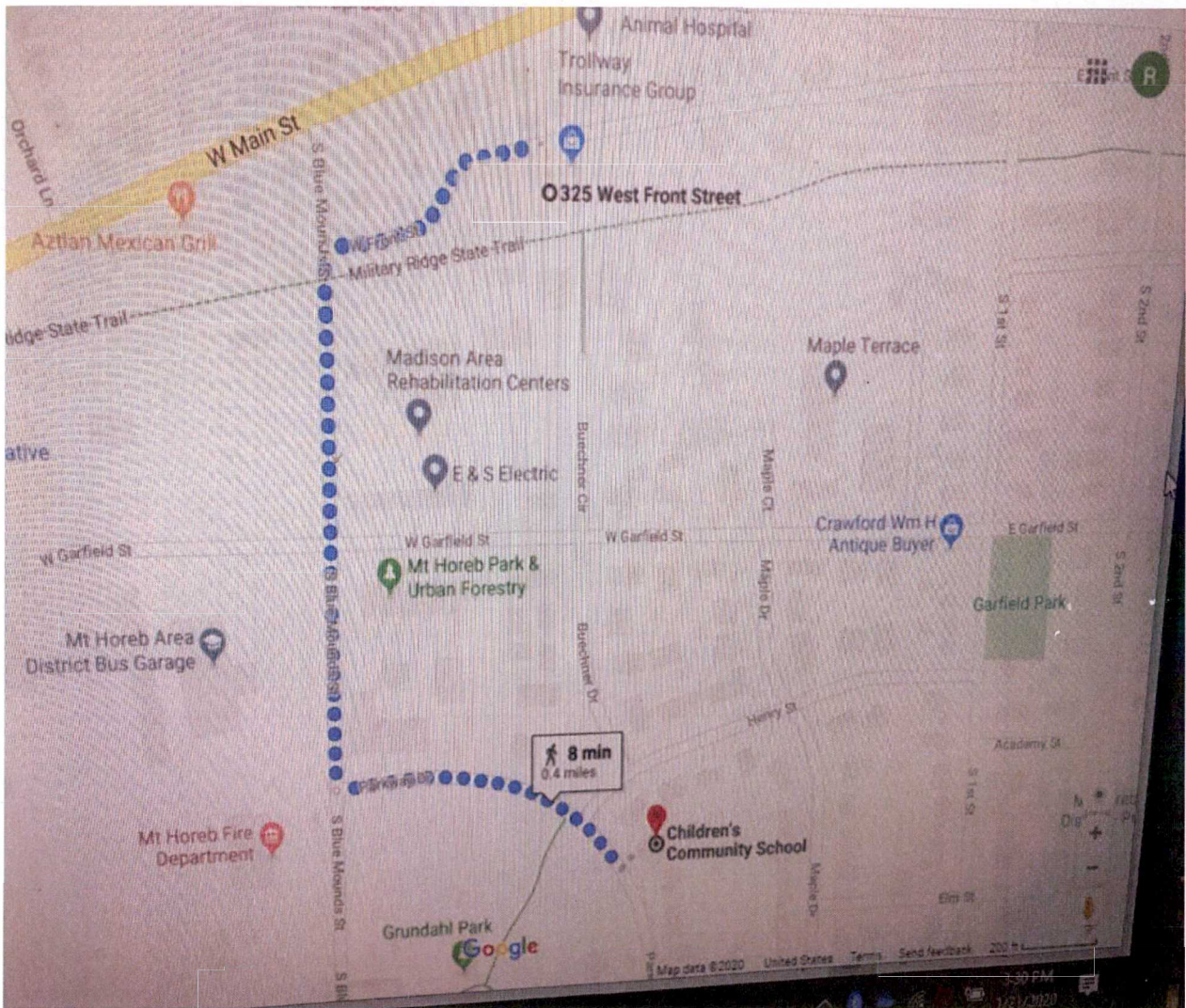


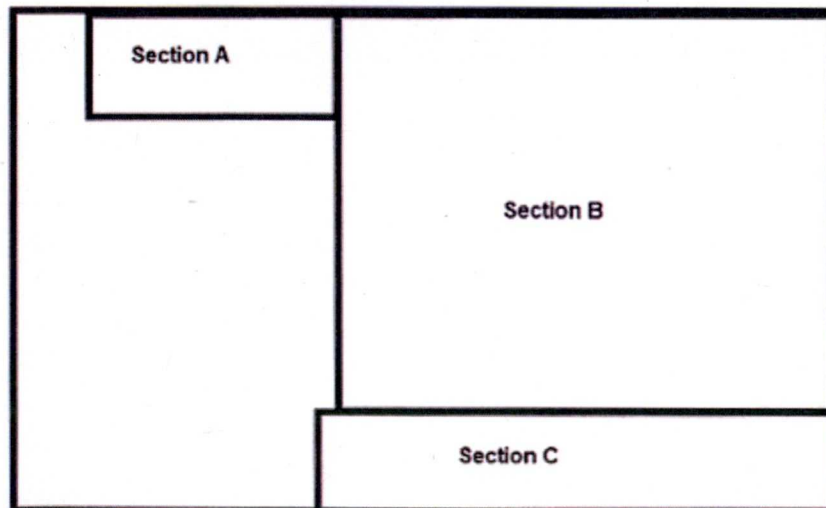


FIGURE 2

SITE LAYOUT MAP and BATTERY INVENTORY



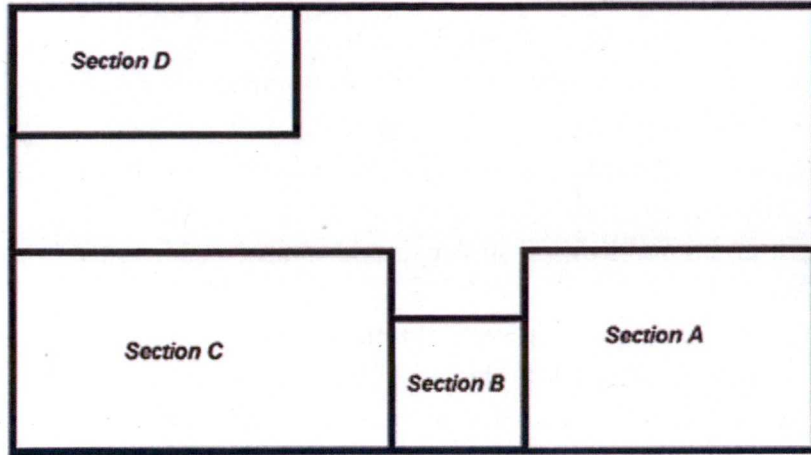
**Room 3**  
325 W. Front Street, Mount Horeb WI



\* Not to Scale



**Room 1**  
*325 W. Front Street, Mount Horeb WI*



*\*Not to Scale*

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**BERI Inventory**



## Room 1

### *Sec A*

- 1 cubic-yard box labeled **alkaline** (not full)
- 1 30-gallon drum **lithium ion** (not open)
- 1 pallet of >20 **NiCad** batteries
- 2 cubic-yard boxes of **lithium ion** batteries (closed and stacked)
- Multiple small closed boxes labeled "**bad lithium batteries**" shrink-wrapped on a pallet
- 1 pallet of >20 **NiCad** batteries shrink-wrapped together
- 2 cubic-yard boxes of **lithium-ion** batteries (closed and stacked)
- ~25 **universal waste** batteries shrink-wrapped together
- 1 55-gallon drum labeled **lithium sulfur dioxide** stacked and tapped to another 55-gallon drum (unlabeled)
- 1 55-gallon drum labeled "**secondary lithium batteries**" (closed)
- 1 small box of **lithium metal** batteries (label says net weight 12.0 kg)
- 1 55-gallon drum half full of **assorted batteries, including lithium**
- 2 small drums mostly full labeled **NiMH**
- Approx. 2 cubic yard boxes of **e-waste (includes cathode ray tubes)**
- Approx. 6 pallets of misc. **e-waste**

### *Sec B*

- 1 55-gallon drum of **potassium hydroxide** solid batteries (dry) (closed)
- 1 cubic-yard box labeled as **lithium** stacked on top of 4 55-gallon drums of **lithium** batteries
- 2 small closed boxes labeled "**bad lithium batteries**" on top of shrink-wrapped pallet labeled lithium
- Approx. 1 pallet of **e-waste**

### *Sec C*

- 1 cubic yard box labeled **alkaline**
- 2 buckets of **lithium ion** batteries (stacked)

### *Section with leak on floor*

- 4 drums bound together labeled **lithium** (full)
- Approx. 10 55-gallon drums shrink wrapped together and stacked labeled "**universal waste**"
- 5 crates of **lithium** batteries (industrial batteries)

## Room 2

- 6 pallets of shrink wrapped **NiCd** batteries (labeled as approx. 937 lbs each)
- 3 industrial MV lamps

### FIGURE 3

## PRELIMINARY RESULTS FROM EPA'S SITE ASSESSMENT

**TABLE 3.**  
**DATA QUALITY OBJECTIVES FOR WASTE**  
 Stoegers Plating Site  
 Chilton, Calumet County, Wisconsin

Analyte	CAS no.	EPA RML - Industrial Soil (mg/kg)	BERI-R1-191218		BERI-R2-191218		BERI-R3-191218	
			Result (mg/kg)	Lab Qualifier	Result (mg/kg)	Lab Qualifier	Result (mg/kg)	Lab Qualifier
<b>Metals</b>								
Aluminum	7429-90-5	3400000	2530	M	1090	--	647	--
Antimony	7440-36-0	1400	<0.40	U,V,Y	16.7	--	<0.37	U,V
Arsenic, Inorganic	7440-38-2	300.0	7.2	--	15.1	--	2.8	--
Barium	7440-39-3	650000.0	377	--	46.4	M	3.3	--
Beryllium and compounds	7440-41-7	6,900	0.059	M,Y	<0.0040	U	0.019	J
Cadmium (Diet)	7440-43-9	2,900	9.6	--	<0.0060	U	0.033	J,B
Calcium	--	--	24600	M	1740	--	74.5	--
Chromium, Total	7440-47-3	--	36.5	--	165	M	5.5	--
Cobalt	7440-48-4	1,000	4.8	M	11.7	--	0.18	J,V
Copper	7440-50-8	140000.0	46	Y	164	M,Y	31.9	--
Iron	7439-89-6	2,500,000	8260	M	243000	--	161	--
Lead and compounds	7439-92-1	800	277	M	13.1	--	0.33	--
Lithium	7439-93-2	7,000	1070	M	0.66	--	2.9	--
Magnesium	--	--	12600	M	593	--	32.4	--
Manganese (Diet)	7439-96-5	--	135	M	935	--	2.5	--
Mercury (Elemental)	7439-97-6	140	0.15	M	0.22	--	0.057	--
Nickel	--	--	85.5	--	63.5	M	0.66	--
Potassium	--	--	136000	B	<11	U	229	--
Selenium	7782-49-2	18000	0.099	J,Y	<0.060	U	0.1	J
Silver	7440-22-4	18000	0.97	--	1.9	--	0.021	J
Sodium	--	--	6740	--	736	B	533	--
Thallium (Soluble Salts)	7440-28-0	35	1.9	M,B	2	--	<0.23	U,V
Vanadium and Compounds	7440-62-2	17000	8.1	--	11.3	--	0.79	--
Zinc and Compounds	7440-66-6	1100000	125	--	559	M	6.2	--
Cyanide	--	--	<20	U	<20	U	<20	U
Sulfide	--	--	<100	U	<100	U	<100	U
pH (<2.0 or >=12.5)	--	--	8.7	--	4.44	--	3.76	--

Notes:

Quotient = 3 and Target Excess Cancer Risk=1E-04

CAS no. - Chemical Abstracts Service number

mg/kg - Milligram per kilogram

mg/L - Milligram per liter



## **Room 3**

### *Sec A*

- 4 55-gallon drums of **universal waste** batteries (all full)
- 1 **NiMH** Volkswagen Hybrid car battery
- At least 14 crates of **wet batteries filled w/ alkali** (stacked, unopened)
- 1 pallet of shrink-wrapped **lithium-ion** batteries

### *Sec B*

- 4 55-gallon drums full of **power tool batteries**
- 2 cubic yard boxes of **lithium-ion** Segway batteries
- 1 small box of **lithium manganese dioxide** batteries
- 1 cubic yard box of **lithium sulfur dioxide** batteries (mostly full)
- 4 pallets of **nickel cadmium** batteries
- 2 55-gallon drums of **wet NiCad (alkaline)** batteries

### *Sec C*

- 1 open crate of used **NiCad & used lead acid batteries on top of lithium batteries**
- 1 crate of **lead-acid car batteries**
- 1 crate of used **NiCad & used lead acid batteries**
- 1 wrapped pallet of **NiCad** batteries

**TABLE 1 - WIPE SAMPLE DESCRIPTIONS**  
**Battery and Electronics Recycling Inc. Site**  
**Mt. Horeb, Dane County, Wisconsin**

Sample ID	BERI-R1-191218	BERI-R2-191218	BERI-R3-191218
Sample Description	Collected on ground by leaking tote.	Collected on ground near NiCad battery stack.	Collected on ground near NiCad and Lead Acid stacked on top of Lithium batteries.
Field pH Result	8.7	4.44	3.76
Sample Location	Room 1	Room 2	Room 3



