# INITIAL SITE REVIEW WORK PLAN
# DRAFT

**American Zinc Products, LLC**
**Mooresboro, North Carolina**

**Prepared for:**
**American Zinc Products, LLC**

**Prepared by:**
**EnSafe Inc.**

**December 3, 2019**

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## 1.0 PURPOSE

This Initial Site Review (ISR) Work Plan is developed in accordance with the October 2019 Administrative Order on Consent (Consent Order) issued to American Zinc Products, LLC (AZP) (Respondent). The objective of this ISR Work Plan is to identify confirmed or potential releases of hazardous wastes and/or hazardous constituents from the AZP facility through a comprehensive, non-invasive evaluation and to assist in focusing the Sampling and Analysis Work Plan which will be prepared in the coming months.

## 2.0 PHYSICAL AND HISTORICAL BACKGROUND

The AZP facility is approximately 160 acres and is located at 484 Hicks Grove Road, Mooresboro, North Carolina 28114. The facility is situated in the southern portion of Rutherford County (latitude 35° 11' 27.8694" N, longitude -81° 50' 56.9256" W) approximately 0.5 mile north of the South Carolina/North Carolina state line and just west of US 221. The facility is surrounded by a mix of residential, undeveloped, and industrial areas. The closest private residence is approximately 328 feet south of the facility's entryway. Additionally, the Hicks Grove Baptist Church is approximately 392 feet south of the facility's entryway. Dense woods border the western portion of the property. The northern border of the property is bounded by the Broad River.

Construction of the facility began in September 2011 and continued through initial startup in 2014. The facility operated from March 2014 through February 2016, after which the facility operations were idled and the company filed for bankruptcy. The company emerged from bankruptcy in 2017, and renovation work on the facility was completed until early 2019. In 2019, during a phased startup of operations, the facility sustained a catastrophic fire — demolishing the cell house. The facility is almost fully staffed at 380 employees, with primary activities being mostly limited to maintenance, construction, and repair projects. Hazardous waste and/or hazardous secondary materials are currently being generated from construction, maintenance, and repair activities. It is anticipated that the facility will restart operations by spring 2020.

The facility consists of various production areas, including but not limited to, a WOX unloading building/WOX rail yard area, WOX leaching/washing area (100 Area), zinc concentrate area/final residue press area (100 Area), WOX wash clarifier (100 Area), PLINT Filter Plant/truck loading area (100 Area), carbon filter tanks decontamination bay (200 Area), zinc raffinate area (200 Area), crud press area (200 Area), solvent extraction (Area 200), bleed treatment (Area 300) and melting/casting/alloying area (500 Area). The facility also includes a reagent storage area, warehouses, offices, laboratories, storm water basin, process effluent, and storm water discharge

outfalls to the Broad River on the northern portion of the facility and the west and east ponds. A map showing the facility's location and features is included in Attachment A.

Bedrock geology underlying the site beneath unconsolidated soil, as described by the United States Geological Survey (USGS), is a "mica schist". Soil descriptions were obtained from the United States Department of Agriculture for Rutherford County and include what is termed "Piedmont soils", further termed Cecil-Pacolet soils, that are gently sloping to moderately steep, very deep, well drained soils that have a clayey subsoil. The Cecil soils from the surface down consist of reddish brown sandy clay loam followed by red clay, red clay that has strong brown mottles, red clay loam that has yellowish red mottles, and red clay loam that has pockets of reddish yellow sandy clay loam saprolite. The Pacolet soils from the surface down consist of dark reddish brown sandy clay loam, followed by red clay, red sandy clay loam, and sandy loam saprolite and yellowish red sandy loam saprolite. Depth to the uppermost continuous groundwater horizon is currently unknown. Based on topographic information and observations, groundwater beneath the site is likely to move in a direction toward the Broad River, which is the dominant water body located at the lowest elevation in the general vicinity.

A small stream was observed during a site visit on October 14, 2019, in the easternmost valley extending to the north from the developed portion of the property to the Broad River. Headwaters for the stream originate at the base of the indigenous topographic slope located north of the facility.

## 3.0 REGULATORY BACKGROUND

The facility has been assigned the U.S. EPA Identification Number NCR000159038. The facility is currently identified as a Large Quantity Generator (LQG) of hazardous wastes and has historically generated hazardous wastes bearing the following Hazardous Waste Numbers: D001, D002, D006, D007, D008, D035, D039, F002, F003, F005, U160, and U210. In addition, the facility maintains the following discharge permits issued by the North Carolina Department of Environmental Quality (NCDEQ): Wastewater Permit NC0089109, Individual Industrial Stormwater Discharge Permit NCS000562, and General Permit NCG500000 for Non-Contact Discharges. The facility also maintains Industrial Wastewater Sanitary Permit NC0087084 for discharges to the Forest City Riverstone Wastewater Treatment Plant and Synthetic Minor Air Permit 10248R04.

A letter from the North Carolina Department of Environment and Natural Resources (NCDNER), dated January 7, 2014 (included herein as Attachment B), provides information on various process materials formerly managed and to be managed in the future at the facility. This letter describes the regulatory status of each process material based on its management and disposition. In addition to this letter, supporting information submitted by the company to the NCDNER in advance of the January 7, 2014, letter will be reviewed along with applications for NPDES process water and stormwater permits. This information will provide detail as to the management of stormwater, process water, and materials at the facility as covered under the permits and in concurrence with the NCDNER.

