FINAL
Waste Management Plan
and
Schedule for Building 1,
Columbia Falls Aluminum Company,
Columbia Falls, Montana 59912

June 2016

Prepared for:

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ACRONYMS AND ABBREVIATIONS

AOC	Administrative Order on Consent
ARM	Administrative Rules of Montana
Calbag	Calbag Resources LLC
CFAC	Columbia Falls Aluminum Company
CFR	Code of Federal Regulations
DEQ	Montana Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HEPA	High efficiency particulate air
MCA	Montana Code Annotated
MHWA	Montana Hazardous Waste Act
PCB	Polychlorinated biphenyls
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
Report	Columbia Falls Aluminum Company, Building 1, Reuse, Repurpose, and Recyclable Materials Waste Determination Summary Report
SAP	Sampling and Analysis Plan
SPL	Spent pot liner
TCLP	Toxicity characteristic leaching procedure
WMP	Waste Management Plan

1.0 INTRODUCTION

Calbag Resources LLC (Calbag) has prepared this Waste Management Plan (WMP) and schedule for waste characterization, waste determination, and waste handling for spent pot liner (SPL) removal transportation and disposal, as well as other identified wastes. This WMP includes, as an appendix, the *Columbia Falls Aluminum Company, Building 1, Reuse, Repurpose, and Recyclable Materials Waste Determination Summary Report* (Tetra Tech, Inc. [Tetra Tech] 2016), identified as the "Report" throughout this document. The Report addresses the approved reuse and repurpose of scrap metal and re-saleable products at the former Columbia Falls Aluminum Company (CFAC) facility in Columbia Falls, Montana. The WMP addresses specific protocols and regulatory requirements for the reuse of scrap metal and saleable repurposed products, and the disposal of waste materials being removed from CFAC.

1.1 SITE BACKGROUND

The CFAC facility covers approximately 225 acres and is located about 2 miles northeast of Columbia Falls, Montana (Figure 1). CFAC operated as a primary aluminum reduction facility from 1955 to 2009 and has had several owners within that time. The current owner of the plant is CFAC. CFAC produced 185,000 tons per year of aluminum while in production. The aluminum reduction process was operated in the pot room building complex (Building 1), which covers about 1,750,000 square feet or 40 acres, as shown in Figure 1 (CFAC 2015). Building 1 contains five pot lines with two pot rooms per line as shown on Figure 2. The pot rooms within each pot line are separated by a courtyard. Each pot line has the capacity to hold 120 pots. Each pot contains an anode and a cathode. The anodes are currently in the process of being removed from the cathodes. There are 451 remaining cathodes that are lined with a carbon cathode (pot liner). One cathode is in the Pot Rebuilding room. The completed reduction process generates SPL, a listed hazardous waste (K088). In April 2015, CFAC announced it was permanently closing the facility with plans to demolish some facility structures. Calbag agreed with CFAC to purchase Building 1 including above grade assets exclusive of real property, for demolition and reuse of many of the materials. This document outlines procedures and protocols to identify and dispose of wastes associated with removal of the SPL and demolition of Building 1, and contains reports

documenting the sampling and waste determination for sales of reusable, repurposed, and recyclable materials from Building 1.

1.2 REGULATORY ACTIVITIES

In June 2015, Calbag and CFAC agreed to an Administrative Order on Consent (AOC) with the Montana Department of Environmental Quality (DEQ) to implement and comply with the Montana Hazardous Waste Act (MHWA) (Title 75, Chapter 10, Part 4, Montana Code Annotated [MCA]) and the Administrative Rules of Montana (ARM) (Title 17, Chapter 53, Subchapters 1 through 15) (DEQ 2015). The U.S. Environmental Protection Agency (EPA) defines SPL from primary aluminum reduction as K088-listed hazardous waste. As part of the AOC, Calbag will ship all K088 wastes to a hazardous waste disposal facility that accepts K088 waste. Calbag will characterize and then ship all non-K088 hazardous waste to the appropriate landfill that will accept them. The AOC states that CFAC and Calbag are not required to obtain a hazardous waste management permit, provided CFAC and Calbag comply with the provisions of the AOC. In addition, DEQ will approve the start of the 90-day period for processing, storing, transporting, and disposing of each of the 72 cathodes in the West Pot Room (which do not contain a heel), as beginning when a cathode is removed from the pot hole with the overhead crane. The AOC also requires that Calbag submit a WMP and schedule for the proper removal and disposal of the K088 hazardous wastes and other Resource Conservation and Recovery Act (RCRA) regulated wastes found in Building 1. The AOC is provided in Appendix A.