**ATTACHMENT I**

**U.S. ENVIRONMENTAL PROTECTION AGENCY**

**REMOVAL ACTION**

**ENVIRONMENTAL JUSTICE ANALYSIS**

**FOR THE BATTERY AND ELECTRONICS RECYCLING INC. SITE,**

**MOUNT HOREB, DANE COUNTY, WISCONSIN**

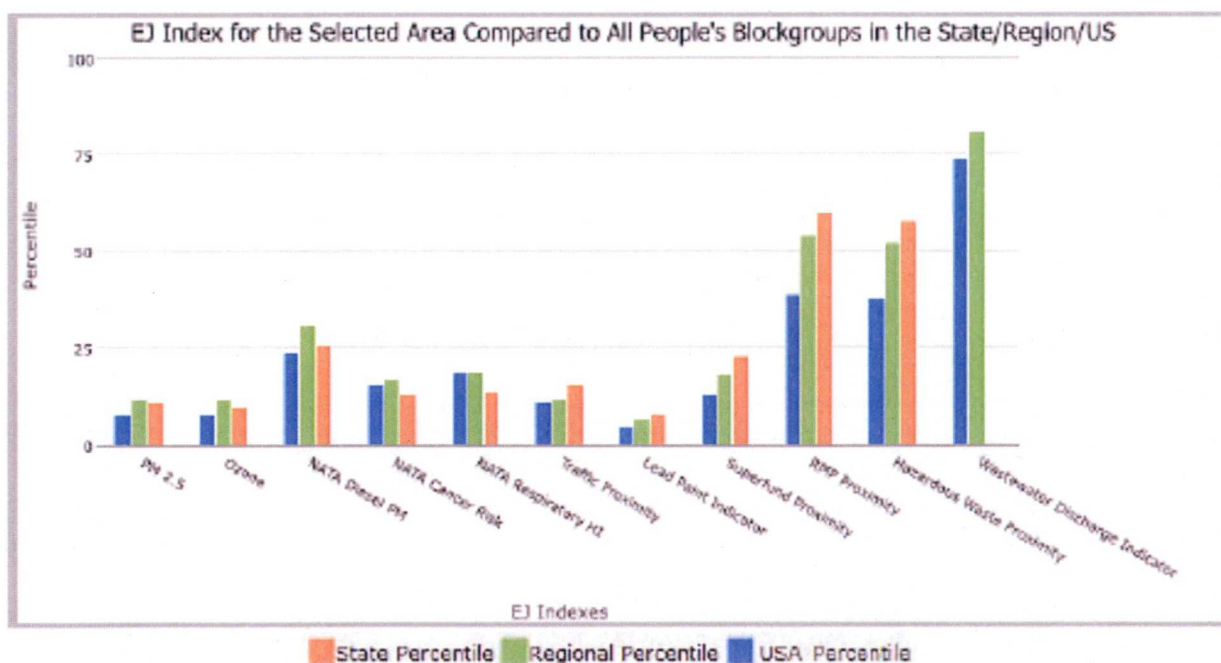


1 miles Ring Centered at 43.007602,-89.743350, WISCONSIN, EPA Region 5

Approximate Population: 5,326

Input Area (sq. miles): 3.14

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
<b>EJ Indexes</b>			
EJ Index for PM2.5	11	12	8
EJ Index for Ozone	10	12	8
EJ Index for NATA* Diesel PM	26	31	24
EJ Index for NATA* Air Toxics Cancer Risk	13	17	16
EJ Index for NATA* Respiratory Hazard Index	14	19	19
EJ Index for Traffic Proximity and Volume	16	12	11
EJ Index for Lead Paint Indicator	8	7	5
EJ Index for Superfund Proximity	23	18	13
EJ Index for RMP Proximity	60	54	39
EJ Index for Hazardous Waste Proximity	58	52	38
EJ Index for Wastewater Discharge Indicator	N/A	81	74



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

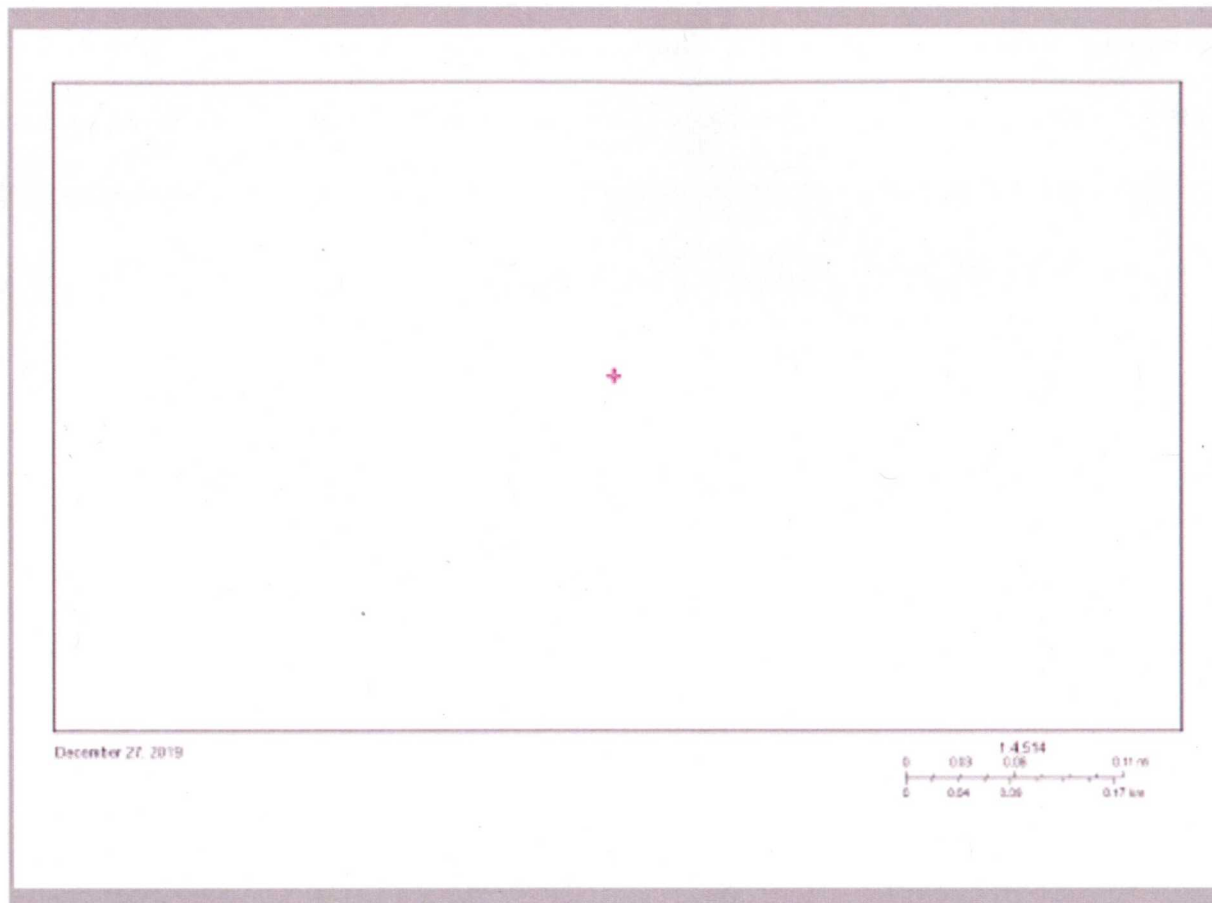




**1 miles Ring Centered at 43.007602, -89.743350, WISCONSIN, EPA Region 5**

**Approximate Population: 5,326**

**Input Area (sq. miles): 3.14**



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0



Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
<b>Environmental Indicators</b>							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$ )	7.9	7.89	41	8.63	18	8.3	36
Ozone (ppb)	40.4	40.5	43	43.4	16	43	30
NATA* Diesel PM ( $\mu\text{g}/\text{m}^3$ )	0.173	0.301	25	0.446	<50th	0.479	<50th
NATA* Cancer Risk (lifetime risk per million)	19	21	29	26	<50th	32	<50th
NATA* Respiratory Hazard Index	0.23	0.27	24	0.34	<50th	0.44	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	220	600	49	530	55	750	50
Lead Paint Indicator (% Pre-1960 Housing)	0.31	0.36	49	0.38	49	0.28	63
Superfund Proximity (site count/km distance)	0.066	0.12	46	0.13	54	0.13	52
RMP Proximity (facility count/km distance)	0.057	0.89	7	0.82	3	0.74	6
Hazardous Waste Proximity (facility count/km distance)	0.062	1.4	12	1.5	8	4	10
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0	1.9	N/A	0.82	28	14	37
<b>Demographic Indicators</b>							
Demographic Index	11%	24%	22	28%	17	36%	10
Minority Population	8%	18%	45	25%	35	39%	19
Low Income Population	14%	29%	21	31%	21	33%	20
Linguistically Isolated Population	0%	2%	60	2%	58	4%	45
Population With Less Than High School Education	2%	8%	17	10%	16	13%	14
Population Under 5 Years of age	6%	6%	54	6%	52	6%	51
Population over 64 years of age	10%	16%	24	15%	27	15%	32

\* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: [www.epa.gov/environmentaljustice](http://www.epa.gov/environmentaljustice)

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.



ATTACHMENT II

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMOVAL ACTION

ADMINISTRATIVE RECORD  
FOR THE  
BATTERY AND ELECTRONICS RECYCLING, INC. SITE  
MT. HOREB, DANE COUNTY, WISCONSIN

ORIGINAL  
JANUARY, 2020  
SEMS ID:

<u>NO.</u>	<u>SEMS ID</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	953177	Undated	Electronic Industries Alliance (EIA)	-----	Information Sheet - Lead in Cathode Ray Tubes (CRTs)	1
2	953183	Undated	Batteries Plus, LLC	-----	Safety Data Sheet - Lead Acid Battery Wet, Filled with Acid	10
3	928938	4/1/04	Agency for Toxic Substances & Disease Registry (ATSDR)	General Public	ToxFAQS Fact Sheet - Cobalt - CAS # 7440-48-4	2
4	930027	9/1/04	Agency for Toxic Substances & Disease Registry (ATSDR)	General Public	ToxFAQS Fact Sheet - Copper - CAS # 7440-50-8	2
5	947681	8/1/05	Agency for Toxic Substances & Disease Registry (ATSDR)	General Public	ToxFAQS Fact Sheet - Nickel - CAS # 7440-02-0	2
6	947649	10/1/12	Agency for Toxic Substances & Disease Registry (ATSDR)	General Public	ToxFAQS Fact Sheet - Cadmium - CAS # 7440-43-9	2
7	953184	6/22/15	Storage Battery Systems, LLC	-----	Safety Data Sheet - Nickel Cadmium Batteries	6
8	953185	1/11/17	BiPOWER Corp.	-----	(Material) Safety Data Sheet - Lithium-ion Batteries	4

<u>NO.</u>	<u>SEMS ID</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
9	953188	3/8/18	Hovel, C., State of Wisconsin Department of Natural Resources (WDNR)	File	Case Activity Report	3
10	953189	3/14/19	Hovel, C. and Petrus, B., State of Wisconsin Department of Natural Resources (WDNR)	File	Case Activity Report	6
11	950630	5/1/19	Agency for Toxic Substances & Disease Registry (ATSDR)	General Public	ToxFAQS Fact Sheet - Lead	2
12	953186	9/10/19	Petrus, B., State of Wisconsin Department of Natural Resources (WDNR)	-----	Site Photo Log	9
13	953179	9/12/19	Petrus, B., State of Wisconsin Department of Natural Resources (WDNR)	File	Case Activity Report for Regulators	3
14	953169	10/10/19	U.S. EPA	File	Region 5 RISE Information Form	2
15	953191	10/10/19	Johnson, D., North Shore Environmental Construction, Inc.	Petrus, B., State of Wisconsin Department of Natural Resources (WDNR)	Letter re: Cost Estimate/ Pricing Proposal - Removal of Batteries and Electronic Equipment from Site	3
16	953180	10/21/19	Lowery, J., State of Wisconsin Department of Natural Resources (WDNR)	Ribordy, M., U.S. EPA	Email - Request for Emergency Removal Assistance	3

17	953176	11/7/19	Don's Dozing, LLC U.S. EPA		Consent for Access to Property	1
18	953181	12/12/19	Borries, S., U.S. EPA	Steinhauer, D., Don's Dozing LLC	Letter - General Notice of Potential Liability and Request for Information	8
19	953190	12/12/19	Borries, S., U.S. EPA	Cerett, M., Battery and Electronics Recycling, Inc.	Letter - General Notice of Potential Liability and Request for Information	7
20	953178	12/23/19	Mendoza, R., U.S. EPA	File	Site Information Form (SIF)	3
21	953175	12/30/19	Mendoza, R., U.S. EPA	Lowery, J., Wisconsin Department of Natural Resources (WDNR)	ARAR Request	2
22	953182	1/2/20	Lowery, J., Wisconsin Department of Natural Resources (WDNR)	Mendoza, R., U.S. EPA	Letter re: ARARS	4
23	953192	1/29/20	Kesselhuth, K., Tetra Tech, Inc.	Mendoza, R., U.S. EPA	Sampling and Analysis Plan - Revision 0	24
24	-----	-----	Mendoza, R., U.S. EPA	Ballotti, D. and Borries, S., U.S. EPA	Action Memorandum Re: Request for Approval and Funding for Time-Critical Removal Actions	-----