## 4.0 PREVIOUS INVESTIGATIONS

Based on information provided in the Administrative Order, several reports were identified which contain information related to the facility and former operations and material analyses. Several of these reports were identified for further analysis and to obtain information to be considered in developing the Sampling and Analysis Work Plan, including findings from the following reports:

- Focused Compliance Inspection (FCI) conducted by the NCDEQ on June 10, 2014, to investigate a complaint received concerning onsite ponds and bird mortality.

- U.S. EPA Compliance Evaluation Inspection (CEI) and NCDEQ FCI conducted on August 13, 2014 ("August 2014 CEI/FCI"), to determine the facility's compliance with the applicable requirements of the Resource Conservation and Recovery Act (RCRA) regulations and the corresponding NCDEQ Hazardous Waste Management regulations.

- U.S. EPA and the NCDEQ CEI conducted on October 14, 2015 ("October 2015 CEI"), to determine the facility's compliance with the applicable requirements of the RCRA regulations and the corresponding NCDEQ Hazardous Waste Management regulations.

- U.S. EPA and NCDEQ Case Development Inspection (CDI) conducted on January 18 and 19, 2017 ("2017 CDI"), to determine the facility's compliance with the applicable requirements of the RCRA regulations and the corresponding NCDEQ Hazardous Waste Management regulations.

- Case Development Investigation Evaluation Report and Focused Compliance Inspection Sampling Report based on site sampling conducted on January 24 and 25, 2017, by the U.S. EPA's Science and Ecosystem Support Division (SESD) and Regional RCRA and NCDEQ staffs ("January 2017 Sampling").

## 5.0 FACILITY OPERATIONS, AREAS OF CONCERN, AND POTENTIAL EXPOSURE PATHWAYS

The following summarizes operational areas of the facility where former inspections occurred and which were identified in the Administrative Order. Areas and information described below will be among the sources of data to be analyzed to identify confirmed or potential releases of hazardous constituents to focus the Sampling and Analysis Work Plan to be prepared pursuant to Paragraph 88(c) of the Administrative Order.

### *WOX Unloading Building/Rail Yard Area*

- The WOX unloading building and rail yard area is comprised of several rail spurs and a WOX unloading building that receives railcars filled with WOX. WOX railcars enter the WOX unloading building via two bay doors. The WOX unloading building is equipped with eight unloading stations. During the January 2017 CDI, the inspectors observed doors and louvres on the sides of the WOX unloading building facing the rail yard area were observed to be open, allowing air to flow through.

### *WOX Leaching Area (100 Area)*

- During the August 2014 CEI/FCI, the inspectors observed a potential WOX leaching slurry (also known as leach residue), produced from washing of WOX, released to the exterior of the reactor tanks and on the concrete surfaces of the walls and floor within the surrounding the 100 Area secondary containment system.

- During the October 2015 CEI, the inspectors observed that the 100 Area secondary containment system contained liquids, and drains and underground lines leading to the east maintenance pond were plugged with potential leach residue solids. The inspectors observed that leach residue mixed with storm water had accumulated in the 100 Area secondary containment system.

- During the January 2017 CDI, the inspectors observed a storm water drain in the 100 Area to be accumulating residue.

### *Zinc Concentrate Area/Final Residue Press Area (100 Area)*

- During the August 2014 CEI/FCI and October 2015 CEI, the inspectors observed the 100 Area, which included the zinc concentrate and final residue press areas.

- During the January 2017 CDI, the inspectors observed that zinc concentrate may have mixed with storm water and been released to the zinc concentrate area secondary containment system.

### *WOX Wash Clarifier (100 Area)*

- During the August 2014 CEI/FCI, October 2015 CEI, and January 2017 CDI, the final press residue area was located directly across from the WOX wash clarifier.

### *PLINT Filter Plant/Truck Loading Area (100 Area)*

- During the January 2017 CDI, the inspectors observed storm water flooding the truck loading area.

- During an August 13, 2018, NCDEQ visit, portions of the concrete paved truck loading area located in the PLINT Filter Plant building area were being removed, and AZR planned for certain reconstruction of facilities in the area and replacement of the concrete pad.

### *Carbon Filter Tanks Decontamination Bay (200 Area)*

- During the August 2014 CEI/FCI, the inspectors observed a decontamination bay located in front of the carbon filter tanks. The decontamination bay was used for equipment clean-out.

### *Zinc Raffinate Area (200 Area)*

- During the October 2015 CEI, Facility personnel stated that in April 2015, a pipe rupture released a 30% sulfuric acid solution to the ground outside of the zinc raffinate area secondary containment system. Respondent responded and stopped the release, excavated soil, and used a vacuum pump to remove residual liquids.

- Also during the October 2015 CEI, facility personnel stated that in May 2015, a pipe rupture released depleted solution from the zinc raffinate area to the secondary containment system before overflowing to the ground and to a drainage channel. Facility personnel reported the release to the National Response Center as a sulfuric acid and zinc solution release (Incident Report #1116915). Respondent neutralized the depleted solution released to the ground and removed the contaminated soil into roll-off containers in July 2015.

- Four voluntary sampling events were performed at the facility (May, June, August, and September 2016) at the request of NCDEQ. Summary reports were submitted to NCDEQ for review. Following further discussions with NCDEQ, the facility excavated and removed additional soil from the area. Following completion of soil removal, NCDEQ did not require further action to be taken, and remediation was complete.

### *Crud Press Area (200 Area)*

- During the October 2015 CEI, the inspectors observed outside the crud press area building one roll-off with a hazardous waste label that contained zinc organic concentrate filter cake waste and leach residue debris.

### *Melting/Casting/Alloying Area (500 Area)*

- The 500 Area consists of melting, alloying, and casting furnaces and equipment. During the October 2015 CEI, the inspectors examined the recirculation tank (cell house) and its secondary containment system.