Calbag developed and then submitted a digging plan and inventory to the DEQ on August 7, 2015. On September 2, 2015, DEQ provided Calbag and CFAC with comments on the plan. On October 26, 2015, DEQ submitted a letter to CFAC and Calbag stating the revised plan, with DEQ comments incorporated, be submitted to DEQ no later than November 20, 2015. The title of the document was revised to a WMP.

In November 2015, Calbag developed and submitted a Draft WMP (Tetra Tech 2015) to DEQ in response to DEQ's request for a more detailed plan than the digging plan that Calbag submitted in August 2015 (Calbag 2015). After brief review of the November Draft WMP, and upon correspondence and agreement with Calbag, the WMP was put on hold, which meant that no SPL removal activities would occur until approval of the final WMP. Instead, Calbag and DEQ focused

on development of the *CFAC, Building 1, Reuse, Repurpose, and Recyclable Materials Waste Determination Summary Report* (Report) (Tetra Tech 2016). The draft Report was submitted to DEQ on December 4, 2015, and then updated and re-submitted as a draft final on December 14, 2015. The final document was submitted on January 13, 2016 and approved by DEQ on January 14, 2016. This allowed Calbag to continue the processing, shipping, and sales of metals contained in Building 1. The final Report is presented as Appendix B of this document

On January 28, 2016, DEQ provided preliminary comments on the November 2015 Draft WMP and verbal comments through meetings, phone calls, and electronic mail. A Draft Final WMP was submitted to DEQ on March 8, 2016. DEQ comments on the Draft Final WMP were received by CFAC and Calbag on April 13, 2016. This final WMP addresses and incorporates DEQ's comments. The AOC and all DEQ comments are provided in Appendix A.

A meeting was conducted between DEQ and Tetra Tech on May 12, 2016 to address additional comments on the WMP. DEQ requested that the land disposal restriction (LDR) statement for cyanide found on page 10 of the Report presented in Appendix B be deleted because DEQ and Calbag/CFAC have agreed that LDRs are not being used to make hazardous waste determinations for the purposes of fulfilling the AOC requirements. However, LDRs will likely be considered by the landfills that Calbag uses for disposal of its wastes.

1.3 APPLICABLE REGULATIONS

Waste disposal characterization criteria for identification of wastes in Building 1 are dictated by regulations presented in 40 Code of Federal Regulations (CFR), Part 261-Identification and Listing of Hazardous Waste and the Montana Hazardous Waste Act (Title 75, Chapter 10, Part 4, MCA) and the ARM (Title 17, Chapter 53, Subchapters 1 through 15). The hazardous waste listing,K088, is specific to SPL, which is the carbon portion of the material contained inside the electrolytic reduction cell (EPA 1989). Other materials contained in the "pot" are not K088-listed hazardous waste (EPA 1989) but may contain non-K088 hazardous wastes. The AOC presented in Appendix A specifies how Calbag and CFAC must comply with the listed hazardous waste regulations. In addition to K088-listed wastes, there are other wastes that are present in Building 1, which may be (RCRA) hazardous wastes or solid wastes, as shown on Table 1. As described in 40 CFR §262.112(c), DEQ has stated that Calbag and CFAC will use the knowledge of process to

determine whether materials such as ore debris, dust, and concrete are identified as K088 wastes. A waste determination flow chart is presented as Figure 3. DEQ and Calbag agreed that through the knowledge of process, materials historically exposed within the North Crane Transfer Bay at the ends of Pot Rooms 6, 7, and 8 where SPL was historically removed are K088 wastes. All other materials where pots have not been dismantled will be evaluated for non-K088 RCRA hazardous wastes. Non-K088 materials may be RCRA hazardous waste based on a RCRA characteristic. Knowledge of process of primary aluminum refining and associated waste streams, as well as industry standards, point to the characteristics of reactivity and toxicity as potential characteristics of the aluminum reduction process. The Report (Tetra Tech 2016) presented in Appendix B details the methods and analytical results for samples collected from residues on reusable, repurposed and recyclable materials prior to shipment and sales. Calbag has hired Chemical Waste Management Inc. to pack and transport all locker wastes and potential non-K088 hazardous waste as hazardous waste, rather than profile the contents of each item. Table 1 provides an inventory of wastes and recyclable, reusable, and repurposed metals.