**ATTACHMENT III**

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMOVAL ACTION**

**DETAILED CLEANUP CONTRACTOR COST ESTIMATE**

**Battery and Electronics Recycling Inc (BERI), Dane County, WISCONSIN**

**January 2020**

Personnel & Equipment	\$91,850
Materials/Equipment/Misc.	\$82,010
Transportation & Disposal	\$150,344
<b>Total</b>	<b>\$324,204</b>
Plus 20% Contingency	\$64,841
<b>Total ERRS Contractor Costs</b>	<b>\$389,045</b>

**ATTACHMENT IV**

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMOVAL ACTION**

**INDEPENDENT GOVERNMENT COST ESTIMATE**

**Battery and Electronics Recycling, Inc., Mount Horeb, Dane County, WISCONSIN**

**January 2020**

**1. ERRS CONTRACTOR**

The estimated cleanup contractor (ERRS) costs necessary to complete the removal action at the site are as follow:

<i>Personnel</i>							
Description	Regular Hours/Day	Overtime Hours/Day	Days	Quantity	Rate	Overtime Rate	Amount
Chemist	8	2	10	1	\$52	\$78	\$5720
Equipment Operator	8	2	30	1	\$56	\$73	17,820
Ind Hygienist/Safety	8	0	1	1	\$41.20	\$62	\$330
Laborer	8	2	30	4	\$36	\$43	\$44,880
Response Manager	8	2	30	1	\$70	\$70	\$21,000
Field Accountant	2		30	1	\$35	\$53	\$2,100
<b>Personnel Subtotal</b>							<b>\$91,850</b>
Equipment Description			Days	Quantity	Amount		
Pickup-1/2 ton \$52/day			30	3	\$4680		
Stakebed Truck \$80/day			30	1	\$2400		
Low-Boy Trailer \$24/day			30	1	\$720		
Skid Steer \$150/day			30	1	\$4500		
Storage Box \$15/day			30	1	\$450		
Skid Steer – Forks/attachments \$10/day			30	1	\$300		
Rolloff Rental (solid waste)			30	1	\$800		
Propane Heaters \$200/month			30	3	\$600		
Propane fuel \$1.75 pound (20 lbs per day)			30	600 lbs	\$1050		
Connex Box \$1200/month			30	1	\$1200		
Office Supplies					\$300		
<b>Equipment Subtotal (G&amp;A included)</b>							<b>\$17000</b>
Description			Quantity	Rate	Amount		
Analysis - Disposal			3	\$1,000	\$3000		
Bottled Water (per month)			10	\$20	\$200		

Cubic yard boxes	40	\$50	\$2000
Drums	100	\$40	\$4000
Fuel (\$30 per day/vehicle)	3	\$30/day	\$2700
Lodging and MI&E (per person per day, 30days)	8	\$166	\$39,840
Materials/Supplies (per month)	5	\$1,000	\$5000
PPE (per month)	4	\$2,000	\$8000
Sanitation handwash	1	\$146	\$146
Sanitation Port-0	1	\$124	\$124
<b>Subtotal</b>			<b>\$65,010</b>
T&D or recycling of Haz Waste (estimated based on WDNR inputs, and incineration costs) ; Approximate number of drums of batteries at the Site is about	158 drums	\$418/drum	<b>\$60,044</b>
79x4=316; incineration cost estimate \$418 per drum (haz incineration rate); Note: Added 10 pallets to 69 counted for conservative cost purpose.			
Assuming 50% recycling: Batteries recycling rate \$1.8/lbs.	158		<b>\$90,000</b>
Solid Waste T&D, 2 twenty yard containers	2	\$150/container	<b>\$300</b>
<b>Subtotal disposal cost estimate.</b>			<b>\$150,344</b>
<b>Overall Total ERRS Estimated Costs</b>			<b>\$324,204</b>

## 2. START CONTRACTOR

START tasks to include oversight, sampling, monitoring, technical support and health and safety support.

Category	Quantity	Rate	Hours/Day	Days	Amount
Sampling & On-Site Support	1	\$110	10	30	\$33,000
Off-Site Support	1	\$90	4	21	\$7,560
Lab Support/analysis	1				\$3000
Project Management/Report Writing	1				\$10,000
PPE	1	\$33.33/day		30	\$1000
Lodging and Per Diem	1	\$166		30	\$4980
Rental Car	1	\$40		30	\$1200
Fuel	1	\$2.5/gallon		60 gal	\$150
<b>TOTAL START CONTRACTOR</b>					<b>\$60,890</b>



### **3. U.S. EPA**

U.S. EPA site management activities:

<b>Category</b>	<b>Quantity</b>	<b>Rate</b>	<b>Hours/Day</b>	<b>Days</b>	<b>Subtotal</b>
On-Site Personnel Salary	2	\$55	10	30	\$33,000
Internal cost Personnel	2	\$50	8	30	\$24,000
Lodging Per Diem	2	\$166		30	\$9,960
<b>TOTAL U.S. EPA</b>					<b>\$66,960</b>

**ATTACHMENT V**

**WDNR Case Activity Report (Feb 27, 2019 and Photo Log (Sept 10, 2019))**

Case Number	Case Title: 325 W. Front Street, Mount Horeb, WI (Formerly operated by Battery and Electronics Recycling Inc.)
Activity: Site Visit	Date of Activity: February 27, 2019

Narrative:

On February 27<sup>th</sup>, 2019 Wisconsin Department of Natural Resources Waste Management Specialist Christopher Hovel (Hovel) and Wisconsin Department of Natural Resources Waste Management Specialist Ben Petrus (Petrus) arrived at 325 W. Front Street, Mt. Horeb Wisconsin. The purpose of their visit was to conduct a site visit and document the current state of the property. Hovel was previously inside 325 W. Front Street on March 8<sup>th</sup>, 2018 to follow up on a complaint about storage of used batteries. A business called Battery and Electronics Recycling Inc. (BERI) previously operated out of this site. The individual who operated this business is named Michael Cerett. Cerett has since been evicted by Duane and Don Steinhauer, the landlords and owners of this property. Hovel planned with Duane Steinhauer to meet at 325 W. Front Street at 10am on 2/27/2019. Hovel and Petrus arrived at 325 W. Front Street at approximately 10:14am. Hovel and Petrus were greeted by Duane Steinhauer (Duane) who agreed to allow them access to the facility.

Hovel and Petrus entered the facility. Batteries appeared to be stored in three distinct separate rooms. The large room that is Northeast most and lined with tile on the walls will be hereafter referred to as "Room 1". Directly West of this room is a space that contained miscellaneous storage and a small mezzanine, this space will be hereafter referred to as "Room 2". Directly South of Room 1 is a large room that contained shelving on the South walls and a vehicle repair bay on the Western side, this space will hereafter be referred to as "Room 3".

An individual named Colin Perry (Perry) who works for PegEx was present during the time Hovel and Petrus were on site. Perry stated that he was contacted by Michael Cerett to provide a quote for the cleanup of the material and waste on site and was taking an inventory as part of developing this quote.

Hovel and Petrus started the site visit in Room 1. Hovel observed that the area to the East of Room 1 was currently occupied by a separate business. This area was filled with batteries during Hovel's 3/8/2018 site visit to the property. Duane stated that he and his brother Don had moved the waste from this area to Room 3 and that they are now renting this space out to a business called Midwest Prototype. Hovel looked through the window from Room 1 into this space and did not observe any batteries.

Hovel asked Duane if anything had been disposed of. Duane stated that he got rid of anything the scrapper would take. Hovel asked Duane what the name of the scrapper was and Duane stated that he could not remember off the top of his head. Duane stated that he had a scrapper come through the facility and take whatever he wanted. Duane stated that he was unsure what the scrapper specifically took from the facility. Duane stated that approximately 1/2 of a semi-truck load to a full semi-truck load of televisions were taken off site. Duane stated that electronic circuit boards and televisions were among some of the items that the scrapper took. Duane stated that the scrapper walked through the facility and took what they could. Duane stated that this happened sometime before October 2018. Hovel stated to Duane that he will need to provide documentation regarding the items that were removed by the scrapper. Duane agreed that he would provide the Department with this documentation.

Hovel observed roughly the same conditions as he did on 3/8/2018. It appeared as though roughly the same amount of batteries and waste was on site and waste was simply moved to another area to accommodate a new tenant. Hovel observed many of the same conditions as he did on 3/8/2018 such as containers labeled "universal waste batteries" with dates well over one year and several containers that appeared to be leaking. Hovel completed a detailed photograph log that documents these conditions.

Hovel and Petrus began to document the site with photographs and notes.



### Room 1:

In an attempt to inventory the waste, Petrus subdivided Room 1 into four sections: sections A, B, C, and D. Section A is located in the Southeast corner of Room 1, Section B is in the middle of the South wall of Room 1, Section C is located in the Southwest corner of Room 1, and Section D is located in the Northeast corner of Room 1.

#### **Room 1, Section A**

Room 1, Section A was observed to contain the following:

- Approximately 50 total pallets
- Approximately 21 pallets appeared to contain multiple drums
- Approximately 24 pallets contained cardboard cubic yard boxes/gaylord boxes which appeared to be containing batteries
- Approximately 5 pallets contained what appeared to be shrink wrapped batteries

Room 1, Section A comments:

- The back half of the pallets in this section were double stacked.
- Many pallets had universal waste labels
- One pallet of shrink-wrapped batteries and one cubic yard box of batteries appeared to contain broken lead-acid batteries

#### **Room 1, Section B**

Room, Section B was observed to contain the following:

- Approximately 20 pallets total
- Approximately 9 pallets of drums that appeared to contain batteries.
- Approximately 10 pallets contained cardboard cubic yard boxes/gaylord boxes which appeared to be containing batteries
- Approximately 1 pallet contained what appeared to be shrink wrapped batteries

#### **Room 1, Section C**

Room, Section C was observed to contain the following:

- Approximately 52 pallets total
- Approximately 15 pallets of drums that appeared to contain batteries.
- Approximately 21 pallets contained cardboard cubic yard boxes/gaylord boxes which appeared to be containing batteries
- Approximately 2 pallets contained what appeared to be shrink wrapped batteries
- Approximately 7 pallets of cubic yard boxes containing what appeared to be electronics such as LCD screens and computer towers.
- Approximately 5 pallets contained what appeared to be empty plastic containers
- Approximately 2 pallets containing cubic yard boxes full of CRT devices

#### **Room 1, Section D**

Room, Section D was observed to contain the following:

- Approximately 23 pallets total
- Approximately 10 pallets of drums that appeared to contain batteries.
- Approximately 12 pallets contained cardboard cubic yard boxes/gaylord boxes which appeared to be containing batteries, one of which was visibly leaking a clear translucent liquid onto the ground, one cubic yard box was observed to contain what appeared to be broken lead-acid batteries.
- Approximately 1 pallet containing cubic yard boxes full of CRT devices
- Approximately 5 wooden crates of fuses labeled "Caribou. International."

### Room 2:

Hovel and Petrus observed 6 pallets of shrink-wrapped Nickel-Cadmium batteries that were approximately 4 feet high.

**Room 3:**

Room 3 contained the batteries and waste that Duane had moved from the space that Midwest Prototype now occupies. The pallets and drums in Room 3 appeared to be haphazardly stacked. Pallets were stacked in some cases multiple levels high and were tipping over and crushing the pallets beneath them. Aisle space was not sufficient to walk through the entire room. In an attempt to inventory the waste, Petrus subdivided Room 3 into three sections: sections A, B, and C. Section A is located along the central part of the Northern wall. Section B contains the middle of the room extending all the way to the East wall. Section C is the shelving units located along the South wall.

**Room 3, Section A**

Room 3, Section A was observed to contain the following:

- Approximately 9 total pallets
- Approximately 2 pallets contained cardboard cubic yard boxes/gaylord boxes which appeared to be containing batteries
- Approximately 3 pallets holding drums that contained what appeared to be batteries
- Approximately 3 pallets contained what appeared to be shrink wrapped batteries
- Approximately 1 pallets contained what appeared to be very large Nickel Metal Hydride batteries (NiMH)
- Approximately 36 crates labeled "UN 2795 Batteries Wet, Filled With Alkali"

**Room 3, Section B**

Room 3, Section B was observed to contain the following:

- Approximately 74 total pallets
- Approximately 18 pallets contained cardboard cubic yard boxes/gaylord boxes which appeared to be containing batteries
- Approximately 31 pallets holding drums that contained what appeared to be batteries
- Approximately 25 pallets contained what appeared to be shrink wrapped batteries

Room 3, Section B comments:

- Aisle space was not sufficient to conduct a walk through of a large part of this area
- One cardboard cubic yard box appeared to be saturated with and leaking a blackish green sludge substance that was dripping onto the wooden pallet.