- NCDEQ issued an Immediate Action Notice of Violation (Docket #2016-006) on October 28, 2015, requiring Respondent to conduct an evaluation of potential impacts to environmental media. An investigation was conducted on January 25 and 26, 2016, to collect soil samples in proximity to the location where the release of process liquid to the subsurface had occurred. Results of the investigation were reviewed by NCDEQ, and it was concluded that no additional investigation or remediation was required.

### *West Ponds*

- During the August 2014 CEI/FCI and October 2015 CEI, inspectors observed four (4) ponds with synthetic liners located on the west side of the facility process area, near the western property boundary, and one (1) other area where a former unlined pond was located during construction of the facility. These lined west ponds were identified as the (a) depleted solution pond, (b) raffinate pond, (c) west maintenance pond, and (d) west storm water pond. The unlined west pond was identified as the old construction storm water pond. Next was a west maintenance pond. The last pond was the west storm water pond, equipped with geese deterrents.

- During the October 2015 CEI, the inspectors observed the lined west storm water pond. Storm water from the roads in the process area drains to the west storm water pond. Process liquids from process secondary containment systems accumulated in the west maintenance, raffinate, and depleted solution ponds before being placed back into the process.

- During the January 2017 CDI, the inspectors observed the lined west storm water pond was being used to accumulate approximately 1,700 tons of process material. Facility personnel indicated the process material was being accumulated for return to the process. The inspection confirmed that all the west ponds were connected via overflow pipes, with the west storm water pond being the lowest grade in the series. The west storm water pond also had an approximately 24-inch to 36-inch riser pipe which could allow discharge to a tributary.

- Outside of the fence of the west storm water pond was the old construction storm water (unlined) pond that is no longer in use.

- Next to the west storm water pond was the west maintenance pond. The 200 Area discharges process solution into this west maintenance pond before being fed back into the 200 Area processes. The next two ponds observed were the depleted solutions and raffinate ponds. Facility personnel indicated these lined ponds were used to temporarily accumulate materials that are recirculated back into the processes.

- NCDEQ noted in a January 20, 2017, email that the west storm water pond collects storm water and routes the water to the manufacturing process. Process water, after use, is discharged under the Wastewater Permit NC0089109. Additionally, NCDEQ noted in the email that the domestic wastewater (from showers, restrooms, etc.) from the facility is discharged via a pump station and sanitary sewer to the Riverstone Wastewater Treatment Plant (Industrial Wastewater Sanitary Permit NC0087084) on the other side of the Broad River.

- In February 2018, an NCDEQ inspector observed that the west maintenance and west storm water ponds had been excavated and the sediments removed and disposed of offsite; the primary pond liners had been removed then replaced by new liners in both ponds in late 2017.

### East Ponds

- During the January 2017 CDI, next to the WOX wash clarifier, the inspectors observed three process ponds with synthetic liners, known as the east ponds. Facility personnel explained that the lined east maintenance pond received flow from the secondary containment systems associated with process operations on the east portion of the facility, and the lined east storm water pond received flow from the bleed treatment process. The facility further explained that the lined east storm water pond was being used as a process pond temporarily. The east effluent pond was used to hold process water prior to discharge to the river. In February 2018, the east maintenance and east storm water ponds were removed to make room for new process equipment and the east effluent pond was reconstructed to create two separately lined ponds, one to hold storm water and the other process effluent water prior to discharge to the river.

- In February 2018, Respondent cleaned out the sediments and process materials above the liners in each of the east ponds in preparation for reconstruction of the area, shipping some of the material to Rockwood, Tennessee, and sending the rest to a hazardous waste landfill. On February 20 and 26, 2018, Respondent sampled the soil and sediment as related to an incident that occurred while sediment removal activities were being performed in the facility's east pond area. After removal of affected surface soil, samples of the soil surface were obtained and analyzed. Following submittal of analytical information to NCDEQ, construction activities in the area were continued.

- Prior to the removal of the ponds, Respondent sampled both the sediments above the east maintenance pond liner and the liners themselves. Based on the analytical sample results, NCDEQ requested that soil samples be collected below the liners of the east maintenance and east storm water ponds.

### Storm Water Basin 1

- During the October 2015 CEI, the inspectors observed Respondent was removing sediment from Storm Water Basin 1 and placing the material into four hazardous waste roll-off containers.

- During the January 2017 CDI, the inspectors observed that Storm Water Basin 1 consists of a concrete skimmer pond energy dissipater basin, earthen unlined basin that curves in a U loop to the two skimmers, and concrete housing prior to the 54-inch discharge pipe to the Broad River. Facility personnel indicated Storm Water Basin 1 is used to collect storm water and sediments carried by storm water originating from the east portion of the facility.

Contaminants of concern identified at the facility include cadmium, chromium, lead, and zinc. Potential exposure pathways will be evaluated as an integral part of the ISR.

## 6.0 TECHNICAL APPROACH

Current and historical conditions will be assessed through a site visit, interviews with persons familiar with the facility and area, regulatory research, and review of documents provided by Respondent and reasonably ascertainable historical documents such as aerial photographs, fire insurance maps, city directories, and topographic and land-use maps. Regulatory research will include an environmental database search and, as deemed appropriate for the subject property and adjoining properties, review of online and/or locally available files. As previously noted, all data and material available for the facility with regard to environmental conditions will be reviewed and cataloged, and included in the ISR, which will be used as a tool for development of the Sampling and Analysis Plan.

The following summarizes tasks to be performed to fulfill the requirements to collect the necessary information to prepare an ISR Report for the AZP Facility.