There are no RCRA hazardous waste regulatory levels for total fluoride; they are not regulated under RCRA and therefore, are not applicable to this AOC and certification of closure for Building 1. For cyanide, the RCRA characteristic of reactivity, described in 40 CFR 261.23, applies. Through knowledge of process as described in 40 CFR 261.23, the cyanide that is found in the aluminum reduction process at CFAC has not been known to react with water or generate toxic gases, vapors, or fumes. Therefore, the waste is not reactive and not a D003 listed waste. Through knowledge of process, the concentrations of cyanide found in the waste debris piles are non-hazardous. However, cyanide and fluoride concentrations may be required for wastes being sent to a disposal facility.

Other wastes in Building 1 shown on Table 1, such as waste oils, will be disposed of or recycled under requirements set forth by 40 CFR §279 for used oil. Universal wastes will be managed using requirements set forth by 40 CFR §273. Polychlorinated biphenyls (PCBs) are regulated under the Toxic Substances Control Act and therefore, are not part of this AOC. The cryolite bath located above the aluminum heel will be removed from the pots, which through testing, was found to be a nonhazardous waste. The waste will be disposed of at the appropriate disposal facility. As

discussed above, all materials in Table 1 have been identified as a hazardous waste, nonhazardous waste or recyclable, reusable, or repurposed material.

Truck decontamination procedures will be implemented prior to leaving the building and will be in compliance with 40 CFR §265.1101. Additional details on decontamination procedures are described in Section 2 and Appendix D of this document.

Reporting and recordkeeping is required for management of all wastes and will comply with 40 CFR §260. This will include waste tracking forms and monthly status reports. These forms are found in Appendices I and J, respectively.

Containment during SPL removal will be performed in compliance with 40 CFR §264.1102, Closure and Post-Closure Care. This rule will apply to the ten containment areas that will be constructed to remove the SPL, as well as the building itself, after removal of the SPL and before demolition of each pot room. Appendix D provides details on decontamination procedures, the vacuum equipment specifications, and truck haul routes out of each of the ten pot room containment/decontamination areas. Appendices F and G contain the Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP), respectively, that describe confirmation sampling methods and analysis of the basement debris and concrete floors, walls, and support structures, prior to closure of each pot room and the battery room.

In addition, financial assurances will comply with 40 CFR §264 Subpart H, which involves the financial responsibility.

40 CFR §264.115 addresses Certification of Closure. Calbag will comply by certifying that the building has been closed in accordance with the specifications of this regulation and the AOC. Calbag (the owner) and a qualified Professional Engineer will sign a Certification of Closure. K088 and any other listed or characteristic hazardous wastes shall be removed from Building 1 within two years from the date the DEQ approves this Final WMP.

Descriptions of methods for assuring compliance with the above are discussed in the sections provided below. An index of DEQ comments and CFAC/Calbag responses, the AOC, other regulatory correspondence, and supporting regulatory guidelines are provided in Appendix A.

1.4 PLAN STRUCTURE

This plan has five sections: Section 1 is the introduction; Section 2 describes the waste management protocols and procedures; Section 3 discusses financial management; Section 4 describes the cathode removal schedule; and Section 5 contains the references.

This document contains one attachment and multiple appendices. Attachment 1 contains the EPA guidance document. Document appendices include:

- A – AOC, Index of Comments, Regulatory Correspondence, and Regulatory Information
- B – CFAC, Building 1, Reuse, Repurpose, and Recyclable Materials Waste Determination Summary Report
- C – Calbag Health and Safety Plan
- D – Spent Pot Liner Containment Area Dust Management, Equipment Decontamination, and Housekeeping Procedures
- E – Chemical Waste Management Inc. Disposal Procedures, Forms, and Verification
- F – Sampling and Analysis Plan
- G – Quality Assurance Project Plan
- H – Transport Spill Contingency Plan
- I – Waste Manifests and Disposal Records
- J – Hazardous Waste Generator Reports and Monthly Status Reports
- K – Anode Carbon Agreements
- L – Landfill Agreement

2.0 INVENTORY MANAGEMENT

Hazardous waste, universal waste, nonhazardous waste, and reusable materials are present at the Calbag facility. Table 1 contains an inventory of the materials present at Building 1. The following sections discuss the waste materials, waste handling and disposal, waste transport, and waste tracking and documentation.