**Room 3, Section C**

Room 3, Section C was observed to contain the following:

- Approximately 15 total pallets
- Approximately 3 pallets contained cardboard cubic yard boxes/gaylord boxes which appeared to be containing batteries
- Approximately 2 pallets holding drums that contained what appeared to be batteries
- Approximately 9 pallets contained what appeared to be shrink wrapped batteries
- Approximately 1 pallets contained what appeared to be CRT devices

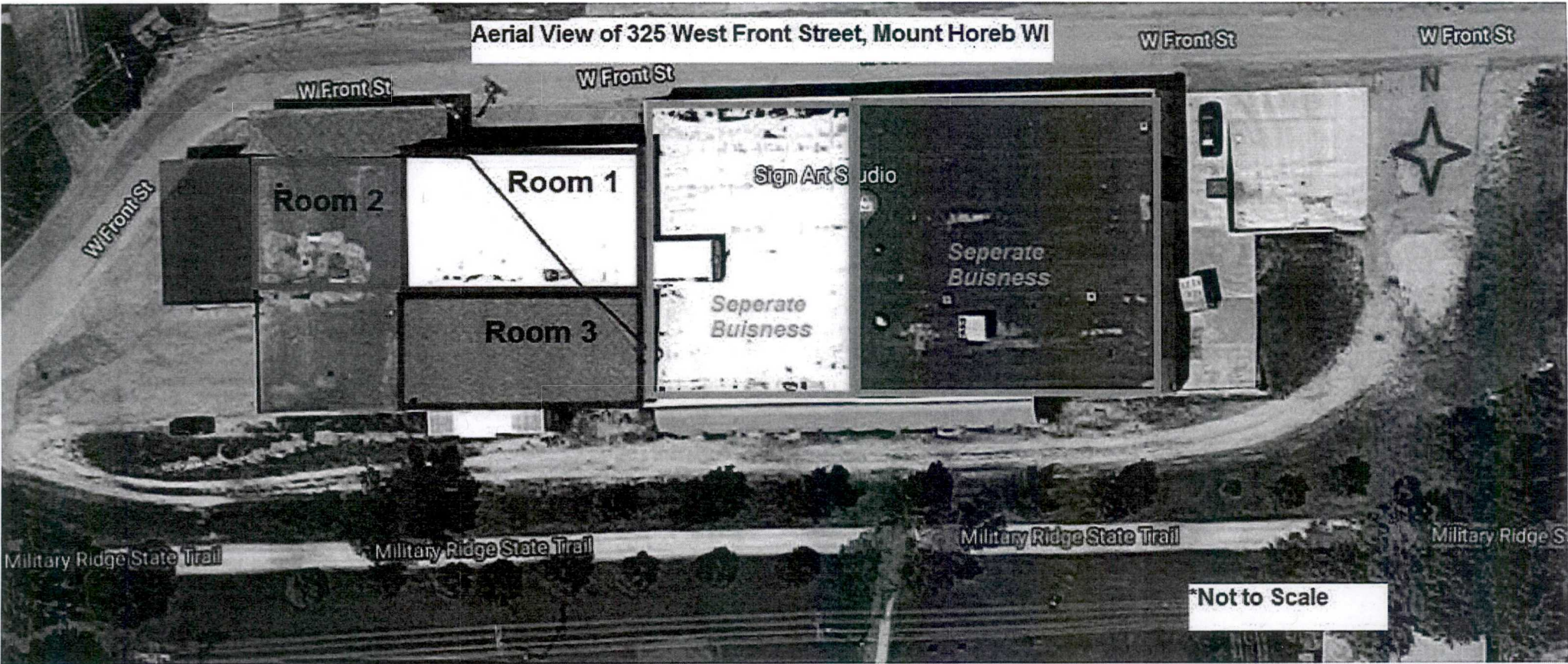
After conducting a site walkthrough and documenting the site, Hovel and Petrus thanked Duane for his time and exited the facility at approximately 11:45am.

Three diagrams are attached to this narrative. They are as follows: "Aerial view of 325 West Front Street, Mount Horeb WI", "Room 1", and "Room 3".

Reporting: Christopher Hovel <i>Chris Hovel</i>	Date of Report:	Exhibit Reference
Benjamin Petrus <i>BP</i>	March 14 <sup>th</sup> , 2019	



Aerial View of 325 West Front Street, Mount Horeb WI



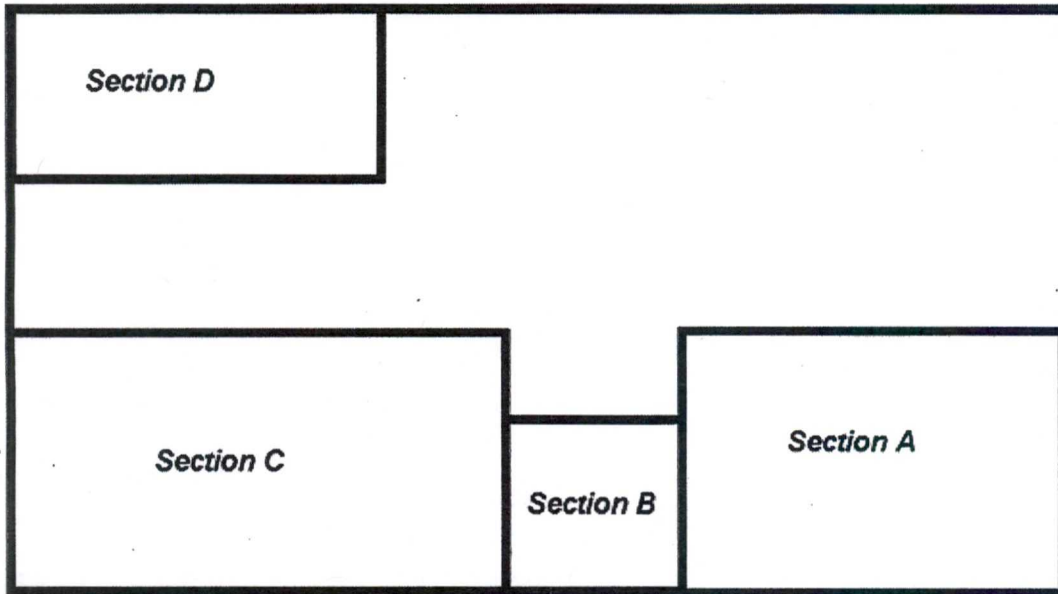
\*Not to Scale





**Room 1**

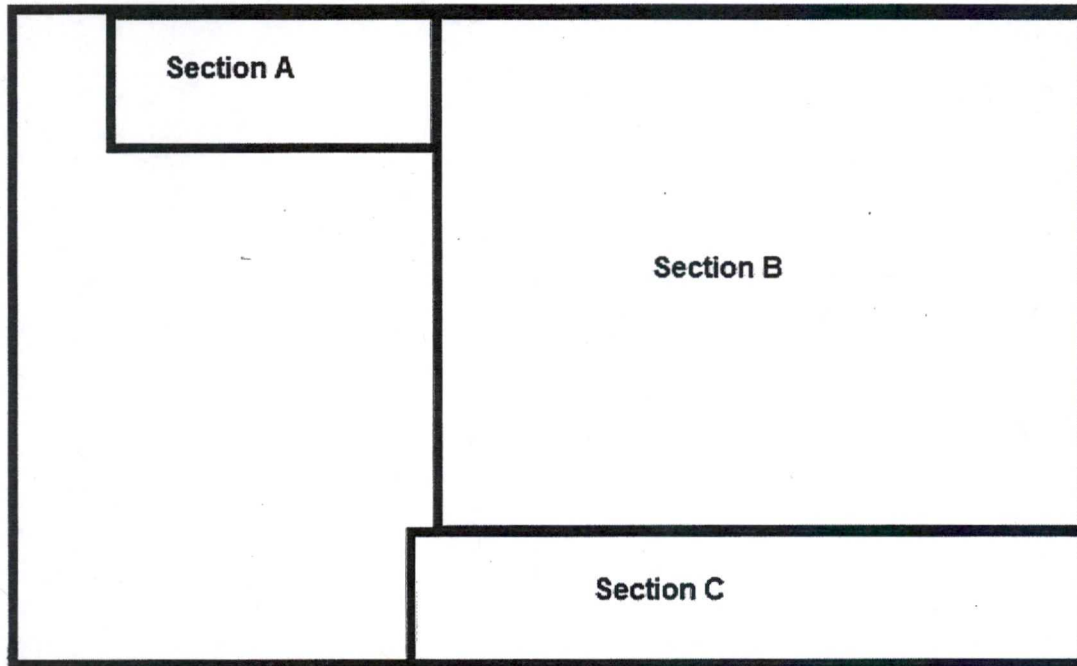
*325 W. Front Street, Mount Horeb WI*



*\*Not to Scale*



**Room 3**  
*325 W. Front Street, Mount Horeb WI*



*\* Not to Scale*



GENERAL INFORMATION

FIST SEQ #: 66973

Facility Name (current) ATTERY & ELECTRONICS RECYCLING INC			EPA ID # WIR000137117	FID # 113371610	Case # 66973	Comp #
Facility/Location 25 W. FRONT STREET (FORMERLY BERI)			UNIVERSAL WASTE - LARGE QUANTITY HANDLER			
City MOUNT HOREB	Zip Code	County DANE	Type of Contact FIELD		Contact Date/Time 09/10/2019 00:00	
Contact Name/Phone DAN BRALTEN (608) 235-8549			Staff Assigned to Site PETRUS, BENJAMIN		Case Close Out Date: 09/10/2019	

SITE PHOTOS

SITE PHOTOS

Photo # 69383 Photo 1 of 26

Photo Date & Time 09/10/2019 11:36

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Picture of southeastern corner of Room 1.



Photo # 69384 Photo 2 of 26

Photo Date & Time 09/10/2019 11:36

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Picture of southwestern corner of Room 1.





Photo # 69385 Photo 3 of 26

Photo Date & Time 09/10/2019 11:36

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Picture of southern corner of Room 1.



Photo # 69386 Photo 4 of 26

Photo Date & Time 09/10/2019 11:37

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Picture of Intermodal Bulk Container (IBC) with clear liquid leaking onto the floor around it. The IBC was along the western wall.



Photo # 69387 Photo 5 of 26

Photo Date & Time 09/10/2019 11:37

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description





Photo # 69388 Photo 6 of 26

Photo Date & Time 09/10/2019 11:37

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description



Photo # 69389 Photo 7 of 26

Photo Date & Time 09/10/2019 11:55

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 3 of Warehouse: Picture of eastern side of Room 3.



Photo # 69390 Photo 8 of 26

Photo Date & Time 09/10/2019 11:58

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 3 of Warehouse: Picture of eastern side of Room 3.





Photo # 69391 Photo 9 of 26

Photo Date & Time 09/10/2019 12:06

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Wide shot of a pallet of four drums along the eastern wall of Room 1.



Photo # 69392 Photo 10 of 26

Photo Date & Time 09/10/2019 12:06

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Mid-range shot of a pallet of four drums along the eastern wall of Room 1.



Photo # 69393 Photo 11 of 26

Photo Date & Time 09/10/2019 12:06

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Close up shot of the first of four drums along the eastern wall of Room 1. The label reads: Contents - "Universal waste Lithium Sulphur Dioxide batteries for recycling". Accumulation State Date - 2/2/17. Shipper - Lamp Recyclers, Inc. Address 3055 Holmgren Way. City, State, Zip - Green Bay, WI, 54304





Photo # 69394 Photo 12 of 26

Photo Date & Time 09/10/2019 12:06

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Close up shot of second of four drums along the eastern wall. of Room 1. The label reads: Contents - "Universal waste Lithium Sulphur Dioxide batteries for recycling". Accumulation State Date - 2/24/17. Shipper - Lamp Recyclers, Inc. Address 3055 Holmgren Way. City, State, Zip - Green Bay, WI, 54304

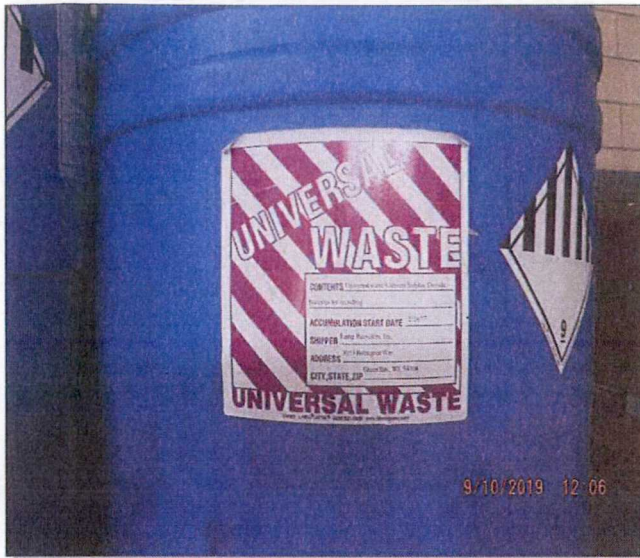


Photo # 69395 Photo 13 of 26

Photo Date & Time 09/10/2019 12:06

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Close up shot of the third of four drums along the eastern wall. of Room 1. The label reads: Contents - "Universal waste Li mixed batteries for recycling". Accumulation State Date - 2/3/17. Shipper - Lamp Recyclers, Inc. Address 3055 Holmgren Way. City, State, Zip - Green Bay, WI, 54304

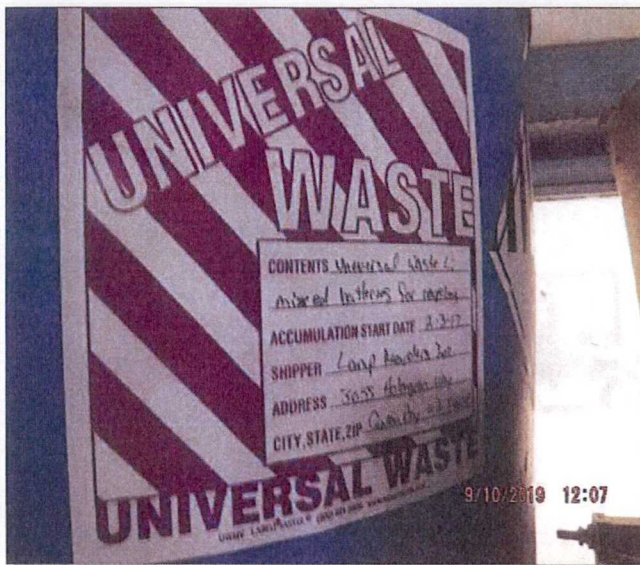


Photo # 69396 Photo 14 of 26

Photo Date & Time 09/10/2019 12:09

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Wide shot of a pallet of three drums near the center of Room 1.