1. Conduct visual reconnaissance of Respondent's facility to inspect the 12 facility areas known at this time and included in the Consent Order; review of local records, including those maintained at the facility, will also be conducted, as applicable.

2. Conduct interviews with individuals having relevant knowledge of the facility. Identification of potential individuals to be interviewed will be determined through review of site records, discussion with the plant manager, and other information sources.

3. Evaluate the impact of the 2019 fire.

4. Prepare a draft ISR Report for U.S. EPA review and approval. The ISR Report will include:

   a. A description of past and present manufacturing and waste management practices, by unit or area, taking into account the release and sampling history noted above, and any changes that have been implemented to the design and construction of Respondent's Facility.

   b. A review of relevant information, including but not limited to environmental permits and applications; data (as available) from sampling of structures and environmental media; available reports of prior site investigation and remediation activities; available records related to manufacturing processes and hazardous waste management, maps, design and construction drawings; aerial photographs; an environmental record databases (EDR) report; and regulatory files from NCDEQ and U.S. EPA.

5. Identify preliminary potential environmental receptors, including identifying potable and industrial wells, surface water bodies, and groundwater flow direction. In addition, evaluate the effects of leveling and grading the facility property on storm water impacts to receptors at the downgradient Storm Water Basin 1.

6. Following submittal of the ISR Report coordinate a site visit with AZP, U.S. EPA, and NCDEQ to walk the facility, provide an orientation regarding the manufacturing process and location of past and present facility features, and to discuss tentative findings of the ISR.

   a. To the extent available, base maps will be prepared depicting the original construction of facility features and any significant changes to those features; these will be provided to U.S. EPA and NCDEQ prior to the site visit referenced above.

Within 60 days of the U.S. EPA's approval of this ISR Work Plan, the ISR Report, including results of all of the elements in the ISR Work Plan, will be submitted for U.S. EPA review and approval. The ISR will describe the results of the ISR Work Plan implementation in narrative and tabular form with relevant map(s) and will address each element identified in the approved ISR Work Plan. For each unit or area identified as having confirmed or potential releases of hazardous wastes and/or hazardous constituents, the ISR Report will include a discussion of past manufacturing or waste management practices at the unit or area and all available information pertaining to the unit's operation, construction, and process materials or wastes managed and the nature of any

release or potential release (e.g., media affected; hazardous waste and/or constituents released; magnitude of release; unit diagrams or engineering drawings; and, as allowable [contingent on proprietary, copyrighted, trademarked, and/or licensed processes and equipment] photographs of the unit's ancillary equipment). The ISR will also include maps and descriptions of the implementation of best management practices activities since initial construction of the facility.

## 7.0 SCHEDULE

| Milestone/Deliverable | Due Date |
|---|---|
| ISR Work Plan — Draft to U.S. EPA — Electronic | December 3, 2019, as approved by the U.S. EPA |
| U.S. EPA comments on Draft ISR Work Plan | 30 days after the Preliminary Site Visit |
| Final ISR Work Plan to U.S. EPA | 15 days after the U.S. EPA comments on the Draft ISR Work Plan |
| Visual Reconnaissance | 15 days after approval of the Final ISR Work Plan |
| Draft ISR Report to U.S. EPA | Within 60 days of the U.S. EPA approval of the Final ISR Work Plan |
| Site Visit with U.S. EPA | TBD; following initial review of the ISR Report by the U.S. EPA |
| U.S. EPA Comments on Draft ISR Report | 30 days after the Draft ISR Report |
| Final ISR Report to U.S. EPA | 15 days after the U.S. EPA comments on the Draft ISR Report |
| Draft Sampling and Analysis Plan to U.S. EPA | 30 days following the Final ISR Report — to coincide with anticipated full operation of the facility, Quarter 2 of 2020 |

## 8.0 PROJECT MANAGEMENT PLAN

### *Responsible Persons*

- Tim Basilone — American Zinc Products, LLC, Vice President for Environmental Affairs. Mr. Basilone will be serving as the primary contact for American Zinc Products, LLC (tbasilone@azr.com).

- Phil Coop — Senior Principal and Project Manager for EnSafe Inc. Mr. Coop will be responsible for the technical aspects of the project (pcoop@ensafe.com).

- Brian Caldwell, PG, CPG — Technical Lead/Geologist for field implementation of project (bcaldwell@ensafe.com).

- Wendy Zayac — Site Assessment Support (wzayac@ensafe.com).

## 9.0 HEALTH AND SAFETY PLAN

The Health and Safety Plan is included in Attachment C.