2.1 WASTE MATERIALS

Wastes from 451 cathodes will be removed and disposed of. The cathodes are located in five pot lines within ten pot rooms, with a total of 120 cathodes in each pot line (Figure 4). One cathode is in the Pot Rebuilding room. Vacant pot spaces total 150. Overhead cranes with large lifting capacity run the length of each pot line. A transfer crane of dubious reliability can transfer pots between pot lines. All steel, aluminum, anodes, ferrous metals, copper, and other reusable metals will be reused or repurposed. Analytical results showing that the reusable/recyclable metals do

not contain waste materials are presented in Appendix B: the *CFAC, Building 1, Reuse, Repurpose, and Recyclable Materials Waste Determination Summary Report* (Tetra Tech 2016). Small quantities of waste present in storage lockers in Building 1 will be assumed to be hazardous and handled by Chemical Waste Management, who will pack and haul the wastes to their landfill in Arlington, Oregon. Certification by a qualified Licensed Professional Engineer, that the design plan meets the requirements of 40 CFR §264.1101(a), (b), and (c) as required by 40 CFR §265.1101(c)(2), will be kept on-site. As the cathodes are removed, each pot line will be inspected to identify spills or damage. Spilled material will be consolidated and shipped to the Chemical Waste Management facility as hazardous waste, following the procedures in Section 2.2. All contaminated containment system components like plastic sheeting, air purifying filters, and decontamination residue will be disposed of as hazardous waste. Steel plate, negative pressure air filter machines, and dust and debris vacuum equipment will be decontaminated and recycled or reused as appropriate. Appendix D describes dust management, equipment decontamination, and good housekeeping procedures. Calbag will comply with the closure requirements of 40 CFR §264.1102(a).

A Health and Safety Plan covering on-site workers is in Appendix C.

2.1.1 K088-Listed Waste

The only listed hazardous waste present at the facility is K088 SPL from primary aluminum reduction. Aluminum is produced through a chemical reaction started when large amounts of electricity are transmitted through the pot. The reaction produces a large amount of heat, resulting in molten aluminum that can be extracted. A reaction pot has a steel containment vessel lined with refractory brick, and an anode above and cathode below, for transmitting electricity as shown on the cross-section of an anode and cathode pot in Figure 5. When a pot goes out of service, the electrical current is cut and the aluminum forms a solid "heel" at the top of the cathode. The cryolite bath, anode carbon, and some steel supports are located above the heel and are not K088-listed hazardous waste. The solid carbon cathode and other materials underneath the aluminum heel are K088 SPL. The K088 waste is a brittle, black, slag-like material. The cathode shell is made of carbon steel

The 90-day period for processing, storing, transporting, and disposing of the cathodes, will begin when the heel is removed from each cathode. For the 72 cathodes with no heel located in the West Pot Room, the 90-day period will begin when the cathode is removed from the pot hole with the overhead crane.

Before the cathodes are removed, a containment area will be established by hanging a retractable reinforced polyethylene curtain from the highest rafter or the underroof, to surround the SPL removal area as shown in Figure 6. Appendix D contains details regarding management of each of the SPL digging containment areas. Concrete bunkers using blocks will be constructed near each removal area. Steel plates will be placed on the floor of the bunkers and in any area where digging is to be performed. When the SPL is placed on the floor and storage bunkers, great care will be taken to prevent damage to the interior walls, floor, and exterior walls. The overhead crane will transport cathodes into the containment area, and trucks will enter the containment area to transport the waste to the hazardous waste landfill. The procedures for preparing and using the SPL containment zone are in Appendix D, in text and drawings. Before each removal shift, the reinforced polyethylene will be inspected to validate the integrity of the polyethylene curtain, and repairs or replacement of the polyethylene will be made immediately, if needed. The distance from the ceiling to the concrete floor deck in the prescribed digging areas is approximately 55 feet. Enough weight will be affixed to the polyethylene where it meets the concrete floor, to keep it secured to the concrete floor. Housekeeping of the SPL digging area will be frequent.

An industrial Hurricane Vacuum 500 with bag filters and high efficiency particulate air (HEPA) filters will be inside the SPL containment area at all times, to clean the area and support decontamination of trucks and scrap metal before they leave the SPL removal area. The Hurricane Vacuum 500 specifications are shown in Appendix D. The vacuum will be inspected twice per day or more frequently, if needed, to determine if the bag or HEPA filters are plugged and need maintenance or replacing. The vacuum waste hopper is connected to a rubber hose that is then connected to a super sack that collects the vacuumed contents. Super sacks will be used because it is possible to get a tight seal between the hurricane vacuum waste hopper and the super sack. Each super sack can contain up to 3,000 pounds of waste. The volume of waste collected from each SPL digging area will vary. Drums will not be used because it is more difficult and messy to transfer waste from the hurricane vacuum waste hopper. Once the super sack is full, the 90-day