Photo # 69397 Photo 15 of 26

Photo Date & Time 09/10/2019 12:09

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Close up shot of the first of three drums near the center of Room 1. The label reads: Contents - "Universal waste Li-Ion (power tool) batteries for recycling". Accumulation State Date - 12/20/16. Shipper - Lamp Recyclers, Inc. Address 3055 Holmgren Way. City, State, Zip - Green Bay, WI, 54304

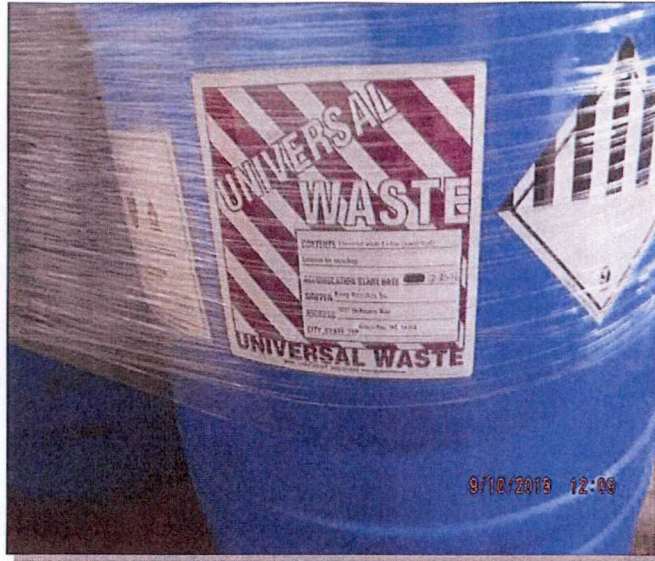


Photo # 69398 Photo 16 of 26

Photo Date & Time 09/10/2019 12:10

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Wide shot of a pallet of three drums near the center of Room 1.



Photo # 69399 Photo 17 of 26

Photo Date & Time 09/10/2019 12:10

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Close up shot of the first of three drums near the center of Room 1. The label reads: Contents - "Universal waste Li-Ion (mixed) batteries for recycling". Accumulation State Date - 1/5/17. Shipper - Lamp Recyclers, Inc. Address 3055 Holmgren Way. City, State, Zip - Green Bay, WI, 54304





Photo # 69400 Photo 18 of 26

Photo Date & Time 09/10/2019 12:22

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Wide shot of a pallet of two drums near the western wall of Room 1.



Photo # 69401 Photo 19 of 26

Photo Date & Time 09/10/2019 12:22

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Close up shot of a drum on the previously pictured pallet near the western wall of Room 1. The label reads Bader State Recovery, Inc. Service Product pick up call (800) 630-2319 or (715) 568-3550.

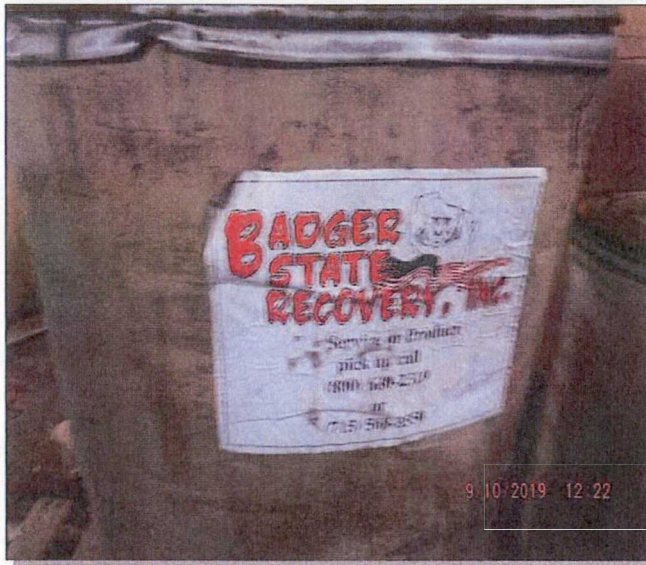


Photo # 69402 Photo 20 of 26

Photo Date & Time 09/10/2019 12:22

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Wide shot of a pallet of three drums (bottom pallet) near the western wall of Room 1.





Photo # 69403 Photo 21 of 26

Photo Date & Time 09/10/2019 12:25

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Close up shot of the first of three drums near the western wall of Room 1. The label reads: Description - "UN3090, Lithium Battery, 9, PG II ERG #138 ". Generator Information: Name - FBI Academy Complex Address - MCB4 FMV Hogans Alley. City - Quantico. State - VA. Zip - 22135. Telephone - (703) 632 - 1320. Accumulation State Date - 02/18/16. Document No. - BOL274765

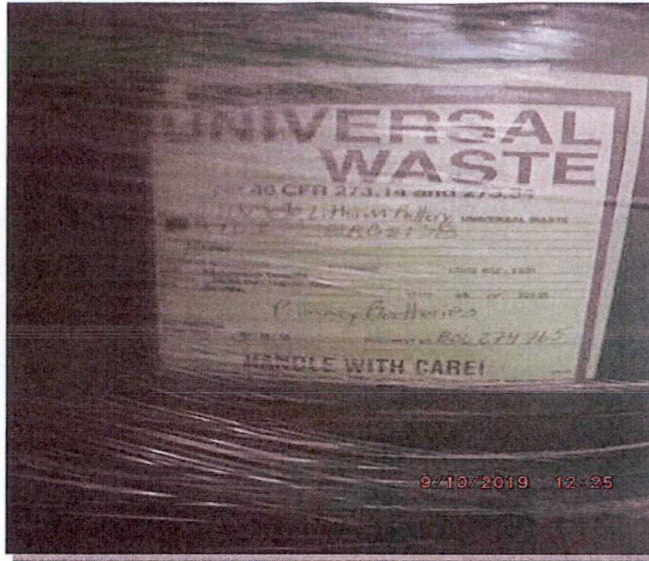


Photo # 69405 Photo 22 of 26

Photo Date & Time 09/10/2019 12:25

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 1 of Warehouse: Close up shot of the second of three drums near the western wall of Room 1. The label reads: Description - "UN3090, Lithium Battery, 9, PG II ERG #138 ". Generator Information: Name - FBI Academy Complex Address - MCB4 FMV Hogans Alley. City - Quantico. State - VA. Zip - 22135. Telephone - (703) 632 - 1320. Accumulation State Date - 02/18/16. Document No. - BOL274765



Photo # 69407 Photo 23 of 26

Photo Date & Time 09/10/2019 12:26

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 3 of Warehouse: Wide shot of a pallet of two drums near the center of Room 3.

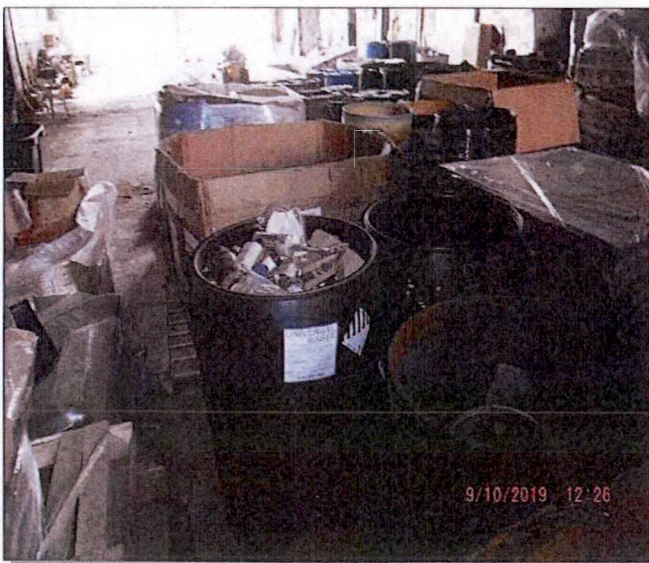




Photo # 69408 Photo 24 of 26

Photo Date & Time 09/10/2019 12:26

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 3 of Warehouse: Close up shot of the first of two drums near the center of Room 2. The label reads: Description - "UN3090, Lithium Battery, 9, PG II ERG #138 ". Generator Information: Name - FBI Academy Complaex Address - MCB4 FMV Hogans Alley. City - Quantico. State - VA. Zip - 22135. Telephone - (703) 632 - 1320. Accumulation State Date - 02/18/16. Document No. - BOL274765

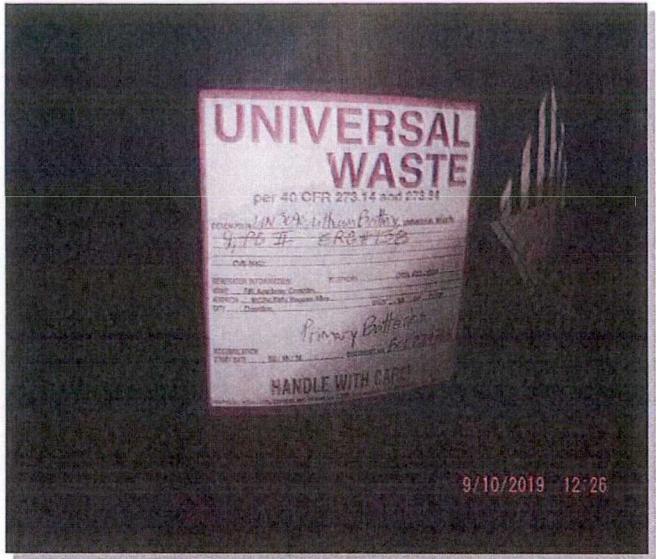


Photo # 69409 Photo 25 of 26

Photo Date & Time 09/10/2019 12:27

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 3 of Warehouse: Close up shot of the second of two drums near the center of Room 2. The label reads: Description - "UN3090, Lithium Battery, 9, PG II ERG #138 ". Generator Information: Name - FBI Academy Complaex Address - MCB4 FMV Hogans Alley. City - Quantico. State - VA. Zip - 22135. Telephone - (703) 632 - 1320. Accumulation State Date - 02/18/16. Document No. - BOL274765



Photo # 69410 Photo 26 of 26

Photo Date & Time 09/10/2019 12:27

Photo Direction INSIDE

Photographer PETRUS, BENJAMIN

Photo Description

Room 3 of Warehouse: Wide shot the contents of two previously pictured drums near the center of Room 3.





**ATTACHMENT VI**

**MSDS Information for Batteries and Computer Screens**

The information contained within is provided as a service to our customers and for their information only. The information and recommendations set forth herein are made in good faith and are believed to be accurate as of the date of preparation or revision. BiPOWER makes no warranty expressed or implied, and disclaims all liabilities from reliance on it.

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**Section 1 – Identification**


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**1.1 Product Name and Description:**

Battery: Lithium-ion, Rechargeable, Non-venting cells and batteries.  
 Electro-chemistry: Lithium-ion (Li-ion)

This Safety Data Sheet covers all lithium ion rechargeable cells and batteries supplied by BIPOWER CORP.

**1.2 Supplier****Office Address**

BiPOWER CORP.  
 2560 Corporate Place, Suite D203  
 Monterey Park, CA 91754  
 USA

**Telephone Numbers For Information**

Telephone: (323) 981-9498  
 Fax: (323) 981-9468  
 Emergency Telephone: (323) 981-9498  
 Date of Revision: January-11-2017

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**Section 2 – Hazard(s) Identification**


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The lithium ion cell/battery covered in this Data Sheet is hermetically sealed in an aluminum alloy or metal case and not hazardous if used as recommended by the manufacturer.

Under a normal condition of use, the electrode materials and electrolyte contained in a cell/battery are non-reactive provided the battery integrity is maintained. Risk of exposure exists only in case of mechanical, electrical or thermal abuse.

Warning: the cells/batteries should not be short circuited, punctured, incinerated, crushed, immersed in water, over-discharged, or exposed to a temperatures above the declared operation temperature range of the cell or battery.

Risk of fire or explosion may occur in the above condition of abuse.