# Attachment A
# Facility Location and Features Figure

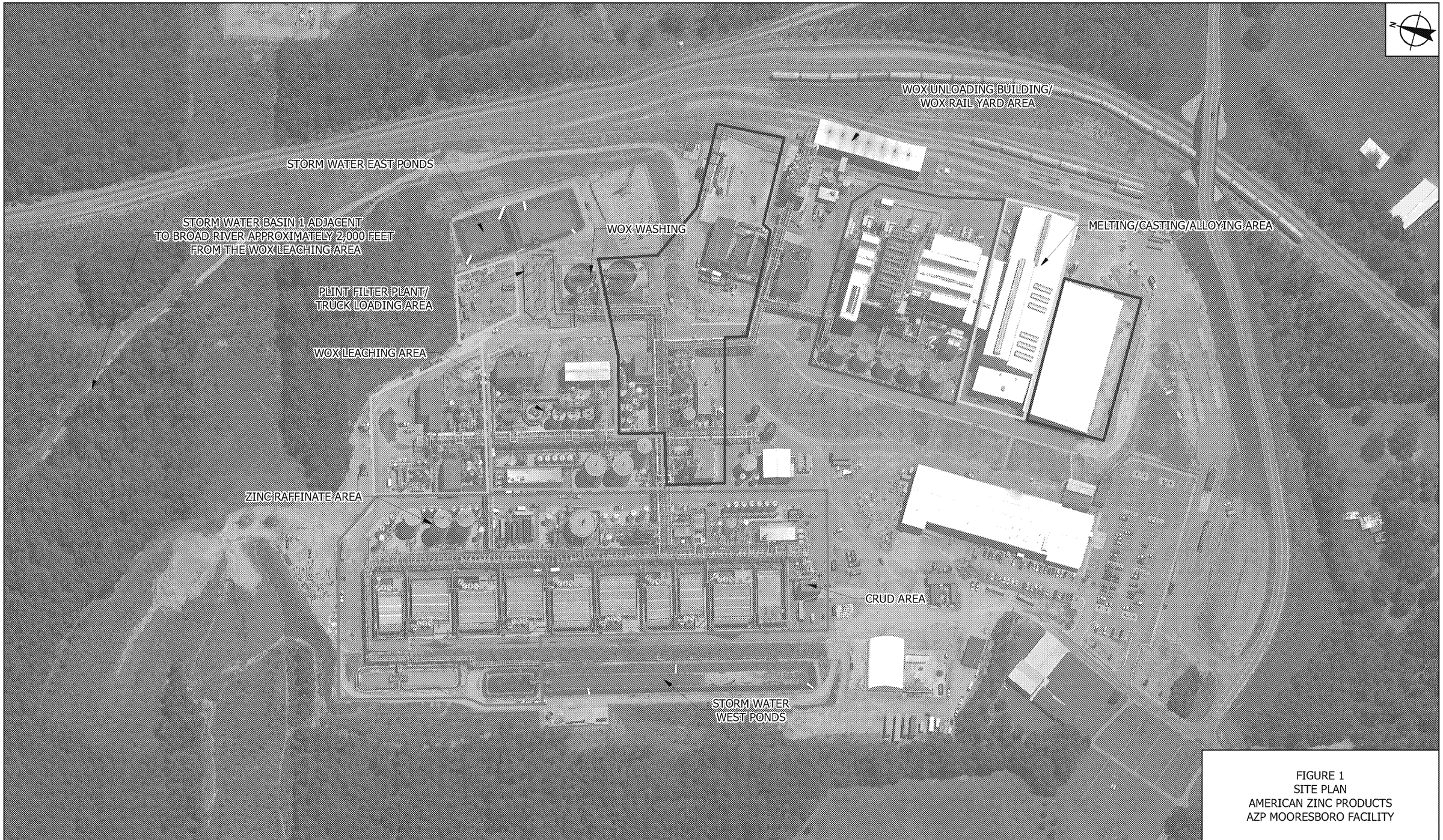


FIGURE 1
SITE PLAN
AMERICAN ZINC PRODUCTS
AZP MOORESBORO FACILITY

LEGEND

- AREA 100 - LEACHING
- AREA 200 - SX (SOLVENT EXTRACTION)
- AREA 300 - BLEED TREATMENT
- AREA 400 - ELECTROWINNING
- AREA 500/900 - CASTING
- AREA 600 - PLINT
- AREA 700 - WOX UNLOADING
- AREA 1100 - WAREHOUSE
- WOX WASHING

NAD 1983 STATE PLANE
NORTH CAROLINA FEET

0 100 200
SCALE IN FEET

| | |
|---|---|
| REQUESTED BY: | BC |
| DRAWN BY: | RK |
| DATE: | 11/26/2019 |
| PROJECT: | 0888824799 |

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# Attachment B
# Letter from North Carolina Department of Environment and Natural Resources

Hazardous Waste Section

# File Room Document Transmittal Sheet



| | |
|---|---|
| Your Name: | Lebeed Kady |
| EPA ID: | N C R 0 0 0 1 5 9 0 3 8 |
| Facility Name: | HORSEHEAD METAL PRODUCTS INC |
| Document Group: | General (G) |
| Document Type: | Technical Assistance (TA) |
| Description: | Regulatory status of materials generated on-site as it relates to hazardous waste regulations: co-products and by-products produced at the facility. The materials will be sold to third parties or reclaimed by Horsehead. |
| Date of Doc: | 1/7/2014 |
| Author of Doc: | Dexter Matthews |

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| | Month | Day | Year |
|---|---|---|---|
| Date Recieved by File Room: | | | |
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NCDENR
North Carolina Department of Environment and Natural Resources
Division of Waste Management

Pat McCrory
Governor

Dexter R. Matthews
Director

John E. Skvarla, III
Secretary

January 7, 2014

Timothy R. Basilone
Horsehead Corporation
4955 Steubenville Pike, Suite 405
Pittsburgh, PA 15205

RE: Horsehead Metal Products, Inc.
Mooresboro, Rutherford County

Dear Ms. Basilone:

This letter is in response to your request to the Division of Waste Management regarding Horsehead Metal Products, Inc. (Horsehead) Zinc production facility in Mooresboro, NC. In general, it is the responsibility of Horsehead as a generator to make its own waste determinations. Horsehead is requesting the Department's concurrence on the regulatory status of various materials as it relates to hazardous waste regulations: co-products and by-products produced at the facility. The materials will be sold to third parties or reclaimed by Horsehead either at the Mooresboro facility or at one of Horsehead's Waelz Oxide (WOX) production facilities in other states.