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**Section 3 – Composition/Information on Ingredients**


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Chemical Name	CAS Number	EINECS Number	% by Weight
Lithium Cobalt Oxide	12190-79-3	235-362-0	25 - 35
Carbon, various forms	7440-44-0	231-153-3	10 - 30
Polymer Binders	NA	NA	0.1 - 1
Copper	7440-50-8	231-159-6	1 - 15
Aluminum	7429-90-5	231-072-3	1 - 10
Biphenyl	92-52-4	202-163-5	0.1 - 0.3
Organic Carbonates	NA	NA	5 - 10
Lithium Salts	NA	NA	1 - 6

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**Section 4 - First-Aid Measures**


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In case of battery rupture, major leakage or explosion, evacuate all workers and quarantine the contaminated area. Provide good ventilation to clear out any evacuate fumes, gases or the pungent odor.

Eyes - Rinse eyes with plenty of water for 15 minutes; Seek immediate medical attention.

Skin - Rinse affected area with plenty of water and soap or take a shower for 15 min;

Inhalation - Expose the person to fresh air and use artificial respiration if needed;  
 Seek medical attention if necessary.

Ingestion - Consult a physician or local poison control center immediately;



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**Section 5 - Fire-Fighting Measures**

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**Extinguishing media:**

1. Dry chemical or water type extinguishers are the most effective means to extinguish a cell or battery fire.
2. A carbon dioxide (CO<sub>2</sub>) extinguisher is also effective.

**Special fire fighting procedures:**

Respiratory protection: In all fire situations, wear self-contained breathing apparatus (SCBA) and chemical apron.

Skin protection: Wear full fire fighting protective clothing and equipment to prevent body contact with electrolyte solution.

Eye protection: Safety glasses are recommended.

During water application, caution is advised as burning pieces of flammable particles may be ejected from the fire.

**Causes of unusual fire or explosion hazard:**

Cells or batteries that are damaged, opened or exposed to excessive heat/fire may flame or leak potentially hazardous organic vapors.

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**Section 6 - Accidental Release Measures**

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**Procedures to contain and clean up leaks and spills:**

Under a normal condition of use, a battery is hermetically sealed and not hazardous. Leakage or release of hazardous materials contained within a battery would be possible under abusive conditions.

In the event of battery rupture and leakage: contain the spills and cover the spills or leakage with dry sand or 1:1 mixture of soda ash and slaked lime.

Rubber gloves must be used to handle all battery components.

Avoid inhalation of any vapors that may be emitted.

Damaged batteries that are not hot or burning should be placed in a sealed plastic bag or container.

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**Section 7 - Handling and Storage**

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**Precautions for safe handling:**

Avoid any contact with the contents in case of rupture, leakage or explosion. Follow the procedures in Section 6 to handle and dispose the spills or waste.

Batteries are designed to be recharged. However, improperly charging a cell or battery may cause the product to flame or leak. Use only approved chargers and procedures.

Never disassemble a battery or bypass any safety device.

More than a momentary short circuit will cause temporary battery voltage loss until the battery is subjected to a charge.

Extended short-circuiting creates high temperatures in the cell.

High temperatures can cause burns in skin or cause the cell to flame.

Avoid reversing battery polarity within the battery assembly. To do so may cause cell to flame or to leak.

**Conditions for safe storage and incompatibility:**

Batteries should be separated from other materials and stored in a non-combustible, well ventilated structure with sufficient clearance between walls and battery stacks.

Do not place batteries near heating equipment, nor expose to direct sunlight for long periods.

Do not store batteries above 60°C (140°F) or below -20°C (-4°F).

Store batteries in a cool (below 25°C (77°F)), dry area that is subject to little temperature change.

Do not store batteries in a manner that allows terminals to short circuit.

Maintain the state of charge level at 30-50% when the cell is placed in storage.

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**Section 8 - Exposure Controls/Personal Protection**

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**Engineering controls and work practices:**

Under conditions of normal use, batteries do not emit hazardous or regulated substances.  
No engineering controls are required for handling batteries that have not been damaged.

**Personal protective equipment:**

Personal protective equipment should include chemical resistant gloves and safety glasses.  
In the event of a fire, SCBA should be worn along with thermally protective outer garments.

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**Section 9 - Physical and Chemical Properties**

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Appearance: prismatic or cylindrical, hermetically sealed metal container.  
Open Circuit Voltage (OCV): 3.7V  
Charge temperature range: 0°C to +45°C  
Discharge (operation) temperature range: -20°C to +60°C  
Recommended storage temperature: 1 month: -20°C to +45°C; 6 months: -20°C to +35°C

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**Section 10 - Stability and Reactivity**

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<b>Stability:</b>	The batteries are stable under normal operation and storage conditions.
<b>Hazardous Polymerization:</b>	will not occur.
<b>Materials to avoid:</b>	water, strong acid or alkalis solutions, oxidizing agents.
<b>Conditions to avoid:</b>	short-circuiting, disassembling, over-discharging, heating over the declared operation temperature range of the product.
<b>Hazardous decomposition products:</b>	Carbon Monoxide (CO) and other VOC's

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**Section 11 - Toxicological Information**

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No toxicological impacts are expected under normal use conditions.  
The electrolytes contained in this cell or battery can irritate eyes with any contact if released.  
Prolonged contact of electrolytes with lung tissue, skin or mucous membranes may cause irritation.  
Information regarding sensitization, carcinogenicity, mutagenicity or reproductive toxicity related to internal cell or battery components has not been included in this document.

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**Section 12 - Ecological Information**

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No ecological impacts expected under normal use conditions.  
Information on the ecological impact of internal cell or battery components has not been included in this document.

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**Section 13 - Disposal Considerations**

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Do not dispose in fire or submerge in water.  
Battery disposal regulations vary on national, state/provincial and local bases.  
Disposal must be conducted in accordance with the applicable laws and regulations.  
These batteries contain recyclable materials and recycling is encouraged over disposal.



**Section 14 - Transport Information**

The regulations that govern the transport of rechargeable lithium ion (including polymer) cells and batteries include the International Civil Aviation Organization (ICAO) Technical Instructions and International Air Transportation Association (IATA) Dangerous Goods Regulations and International Maritime Dangerous Goods (IMDG) Code.

The transportation of lithium ion cells and batteries of all types within, to and from the the United States are governed by US DOT CFR 49 Part 171-180 of the US Hazardous Materials Regulations (HMR). CFR 49 Part §173.185(c) and the Special Provisions contained in §172.102 provide information on exceptions and packaging based on details of Watt-hour (Wh) rating, weight, tests and classifications.

- Shipping names:** Lithium ion cells or batteries;
- UN number 3480:** Lithium ion cells or batteries;
- UN number 3481:** Lithium ion cells or batteries contained in or packed with equipment;
- Hazard classification:** Miscellaneous Class 9 (restricted to transport);
- Shipping information:** All lithium ion cells or batteries for transport must be of the type proven to meet the criteria in Part III, sub-section 38.3 of the UN Manual of Tests and Criteria.
- Packing Instructions:** Packing of lithium ion cells/batteries and batteries contained in or packed with equipment for transportation are regulated by IATA/ICAO, the 57th Edition of IATA Dangerous Goods Regulations (DGR), Packing Instructions PI965, PI966 and PI967, IMDG and ADR Code SP188, and P903/908/909, SP230/376/377.
- Label requirements:** Identification and proper labeling should comply with the applicable regulations.

**Section 15 - Regulatory Information**

**United States**

- Hazard Communication Standard (29 CFR 1910.1200): Article
- CERCLA SECTION 304 Hazardous Substances: N/A
- EPCRA SECTION 302 Extremely Hazardous Substance: N/A
- EPCRA SECTION 313 Toxic Release Inventory: N/A
- EPCRA SECTION 312: N/A
- Components Listed on US Toxic Substances Control Act (TSCA) Inventory: Yes

**Europe**

- Registration, Evaluation, Authorization and Restriction of Chemicals (REACH): Article
- European RoHS Directive 2008/35/EC: N/A
- European WEEE Directive 2008/34/EC: Article
- Note: Applies to cells and batteries incorporated into electrical and electronic equipment, when that equipment becomes waste.

**Section 16 - Other Information**

The information contained herein is made in good faith and believed to be accurate by the best knowledge available to us and furnished without warranty of any kind. Users should consider this data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers. BIPOWER CORP makes no warranty expressed or implied, and disclaims all liabilities from reliance on it.



## Lead in Cathode Ray Tubes (CRTs) Information Sheet\*\*

A CRT is used in most televisions and computer monitors (Liquid Crystal Displays (LCDs) and plasma displays do not use CRT technology). Lead is used in CRTs to protect users from potentially harmful exposure to x-rays. The lead in CRTs is bound in a glass matrix as lead oxide, and is stable and immobile. According to the data collected, the average CRT for the time period 1995 to 2000, including televisions and monitors, is an 18.63-inch CRT with a lead content that varies from 2.14 lbs to 2.63 lbs. This table summarizes the weight of glass and the lead content of various-sized CRTs manufactured in the U.S. For an explanation of what a CRT is and how it works, please see <http://www.howstuffworks.com/tv1.htm>.

<b>Portable and Table Televisions</b>			
<b>Screen Size</b>	<b>Total Glass Weight (lbs)</b>	<b>Total Lead in Lead Panel<sup>1</sup> CRT (lbs)</b>	<b>Total Lead in No-Lead Panel CRT (lbs)</b>
8" & under	12.9	1.30	1.08
9" & 10"	15.0	1.47	1.21
13" & 14"	17.2	1.75	1.46
19"	27.1	2.66	2.21
20"	28.2	2.70	2.21
25"	43.5	4.05	3.28
26" & 27"	53.2	4.97	4.03
29" through 31"	81.2	7.99	6.62
32"	85.6	8.39	6.94
35"	117.4	11.28	9.27
<b>Console Televisions</b>			
<b>Screen Size</b>	<b>Total Glass Weight (lbs)</b>	<b>Total Lead in Lead Panel CRT (lbs)</b>	<b>Total Lead in No-Lead Panel CRT (lbs)</b>
26" & under	48.8	4.54	3.68
27" - 32"	68.5	6.61	5.44
35" & over	117.4	11.28	9.27
<b>Monitors</b>			
<b>Screen Size</b>	<b>Total Glass Weight (lbs)</b>	<b>Total Lead in Lead Panel CRT (lbs)</b>	<b>Total Lead in No-Lead Panel CRT (lbs)</b>
14"	19.7	NA*	1.68
15"	19.7	NA*	1.68
17"	25.7	NA*	2.08
19" through 21"	28.0	NA*	2.28

\*There are no monitors sold in the US with leaded panels.

\*\*Source: A. Monchamp, H. Evans, J. Nardone, S. Wood, E. Proch and T. Wagner: Cathode Ray Tube Manufacturing and Recycling: Analysis Of Industry Survey

<sup>1</sup> Panel glass is the glass viewable to the user. A leaded CRT panel contains lead in the mixture of panel glass. In the manufacturing of a no-lead panel CRT, lead is not intentionally added to the mixture.



## SAFETY DATA SHEET (SDS)

## LEAD ACID BATTERY WET, FILLED WITH ACID




The information and recommendations below are believed to be accurate at the date of document preparation. Batteries Plus, LLC makes no warranty or merchantability or any other warranty, express or implied, with respect to this information and assumes no liability resulting from its use. This SDS provides guidelines for safe use and handling of product. It does not, and cannot, advise all possible situations. All specific uses of this product must be evaluated by the end user to determine if additional safety precautions should be taken.

The following information is provided as a courtesy to Batteries Plus customers.

### SECTION 1 – IDENTIFICATION

<b>Product Name</b>	Lead Acid Battery Wet, Filled With Acid
<b>Common Name(s)</b>	Starting Lighting Ignition (SLI) – Battery
<b>Synonyms</b>	SLI
<b>DOT Description</b>	Wet Battery, spillable
<b>Chemical Name</b>	Lead Acid Battery, Secondary Battery
<b>Distributed By</b>	Batteries Plus, LLC
<b>Address</b>	1325 Walnut Ridge Drive, Hartland, WI 53029
<b>Emergency number</b>	CHEMTREC 1-800-424-9300
<b>International Emergency Number</b>	CHEMTREC +1 703-741-5970 (Collect)

### SECTION 2 – HAZARD(S)

GHS Classification:		
Health	Environmental	Physical
Acute Toxicity – Category 4	Aquatic Chronic – 1	Explosive Chemical, Division 1.3
Skin Corrosion – Category 1A	Aquatic Acute - 1	
Eye Damage – Category 1		
Reproductive – Category 1A		
Carcinogenicity (lead) – Category 1B		
Carcinogenicity (arsenic) – Category 1A		
Carcinogenicity (lead mist) – Category 1A		
Specific Target Organ Toxicity (repeated exposure) – Category 2		
GHS Label Elements:		
		
<b>Signal Word: DANGER!</b>		

**Emergency Overview** - May form explosive air/gas mixture during charging. Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin. Prolonged inhalation or ingestion may result in serious damage to health. Pregnant women exposed to internal components may experience reproductive/developmental effects.