The materials under consideration are produced in four different processes at the Mooresboro facility: (A) PLINT Process, (B) Solvent Extraction Stage, (C) Bleed Treatment, and (D) Zinc-Rich material during maintenance operation. The materials and their corresponding waste determinations are discussed below:

A. PLINT Process: The leaching stage of the zinc production process yields two materials:
   1. The Lead/Silver Concentrate is the primary product of the PLINT Process which will be sold to third-party lead smelters. Lead smelters will use the concentrate as an ingredient to make Lead; provided that it is not reclaimed, the material is not a solid waste as noted in 40 CFR 261.2(e)(1)(i), adopted by reference 15A NCAC 13A .0106(a); and
   2. The Zinc Concentrate 12 has 12 percent by weight of zinc which will be used as a supplemental feedstock and will be shipped to Horsehead WOX production facilities for reclamation of the zinc. This concentrate material is not a solid waste when it is destined for reclamation as a by-product exhibiting a characteristic of hazardous waste as noted in 40 CFR 261.2(c)(3), adopted by reference 15A NCAC 13A .0106(a).

B. Solvent Extraction Stage: The various phases of the Solvent Extraction Stage can lead to the build-up of insoluble solids in the system's settlers. The slurry containing these insoluble solids are filtered to produce a Zinc Organic Concentrate (ZOC) material which has 10 percent by weight zinc. The ZOC will also contain petroleum hydrocarbons, so depending on the BTU value of the ZOC the material will be handled as follows:

1. ZOC with thermal value of less than 5,000 Btu/lb will be sent to Horsehead WOX production facilities for reclamation of the zinc. The material is not a solid waste if the by-product exhibiting a characteristic of hazardous waste can be reclaimed as noted in 40 CFR 261.2(c)(3), adopted by reference 15A NCAC 13A .0106(a), and
2. ZOC with thermal value of 5,000 Btu/lb or more will be shipped to a permitted facility for energy recovery as noted 40 CFR 266, Subpart H, adopted by reference 15A NCAC 13A .0111(h). However, if the ZOC cannot be shipped for energy recovery or reclamation, it will be disposed of as hazardous waste.

C. Bleed Treatment: Gypsum, Cadmium Concentrate and Zinc Concentrate 43 are produced in the bleed treatment process.

1. Gypsum is not a hazardous waste; nor is it a solid waste when marketed for commercial use in wallboard manufacturing and for agricultural purposes. If markets cannot sustain production volume the material will be disposed at a permitted solid waste landfill.
2. Cadmium Concentrate. The Cadmium Concentrate produced in the Bleed Treatment process is expected to have 73 percentage of cadmium, 27 percentage of zinc and some fractional percentage of copper. The material will be sold to third parties for recovery of the cadmium for use by electronics manufacturers. The reclaimed material is not solid waste when it is destined for reclamation as a by-product exhibiting a characteristic of hazardous waste as noted in 40 CFR 261.2(c)(3), adopted by reference 15A NCAC 13A .0106(a).
3. Zinc Concentrate 43. The material can be considered a valuable commodity as supplemental feedstock for Horsehead WOX production facilities. Thus, the zinc concentrate 43 is not a solid waste when the material can be reclaimed as a by-product exhibiting a characteristic of hazardous waste as noted in 40 CFR 261.2(c)(3), adopted by reference 15A NCAC 13A .0106(a).

D. Zinc-Rich Materials Recovered During Maintenance Operations at various stages of the zinc production process, Zinc-Rich Materials are produced from periodic maintenance operations. Zinc-Rich Materials from Electro-winning are expected to have zinc content of 55-65 percent by weight. The zinc content of this material is comparable to the zinc content of WOX, which contains up to 65% zinc. Based on the zinc content, these materials can be used as feedstock as follows:

1. Zinc material with content greater than 10%, but not comparable to WOX. The material can be shipped and used as feedstock at other Horsehead facilities for WOX production as noted in 40 CFR 261.2(c)(3), adopted by reference 15A NCAC 13A .0106(a). If the material is determined to be not suitable for production or reclamation, it will be disposed as hazardous waste.

2. <u>Zinc material content comparable to WOX</u>
    i. For material that can be returned to the original zinc production at Mooresboro plant without reclamation, it is not a solid waste and can be considered as a substitute for feedstock as noted in 40 CFR 261.2(e)(1)(iii), adopted by reference 15A NCAC 13A .0106(a), or
    ii. As an alternative the material can be used as feedstock after reclamation of the zinc as noted in 40 CFR 261.2(c)(3), adopted by reference 15A NCAC 13A .0106(a), or
    iii. The material can also be shipped out of state to one of Horsehead's WOX production facilities for reclamation of zinc as supplemental feedstock and is not a solid waste as noted in 40 CFR 261.2(c)(3), adopted by reference 15A NCAC 13A .0106(a).

To be exempt from the regulations Horsehead must demonstrate that there is a known market for any of the material destined for reuse and has an economic value by providing appropriate documentation (i.e. such as contracts showing that the final product can be sold and has an economic value in the market). In addition, owners or operators of facilities claiming that they actually are recycling the material must show that they have the necessary equipment to do so as noted in 40 CFR 261.2 (f), adopted by reference at 15A NCAC 13A .0106(a).

All materials must be handled as commodities and managed (e.g. stored) in container(s), and the container(s) must be labeled as to the contents. Material must not be applied or placed on the land, as noted in 40 CFR 261.2(c)(1)(i), adopted by reference at 15A NCAC 13A .0106(a).

Also, note that any of the material being reused must not be speculatively accumulated. A material is "accumulated speculatively" if it is accumulated before being recycled. A material is not accumulated speculatively, if it can be shown that the material is potentially recyclable and has a feasible means of being recycled. During the calendar year (commencing on January 1) -- the amount of material that is recycled, or transferred to a different site for recycling, equals at least 75 percent by weight or volume of the amount of that material accumulated at the beginning of the period. See 40 CFR 261.1(c)(8), adopted by reference at 15A NCAC 13A .0106. Horsehead must maintain on site records to document that the material is not being accumulated speculatively.

If any of the waste streams or processes changes then new waste determinations are necessary.

Respectfully,

Dexter Matthews, Director
Division of Waste Management

cc:

| | | |
|---|---|---|
| James Gilreath | Spring Allen | Michael Scott |
| Brent Burch | Linda Culpepper | Ed Mussler |
| Mike Williford | Julie Woosley | Lebeed Kady |

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Nexsen Pruett, LLC
1230 Main Street
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# Attachment C
# Health and Safety Plan

# Short Health and Safety Plan

**Reference:** American Zinc Products (AZP) Facility

## 1. Site History and Description

A. Type of Site: Spill ☐ HW Site ☒ Other ☐

The AZP Facility is approximately 160 acres and is at 484 Hicks Grove Road, Mooresboro, North Carolina 28114. The Facility is situated in the southern portion of Rutherford County (latitude 35° 11' 27.8694" N; longitude -81° 50' 56.9256" W) approximately 0.5 mile north of the South Carolina/North Carolina state line and just west of US 221. It is surrounded by a mix of residential, undeveloped, and industrial areas. Dense woods border the western portion of the property. The northern border of the property is bounded by the Broad River. A Site Map is included in the attachment.

The Facility receives partially reclaimed crude zinc oxide (CZO) in the form of waelz oxide (WOX) for reclamation. WOX is a partially reclaimed material generated during the partial reclamation of electric arc furnace (EAF) dust, which is an emission control dust/sludge generated from the primary production of steel in electric arc furnaces. Pursuant to 15A North Carolina Administrative Code (NCAC), Subchapter 13A.0106(d) [Title 40 of the Code of Federal Regulations (C.F.R.) § 261.32], EAF dust is a listed hazardous waste with the Hazardous Waste Number K061. EAF dust (K061) is listed as a hazardous waste because it may contain some of the following hazardous constituents: hexavalent chromium, lead, and cadmium. As a partially reclaimed material derived from a listed hazardous waste, WOX remains a hazardous waste until the reclamation process is complete. The AZP Facility is designed to further process the WOX to produce zinc metal and metal concentrates containing cadmium, lead, and silver. WOX is the primary feed material to the reclamation process. The reclamation process outputs include but are not limited to: lead/silver concentrate, zinc concentrate, zinc organic concentrate, gypsum, and cadmium concentrate.

The task to be performed under this Health and Safety Plan is a site walkthrough. No cleanup or sampling activities are planned during this current scope of work.

B. Activities Performed on Site Prior to Cleanup:

The site was previously used to process WOX to produce zinc metal.

# Short Health and Safety Plan

C. Waste Types: Liquid ☒ Solid ☒ Gas/Vapor ☐

D. Characteristics: Toxic ☒ Flammable/Volatile ☐
Radioactive ☐ Reactive ☐ Corrosive ☒

E.

| Substances | Toxicity (ACGIH TLV in milligrams per cubic meter) | Location |
|---|---|---|
| hexavalent chromium | 0.0002 | |
| lead | 0.05 | |
| cadmium | 0.01 | |
| zinc | | |

F. Physical Hazards:
☒ Biological/Animal/Insects ☐ Confined Spaces
☒ Cold ☐ Elevated Heights
☒ Electrical/Stored Energy ☐ Heat
☐ Radiation ☒ Structural ☒ Noise

Other: _____

G. Weather:

Care should be taken to remain cognizant of weather hazards that can be encountered throughout the year. Depending on the season, heat stress or cold stress could be expected during work activities. Adequate hydration supplies should be provided to the team and a heat source should be available in the event a cold stress situation should arise.

Fieldwork should not be conducted when lightning can be seen or thunder heard from the work area.

During extreme weather conditions, the field team lead should use his or her best judgment to stop field activities. Examples of conditions that may warrant work stoppage include: tornado warnings, high winds, hail, and flooding.

# Short Health and Safety Plan

## 2. Site Organization and Control

A. Work Areas Identified: ☐ No ☒ Yes

B. Decontamination Areas Identified: ☒ No ☐ Yes

C. Support Areas Established: ☒ No ☐ Yes

D. Site Security Established: ☐ No ☒ Yes

E. Sketch of Site Available: ☐ No ☒ Yes

## 3. Job Activities/Work Plans

A. Types of Activities to be Performed:

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Drum: | ☐ | Excavation | ☐ | Sampling | ☐ | Staging | ☐ | Treatment | ☐ | Disposal |
| 2. Soil: | ☐ | Excavation | ☐ | Sampling | ☐ | Treatment | ☐ | Disposal | | |
| 3. Vessel/Tank Cleaning | | | ☐ | Pressure Washing | ☐ | Chemical Treatment | | | | |
| 4. Industrial Maintenance | | | ☐ | Debris Removal | ☐ | Service | ☐ | | | |
| 5. Other (specify): | Property visit, site walkthrough. | | | | | | | | | |

B. Comments: No sampling or contact with process materials is planned

## 4. Education and Training

A. Are All Site Workers 40-Hour OSHA Trained with Up-to-Date 8-Hour Refresher Training?
☐No ☒ Yes

B. Will Site Workers Be Trained on the Hazards Associated with the Site (Hazard Communication 29 CFR 1910.1200)? ☐No ☒Yes