<b>Hazard Statements</b>	
<b>Health</b>	Harmful if swallowed, inhaled, or in contact with skin. 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 if ingested or inhaled. May cause harm to breast-fed children.
<b>Environmental</b>	Very toxic to aquatic life with long lasting effects.
<b>Physical</b>	May form explosive air/gas mixture during charging. Extremely flammable gas (hydrogen). Explosive; fire, blast or projection hazard. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
<b>Precautionary Statements</b>	
<b>Prevention</b>	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. Avoid contact during pregnancy/while nursing.
<b>Response</b>	IF SWALLOWED OR CONSUMED: rinse mouth, Do NOT induce vomiting. Call a poison center/doctor if you feel unwell. IF ON CLOTHING OR SKIN (or hair): Remove/Take off immediately all contaminated clothing and wash it before reuse. Rinse skin with later/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed/concerned, or if you feel unwell seek medical attention/advice.
<b>Storage and Disposal</b>	Store locked up, in a well-ventilated area. In accordance with local and national regulation. Avoid release to the environment. Collect spillage. Dispose of contents/container in accordance with local/regional/national/international regulations. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Use only outdoors or in well ventilated area Keep out of reach of children.

Additional Information – No health effects are expected related to normal use of this product as sold.

### SECTION 3 – COMPOSITION

Chemical Name	CAS No.	Percentage %
Lead and/or Lead Oxide	7439-92-1	43-70
Electrolyte (Sulfuric Acid and water)	7664-93-9	20-44
Antimony	7440-36-0	0-4
Polypropylene	9003-07-0	5-10



Additional Information - These ingredients reflect components of the finished product related to performance of the product as distributed into commerce. Inorganic lead, lead compounds and electrolyte (sulfuric acid) are the primary components. Other metals (i.e. Sn, Cu, As) may be present at concentrations below the applicable reporting threshold.

#### SECTION 4 – FIRST AID MEASURES

<b>Inhalation</b>	<p><b>Electrolyte:</b> Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult a physician immediately.</p> <p><b>Lead:</b> Remove from exposure, gargle, wash nose and lips. Consult physician immediately.</p>
<b>Eyes Contact</b>	<p><b>Electrolyte and Lead:</b> Flush eyes immediately with large amounts of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Consult a physician immediately.</p>
<b>Skin Contact</b>	<p><b>Electrolyte:</b> Flush affected area(s) with large amounts of water using deluge emergency shower, if available, shower for at least 15 minutes. Remove contaminated clothing, including shoes. Consult a physician if skin irritation appears. Wash contaminated clothing before reuse. Discard contaminated shoes.</p> <p><b>Lead:</b> Wash immediately with soap and water.</p>
<b>Ingestion</b>	<p>Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death. Give large quantities of water. Never give anything by mouth to an unconscious person. Consult a physician immediately.</p>

#### SECTION 5 – FIRE-FIGHTING MEASURES

**Flash Point** – N/A

**Auto Ingestion** – No Data Available

**Flammable Limits** - LEL=4.1% (Hydrogen Gas in air); UEL=74.2%

**Extinguisher Media** - CO<sub>2</sub>; foam; dry chemical type extinguishers. Do not use carbon dioxide directly on cells. Avoid breathing vapors. Use appropriate media for surrounding fire.

**Special Fire-Fighting Procedures** - Use positive pressure, self-contained breathing apparatus. Beware of acid splatter during water application and wear acid-resistant clothing, gloves, face and eye protection. If batteries are on charge, shut off power to the charging equipment, 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 Hazard** - Highly flammable hydrogen gas is generated during charging and operation of batteries. If ignited by burning cigarette, naked flame or spark, may cause battery explosion with dispersion of casing fragments and corrosive liquid electrolyte. Carefully follow manufacturer's instructions for installation and service. Keep away all sources of gas ignition and do not allow metallic articles to simultaneously contact the negative and positive terminals of a battery. Follow manufacturer's instructions for installation and service.

Additional Information - Fire-fighting runoff and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

## SECTION 6 – ACCIDENTAL RELEASE MEASURES

Stop the flow of material. Contain/absorb small spills with dry sand, dirt, or vermiculite. Do not use combustible materials. Spilled electrolyte should be neutralized with soda ash, sodium bicarbonate, or lime if possible. Wear acid resistant clothing, gloves, boots, and a face shield. Do not allow discharge of un-neutralized acid to sewer. Acid must be managed in accordance with local, state, and federal requirements. Consult state environmental agency and/or federal EPA.

Additional Information - **Lead acid batteries are recyclable.** Dispose of in accordance with applicable local, state and federal regulations.

## SECTION 7 – 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 under roof in cool, dry, well-ventilated areas separated from incompatible materials and from activities that may create flames, spark or heat. Store on smooth, impervious surfaces provided with measures for liquid containment in the event of electrolyte spills. Keep away from metallic objects that could bridge the terminals on a battery and create a dangerous short-circuit. Room ventilation is required for batteries utilized for standby power generation.

**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.

## SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits (mg/m <sup>3</sup> )						
Ingredients	OSHA PEL	ACGIH	US NIOSH	Quebec PEV	Ontario OEL	EU OEL
Lead, 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,d)
Tin	2	2	2			
Copper	1	1	1	1	1 (a)	0.1 (e)
Arsenic	0.01	0.01	0.01			
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.
(a) As dusts/mists (b) As inhalable aerosol (c) Thoracic fraction (d) Based on OEL's of Austria, Belgium, Denmark, France, Netherlands, Switzerland, & U.K. (e) Based on OEL of Netherlands						



**Engineering Controls/Systems Design Information** - Store and handle in well-ventilated area. If mechanical ventilation is used, components must be acid-resistant. Handle batteries cautiously, do not tip to avoid spills. Make certain vent caps are on securely. If battery case is damaged, avoid bodily 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 batteries in areas with adequate ventilation. General dilution ventilation is acceptable.

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

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

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

**Other Protection** - In areas where water and sulfuric acid solutions are handled in concentrations greater than 1% emergency eyewash stations or showers should be provided, with unlimited water supply. Chemically impervious apron and face shield recommended when adding water or electrolyte to batteries. Wash hands after handling.

**Additional Information** - Batteries are housed in polypropylene cases which are regulated as total dust or respirable dust only when they are ground up during recycling. The OSHA PEL for dust is 15 mg/m<sup>3</sup> as total dust or 5 mg/m<sup>3</sup> as respirable dust. May be required to meet Domestic Requirements for a Specific Destination(s).

## SECTION 9 – PHYSICAL/CHEMICAL PROPERTIES

<b>Boiling Point</b>	Electrolyte: 203°-240°F	<b>Melting Point</b>	Electrolyte: NA
<b>Vapor Pressure</b>	Electrolyte: 10 mmHg	<b>Vapor Density</b>	>1
<b>Specific Gravity (H<sub>2</sub>O=1)</b>	Electrolyte: 1.215-1.350	<b>Solubility in Water</b>	Electrolyte: 100%
<b>Evaporation Rate</b>	<1 (n-BuAc=1)	<b>pH</b>	~1-2
<b>Reactivity in Water</b>	NA	<b>Auto-Ignition Temperature</b>	NA
<b>Lower Explosive Limit (LEL)</b>	4% (as hydrogen gas)	<b>Upper Explosive Limit (UEL)</b>	74% (as hydrogen gas)
<b>Odor Threshold</b>	Not Applicable	<b>Viscosity (poise @ 25° C)</b>	Not Available
<b>Partition Coefficient</b>	NA	<b>Decomposition Temperature</b>	Not Available
<b>Flash Point</b>	Below room temperature (Hydrogen)		
<b>Appearance and Odor</b>	Manufactured article; no apparent odor. Electrolyte is a clear liquid with a sharp, penetrating, pungent odor.		
<b>Physical State</b>	Sulfuric acid: Liquid; Lead: Solid		

## SECTION 10 – STABILITY & REACTIVITY

**Stability** - This product is stable under normal conditions at ambient temperature.

### INCOMPATIBILITY (MATERIALS TO AVOID) –

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

**Battery Electrolyte (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 that may release flammable hydrogen gas.

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

Hazardous Decomposition –

**Battery Electrolyte (Acid):** Sulfur trioxide, carbon monoxide, sulfuric acid mist, sulfur dioxide, hydrogen sulfide.

**Lead/Lead Compounds:** Temperatures above the melting point are 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.

**Conditions to Avoid** - Prolonged overcharge at high current; sources of ignition.

## SECTION 11 – TOXICOLOGICAL INFORMATION

### ACUTE TOXICITY (Test Results Basis and Comments):

Inhalation LD<sub>50</sub>:

Electrolyte: LC<sub>50</sub> rat 375 mg/m<sup>3</sup> ; LC<sub>50</sub>: guinea pig: 510 mg/m<sup>3</sup>

Elemental Lead: Acute Toxicity Point Estimate =4500 ppm V (based on lead bullion)

Elemental Arsenic: No data

Oral LD<sub>50</sub>:

Electrolyte: rat 2140 mg/kg

Elemental Lead: Acute Toxicity Estimate (ATE) = 500mg/kg body weight (based on lead bullion)

Elemental Arsenic: LD<sub>50</sub> mouse: 145 mg/kg

Elemental Antimony: LD<sub>50</sub> rat: 100 mg/kg

### ROUTES AND METHODS OF ENTRY -

#### Inhalation -

**Sulfuric Acid:** Breathing sulfuric acid mist or vapor may cause severe respiratory irritation.

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

Skin Contact - Sulfuric Acid: May cause severe irritation, burns and/or ulceration. Lead Compounds: Not absorbed through the skin. Arsenic Compounds: Contact may cause dermatitis and skin hyperpigmentation.

#### Eye Contact -

**Sulfuric Acid:** May cause severe irritation, burns, cornea damage and/or blindness. Lead Compound: May cause eye irritation.

#### 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.

### SIGNS AND SYMPTOMS OF OVEREXPOSURE –

#### Acute Effects -

**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 disturbance and irritability.



### **Chronic Effects -**

**Sulfuric Acid:** Possible erosion of tooth enamel, inflammation of nose, throat & 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 50 µg/100 ml or higher.

Heavy lead exposure may result in central nervous system damage, encephalopathy and damage to the blood-forming (hematopoietic) tissues.

### **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.

### **CARCINOGENICITY**

**Sulfuric Acid:** The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mist containing sulfuric acid" as a Category I 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 2B 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 1A. Proof of carcinogenicity in humans is lacking at present.

**Arsenic:** Listed by National Toxicology Program (NTP), International Agency for Research on Cancer (IARC), OSHA and NIOSH as a carcinogen only after prolonged exposure at high levels.

**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 work site. 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.

## **SECTION 12 – ECOLOGICAL INFORMATION**

### **Environmental Toxicity**

Sulfuric acid: 24-hr LC50, fresh water fish (Brachydanio rerio): 82 mg/l  
96-hr LOEC, fresh water fish (Cyprinus carpio): 22 mg/l (lowest observable effect concentration)

Lead: 48-hr LC50 (modeled for aquatic invertebrates): <1mg/L, based on lead bullion

Arsenic: 24-hr LC50, freshwater fish (Carrassius auratus)>5000g/L

**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.

**Additional Information -**

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

**SECTION 13 – DISPOSAL**

**Waste Disposal Method** - Spent batteries: Send to lead smelter for reclamation following applicable Federal, State and local regulations. Product can be recycled along with automotive (SLI) lead acid batteries. Spent lead acid batteries are not regulated as hazardous waste when the requirements of 40 CFR Section 266.80 are met. If applicable; EPA hazardous waste number D002 (corrosivity) and D008 (Lead). Battery electrolyte (acid): Place neutralize slurry into sealed acid resistant containers and dispose of as hazardous waste, as applicable. 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. Follow local, State/Provincial, and Federal/National regulations applicable to as-used, end-of life characteristics to be determined by end-user.

**SECTION 14 – TRANSPORT**

DOT rules specified in 49 CFR 173.159 - Batteries, wet, regulate the transport of wet spillable 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 these requirements are not met, the batteries must be shipped as fully regulated Class 8 Corrosive hazardous materials.

<b>U.S.DOT</b>	Proper Shipping Name		Batteries, Wet, Filled with Acid
	Hazard Class	8	ID Number UN2794
	Packing Group	NA	Labels Corrosive
<b>IATA</b>	Proper Shipping Name		Batteries, Wet, Filled with Acid
	Hazard Class	8	ID Number UN2794
	Packing Group	NA	Labels Corrosive
	Reference IATA packing instructions 870		
<b>IMDG</b>	Proper Shipping Name		Batteries, Wet, Filled with Acid
	Hazard Class	8	ID Number UN2794
	Packing Group	NA	Packing Group NA
	Reference IMDG packing instructions P801		



## SECTION 15 – REGULATORY INFORMATION

### INVENTORY STATUS:

All components are listed on the TSCA; EINECS/ELINCS; and DSL, unless noted otherwise below.

### U.S. FEDERAL REGULATIONS:

**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. If applicable; EPA hazardous waste number D002 (corrosivity) and D008 (lead).

**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 State of California to cause cancer. Wash hands after handling.**

### **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 500 lbs. or more of sulfuric acid is present at one site (40 CFR 370.10). For more information consult 40 CFR Part 355.

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 II 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 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 40 CFR's 372.25, 372.27, or 372.28 or determining the amount of release to be reported under 40 CFR 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.