C. Special Training Required for this Site: ☒No ☐Yes

If yes, specify types:

| | No | Yes | |
|---|---|---|---|
| Confined Space Entry | ☒ | ☐ | |
| Fall Protection | ☒ | ☐ | |
| Lockout/Tagout | ☒ | ☐ | |
| Special PPE Training | ☒ | ☐ | |
| Other | ☐ | ☐ | Specify: _____ |

# Short Health and Safety Plan

**5. Medical Surveillance**

Special Medical Monitoring Required? ☒No ☐ Yes

If yes, specify: _____

_____

_____

**6. Ambient Field Monitoring**

A. Field Monitoring Equipment

| | No | Yes |
|---|---|---|
| Combustible Gas/Oxygen Meter, etc. | ☒ | ☐ |
| Colorimetric Tubes | ☒ | ☐ |
| Photoionization Detector (Organic Vapors) | ☒ | ☐ |

Other: _____

B. Field Calibration Equipment/Materials Needed for Site:

| | No | Yes |
|---|---|---|
| Isobutylene (PID): | ☒ | ☐ |
| Mixed Gas: | ☒ | ☐ |

Others: _____

C. Air Monitoring Protocol (should correspond with work plans): _____

_____

_____

_____

# Short Health and Safety Plan

## 7. Levels of Protection

A. Job Activity: Site walkthrough

PPE Level: (check one) ☐ **A** ☐ **B** ☐ **C** ☒ **D**

List of Personal Protective Equipment:

| | No | Yes | |
|---|---|---|---|
| Air-Purifying Respirator | ☒ | ☐ | Cartridge: _____ |
| Chemical Boots | ☒ | ☐ | |
| Chemical Protective Clothing | ☒ | ☐ | Model: _____ |
| Gloves | ☒ | ☐ | Inner |
| Hard Hat | ☒ | ☐ | |
| Safety Work Boot | ☐ | ☒ | Steel or Composite-Toe |
| Safety Glasses | ☐ | ☒ | |
| Splash Shield | ☒ | ☐ | |
| High Visibility Vest | ☐ | ☒ | |

If site personnel traverse the slope north of the facility to Storm Water Basin 1 adjacent to the Broad River, leather gloves will be worn to protect from vegetation.

## 8. Equipment List

A. Safety Equipment

| | No | Yes | |
|---|---|---|---|
| Communications | ☐ | ☒ | Personal Cell Phone |
| Fall Protection System | ☒ | ☐ | |
| Fire Extinguisher | ☒ | ☐ | Provided By: Personnel |
| First Aid Kit | ☒ | ☐ | |
| Forced Air Ventilation | ☒ | ☐ | |
| Full Body Entry Harness | ☒ | ☐ | |
| Insulated Coveralls | ☒ | ☐ | |
| Mechanical Retrieval | ☒ | ☐ | |
| Personal Floatation Devices | ☒ | ☐ | |
| Portable Canopy (Shade) | ☒ | ☐ | |

# Short Health and Safety Plan

B. Decontamination Equipment:

| | No | Yes |
|---|---|---|
| Brushes | ☒ | ☐ |
| Buckets | ☒ | ☐ |
| Hexane | ☒ | ☐ |
| Liquinox | ☒ | ☐ |
| Water Source Available | ☒ | ☐ |

Other: _____

C. Sanitation: ☐Latrines ☐Showers ☐ Hand Washing

**9. Decontamination Procedures**

A. Work Activities: Not applicable

Level of Protection: _____

Decontamination Solutions: _____

Procedures (by Station): _

B. Work Activities: ____

Level of Protection: _____

Decontamination Solutions: _____

Procedures (by Station): _____

# Short Health and Safety Plan

## 10. Emergency Telephone Numbers

| Emergency Telephone Numbers | | |
|---|---|---|
| Ambulance | | **Emergency 911** |
| Fire Department — Cliffside Area Fire Department | | **Emergency 911** |
| Police Department — Forest City Police Department | | **Emergency 911** |
| Hospital — Rutherford Regional Hospital/ 288 S Ridgecrest St; Rutherfordton, NC 28139 | | 828-286-5000 |
| Hicks Grove Road then left onto SR 1113; right onto US-221 S, then sharp left onto US-221 N (15.1 mile); turn left onto Harris Street; left onto Monfredo Street; right onto S Ridgecrest Street; turn left onto Hospital Circle. 16.4 miles total. | | |
| Centers for Disease Control and Prevention (Poison Control Center) | | 800-222-1222 |
| **Key Personnel Telephone Numbers** | | |
| **Title** | **Category** | **Data** |
| EnSafe Project Manager | Name | Phil Coop<br>pcoop@ensafe.com |
| | Work | 901-937-4229 |
| | Mobile | 901-833-3471 |
| EnSafe Site Safety and Health Officer | Name | Brad Reddick<br>breddick@ensafe.com |
| | Work | 270-282-8840 |
| | Mobile | 352-680-1686 |
| EnSafe Remediation Specialist | Name | Lori Goetz<br>lgoetz@ensafe.com |
| | Work | 901-937-4276 |
| EnSafe Site Ecological Risk Assessor | Name | Jimmy Groton<br>jgroton@ensafe.com |
| | Work | 865-219-2681 |
| EnSafe Corporate Health and Safety Manager | Name | Scott Campbell<br>scampbell@ensafe.com |
| | Work | 901-937-4255 |
| | Mobile | 504-377-2619 |

EnSafe personnel anticipated to be onsite for a site walkthrough (not necessarily concurrently) include:

- Phil Coop (contact info in table above)
- Brian Caldwell (bcaldwell@ensafe.com; work: 865-693-3623; mobile: 865-803-6295)
- Brad Reddick (contact info in table above)