The reporting of lead and sulfuric acid (and their releases) in lead acid batteries used in cars, trucks, most cranes, forklifts, locomotive engines, and aircraft for the purposes of EPCRA Section 313 is not required. Lead acid batteries used for these purposes are exempt for Section 313 reporting per the "Motor Vehicle Exemption." See page B-22 of the [U.S. EPA Guidance Document for Lead and Lead Compound Reporting under EPCRA Section 313](#) for additional information of this exemption. Always check your state/local requirements as they may differ.

**Supplier Notification:** This product contains toxic chemicals that may be reportable under EPCRA Section 313 Toxic Chemical Release Inventory (Form R) requirements. For 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 Weight
Lead	7439-92-1	65
Electrolyte (Sulfuric Acid/Water Solution)	7664-93-9	25
Antimony	7440-36-0	< 1.0
Arsenic	7440-38-2	< 0.1

See 40 CFR Part 370 for more details.

**Additional Information** - This product may be subject to Restriction of Hazardous Substances (RoHS) regulations in Europe and China, or may be regulated under additional regulations and laws not identified above, such as for uses other than described or as-designed/as-intended by the manufacturer, or for distribution into specific domestic destinations.

## SECTION 16 – OTHER INFORMATION

### OTHER INFORMATION:

NFPA Hazard Rating for Sulfuric acid:

Flammability (Red) = 0

Health (Blue) = 3

Reactivity (Yellow) = 2

Sulfuric acid is water-reactive if concentrated.

<b>Document Control No:</b>	SDS20025 – SDS for Lead Acid Battery Wet, Filled With Acid	<b>Revision:</b>	1	<b>Effective Date:</b>	01/20/2017
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## SAFETY DATA SHEET Nickel Cadmium Batteries

### 1. IDENTIFICATION

#### 1.1 Product

NICKEL CADMIUM BATTERY (Rechargeable Alkaline Batteries)

**Trade name:** KPL / KBL / KPM / KBM / KPH / KBH / VRPP /HVM/ HVL/ KRX / KRM /KRH/ KFL/ KFM/ KFH/ KFX/ KSH/ FH/ FRX/FRM cells with Polypropylene containers.

**IEC Designation:** KL, KM, KH, KX, KGM, KGL according to IEC 60623/ IEC 62259

**Relevant identified uses:** Re-chargeable Nickel Cadmium batteries for UPS back up, switch gear applications etc.

#### 1.2 Supplier

**STORAGE BATTERY SYSTEMS, LLC**

N56 W16665 Ridgewood Drive

Menomonee Falls, WI 53051

Phone: 262-708-5800 / 800-554-2243

Person responsible for preparation: John Bondy, President

Revision date: June 22, 2015

#### 1.3 Emergency contact :

INFOTRAC 800-535-5053 / 1-352-323-3500

### 2. HAZARDS

No risk if batteries are used for its intended purpose and according to valid directions for use.

Under normal circumstances, positive, negative electrodes and alkaline electrolyte are inside the cell. Precautions required to be taken while handling cells, electrolyte during leakages/ filling/ emptying. See also safety data sheet for electrolyte. Electrolyte is harmful if swallowed and causes severe burns.

**Eye effects:** Contact with electrolyte extremely corrosive to eye tissues. May result in permanent blindness.

**Skin effects:** Contact with electrolyte solution inside battery may cause serious burns to skin tissues.

**Ingestion:** Ingestion of electrolyte solution causes tissue damage to throat area. Ingestion of cadmium and nickel compounds is carcinogenic.

**Inhalation:** Mists generated during activation procedures may cause varying degrees of irritation to the nasal mucous membranes and respiratory tract issues

### 3. COMPOSITION

<u>Positive Electrode</u>	Nickel hydroxide and Cobalt hydroxide on Nickel Plated substrate
<u>Negative Electrode</u>	Cadmium hydroxide and iron oxide on Nickel plated substrate
<u>Electrolyte</u>	Potassium Hydroxide + water
<u>Nominal voltage</u>	1.2 V

#### 3.1 (Weight as % of basic materials for a typical medium sized cell)

Metals %		Plastic %	Other %		
Steel (Fe)	10-25	Polypropylene	8-11	Potassium hydroxide	5.5-6.2
Nickel (Ni)	3-25			Lithium Hydroxide	0.5-1.0
Cadmium (Cd)	3-17			Carbon	0.1-4.0
				Water	28-35

#### 3.2 Chemical

#### CLASSIFICATION OF DANGEROUS SUBSTANCES CONTAINED INTO THE PRODUCT (In charged condition).

SUBSTANCES				CLASSIFICATION			
Name	Chemical	EINECS Number	CAS Number	Letter	Identification of danger	Special risk (1)	Safety advise-2
Nickel Oxy Hydroxide	Ni OOH		86676-91-7	C	Not classified		
Cadmium	Cd	231-152-8	7440-43-9	Xn	Harmful	R45/26 R48/23/25 R50/53 R62/63/68	S2, S60, S61
Potassium Hydroxide	KOH	215-181-3	1310-58-3	C	Corrosive	R35, R22	S <sup>1/2</sup> , S26, S36/37/39, S45
Lithium Hydroxide	LiOH	215-183-4	1310-65-2	C	Not classified	R35	Not classified

For the wording of the listed risk phrases, please refer to section 16.

### 4. FIRST AID MEASURES

When handling electrolyte, precautions must be taken to avoid personal to get in direct contact with it. If this accidentally happens the following must be exercised:

#### Inhalation:

Supply fresh air OR Oxygen.  
Rinse mouth and nose with water.  
Call for doctor for medical treatment.

#### 4.1 Skin contact:

Instantly wash with plenty of running water thoroughly.  
If skin irritation persists call for physician.



#### **4.2 Eyes contact :**

Important: Rinse immediately with plenty of water during at least 15-30 minutes and consult a physician.

#### **4.3 Ingestion:**

Rinse out mouth and then drink plenty of water (preferably milk).  
Do not induce vomiting. Immediately call for medical help.

### **5. FIRE-FIGHTING MEASURES**

#### **5.1 Extinguishing media**

**Suitable: Class D-Dry chemical, Carbon dioxide (CO<sub>2</sub>), Carbon dioxide blanket, Sand, foam.**

**Not to be used: Water \***

\*Water sprinklers can be used for fire safety for the cells stored without connecting the inter cell connectors (As individual cells) in plywood boxes.

#### **5.2 Special exposure hazards**

Cells can be overheated by an external source or by internal shorting and develop potassium hydroxide mist and/or hydrogen gas. In fire situations fumes containing Cadmium, Nickel and Iron may be evolved.

#### **5.3 Special protective equipment**

Use self-contained breathing apparatus and full fire-fighting protective clothing. Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition.

### **6. ACCIDENTAL RELEASE MEASURES**

#### **6.1 Personal precautions, protective equipment & Emergency procedures:**

- Wear protective equipment.
- Keep un-protected persons away.
- Keep away from ignition sources.
- Flush electrolyte spillage with plenty of water. Beware risk of slipping.

#### **6.2 Environmental precautions:**

- Do not allow electrolyte to enter the ground/ soil.

#### **6.3 Methods and materials for containment and cleaning:**

- Collect mechanically
- Dilute with much water and neutralize.

### **7. HANDLING AND STORAGE**

- Handle and store/ transport cells filled with electrolyte always with vents upwards.
- Avoid direct sunlight, high temperature and high humidity.
- Store in a cool and dry place. (Between 10 to 30 degree C & humidity of 45 to 85 %)
- Do not connect positive terminal to negative terminal with electrically conductive material.
- Do not store/operate the Nickel Cadmium batteries in the same room where the lead acid batteries are stored / operated.
- Keep away from water.
- Do not use the tools used for lead acid batteries for use in Nickel Cadmium batteries (Ex: hydrometer and thermometer etc.)
- Do not store any other material on top of the batteries.
- Batteries shall be stored in adequately ventilated areas.

## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

- Under normal condition of use no special personnel protection is required
- When emptying or filling cells with electrolyte, eye protection goggles and protection gloves, aprons must be used. (Alkali resistant material)
- While carrying out preventive and routine maintenance, use only insulated tools.
- Use self-contained breathing apparatus and full fire-fighting protective clothing.
- Ensure adequate ventilation.
- Ensure availability of emergency eye wash facility in the battery room.

## 9. PHYSICAL & CHEMICAL PROPERTIES

### 9.1 Appearance

Batteries supplied in prismatic polypropylene plastic containers.

### 9.2 Temperature range (ambient °C)

Cell Type	Continuous	Occasional
Plastic container	-40 +50	-50 +70

### 9.3 Specific energy : 13-22 Wh/Kg

Note: Wh: Normal voltage x Rated Ah  
Kg: Average battery weight in kg.

### 9.4 Specific instant power : 53-106 W/Kg

Note: W= 0.5 x Nominal voltage x Ip / weight  
Ip = current in Amperes delivered by a fully charged battery for half the nominal voltage at one second  
Kg = Average battery weight in kg.

9.5 Melting point : Not applicable  
Boiling point : Not applicable  
Flash point : Not applicable

## 10. STABILITY AND REACTIVITY

### 10.1 Chemical Stability

Thermal decomposition / conditions to be avoided:

No decomposition if used according to specifications.

Temperatures over 85°C. Short-circuit of electrode connections. Deformation of cells.

Do not connect the positive terminal to the negative terminal with electrically conductive material.

Protect from heat and direct sunlight. Protect from humidity and keep away from water. Incompatible materials: Conductive materials, water, seawater, strong oxidizers and strong acids.

### 10.2 Material to avoid

Do not fill cells with lead-acid battery electrolyte.

### 10.3 Possibility of Hazardous decomposition products

In the event of misuse of a battery gases like, oxygen or hydrogen accumulates in the cell and these gases may be emitted through the gas release vent. These gases may ignite if in the proximity of a naked flame or source of ignition.

Hazardous decomposition products: Acrid or harmful gas is emitted during fire.



**11. TOXICOLOGICAL INFORMATION**

Nickel Hydroxide	LD <sub>50</sub> / oral / rat : 1600 mg / kg*
Cadmium Hydroxide	No data available
Potassium Hydroxide	LD <sub>50</sub> / oral / rat : 365 mg / kg*
Lithium Hydroxide	No data available
Cadmium oxide	LD <sub>50</sub> / oral / rat : 1.3 mg / m3 (30 minutes)
Cadmium oxide	LD <sub>50</sub> / oral / mouse : 0.7 mg / m3 (30 minutes)

\*(INRS data)

**12. ECOLOGICAL INFORMATION**

There is no ecological harm when batteries are used correctly and recycled after use has ended.

Spilled/released electrolyte : The sharp pH rise may cause harmful impact on fish, plankton and stationary organisms.

**13. DISPOSAL CONSIDERATIONS**

As with all battery systems, Ni-Cd cells must be collected separately from other waste and recycled.

**13.1 Incineration**

**Never incinerate** Nickel Cadmium batteries.

**13.2 Landfill**

Never dispose Ni-Cd cells as landfill.

**13.3 Recycling**

**Nickel Cadmium batteries must be recycled. Contact Storage Battery Systems LLC for information.**

**14. TRANSPORT INFORMATION**

**14.1 United Nations**

UN No.: 2795

**14.2 International conventions**

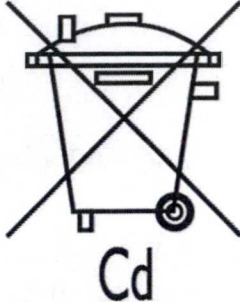
Air : IATA  
Sea : IMDG  
Land : ADR (road) or RID (rail) Batteries exempt according to special Paragraph No. 598.

UN No.	PROPER SHIPPING NAME	RAIL & ROAD (ADR)				SEA (IMDG)					AIR (IATA)			
		CL	Code	Packing group	Labeling	CL	Risk	EmS	Packing group	Labeling	CL	Risk	Packing group	Labeling
2795	BATTERIES, WET, FILLED WITH ALKALI Electric Storage	8	C 11	***	None	8	***	F-A, S-B	II	8	8	***	***	8

**15. REGULATORY INFORMATION**

According to item 14.2.

**15.1 Product marking**



**16. OTHER INFORMATION**

Issue date : 22<sup>nd</sup> June 2015

Marine pollutant : none

Risk Phrases

(1) Nature of special risk

- |           |  |
|-----------|--|
| R22       | Harmful if swallowed   |
| R26       | Very toxic by inhalation   |
| R35       | Causes severe burns.   |
| R36/37    | Irritating to eyes and respiratory system.   |
| R48/23/25 | May cause sensitization by skin contact  |
| R50/53    | Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. |
| R62       | Possible risk of impaired fertility  |
| R63       | Possible risk to the unborn child  |
| R68       | Possible risk of irreversible effects  |

(2) Safety advice

- |                  |  |
|------------------|--|
| S <sup>1/2</sup> | Keep locked up and out of the reach of children.   |
| S2               | Keep out of the reach of children  |
| S26              | In case of contact with eyes, rinse immediately with plenty of water and seek medical advice |
| S36/37/39        | Wear suitable protective clothing, gloves and eyes/face protection.                          |
| S45              | In case of accident or if you feel unwell, seek medical advice immediately.                  |
| S60              | Must be disposed of as hazardous waste.  |
| S61              | Avoid release to the environment.  |

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