hazardous waste storage time will start. The super sacks will be disposed of as K088 waste. High volume HEPA filters will be installed in every containment area to create negative air pressure. Filters will be changed as they become plugged. Spent filters will be placed into a drum and once the drum is filled, the 90-day hazardous waste storage time will start. The drums will be disposed of as K088 waste. Water will not be used in the SPL digging area. Solid material collected by the hurricane vacuum, the filters from negative air pressure machines, and all sheeting will be accumulated, stored, and disposed of as K088 waste, in compliance with the substantive requirements of 40 CFR §264, Subpart I – Use and Management of Containers. Calbag has an agreement with Chemical Waste Management to package and haul all hazardous wastes to its landfill in Arlington, Oregon (Appendix E).

Each cathode will be transported to the SPL containment area using overhead cranes. The cathodes weigh more than 80 tons, and the existing overhead cranes are the only way to move them. The following procedures will be used to empty the cathode and remove the hazardous waste.

Cathode transfer to SPL containment area:

- The cathode will be rigged for transferring to the SPL containment.
- Prior to entering the SPL containment, the operators of the gantry cranes will confirm with the crew inside of SPL containment that they are ready to receive the cathode and cradle.
- The gantry cranes will pick the cathode and cradle from its location and transfer the cathode to the SPL containment.
- The SPL containment entrance for the gantry crane will be opened, and the cathode and cradle will be placed on the steel plate on the concrete pad.
- The entrance will be sealed.

Accessing and removal of SPL from the cathode:

- The aluminum heel will be removed from the cathode and placed to the side. Aluminum heels are solid pieces of aluminum that cap the SPL within each cathode. The heels are a reusable product and will be decontaminated following procedures discussed below.
- Using a cutting torch, the crew will cut the bolts attaching the upper portion from the lower portion of the cathode, then cut the bolts that attach the end sections of the skirt from the center sections. This will produce 4 cathode shell side walls.

- After removing the bolts, the upper portion of the cathode will be loose. Using the excavator, the upper cathode shell will be removed and placed off to the side and out of the way, trying not to disturb the contents within the cathode.
- A hydraulic hammer will be used to break the SPL material into smaller pieces, while another excavator with a shovel will load out the material slowly and easily, either placing the SPL material directly into a lined hauling truck or the SPL material temporary storage bunker. The collector bars will be removed from the SPL material and placed aside.
- After removing all the SPL from the cathode, a hydraulic hammer will be used to remove the carbon and SPL from the collector bars.
- After all material has been removed from the collector bars, the bars will be stored until final cleaning can occur.
- The lower section of the cathode will be cleaned using hand shovels, hand scrapers, a HEPA vacuum, and when needed, the hammer of the excavator. When clean of debris, the section will be moved to the side until final cleaning occurs.

Decontamination of scrap metals:

- The cathode shell, metal floor of cathode, collectors, and aluminum heel will be transferred to the decontamination area of the SPL containment area as shown Figure 6.
- In the decontamination area, the cathode shell, metal floor of cathode, collectors, and aluminum heel will be cleaned using HEPA vacuums and hand brushes. The aluminum heels will be vacuumed and then visibly inspected. If any carbon material remains on the heel after vacuuming, then the heel will be re-vacuumed until visibly free of all carbon.
- After final cleaning, the superintendent or field lead person will inspect the cathode shell, metal floor of cathode, collectors, aluminum heel, and surrounding area prior to hauling the metal to the entrance/exit of the containment.
- The cathode shell, metal floor of cathode, collectors, and aluminum heel that have passed final inspection will be placed at the entry/exit opening, ensuring that no contaminants are tracked outside of the SPL containment. Another piece of equipment outside of the work area will then pick up the cathode shells and metal floor, and haul them to the laydown area for the torch cutters.
- The collector bars will be picked up separately and stored inside the building, under roof and out of the weather.
- The aluminum heel will be transported to the aluminum storage area that is under roof and out of the weather.

The procedures for preparing the containment zone, as well as the dust management, equipment decontamination, and housekeeping procedures for inside the containment area are in Appendix D. In addition, Appendix D contains the SPL waste truck hauling direction for each pot room. All SPL material (K088 waste) beneath the "heel," including all refractory brick and insulation, will

be disposed of as K088 waste. After all of the cathodes have been removed from the pot room SPL digging containment area, the SPL digging area will be decontaminated. The decontamination area (shown on Figure 6) will then become the new SPL digging area for the next pot room and the decontaminated SPL digging area will become the new decontamination area for the same pot room. Appendix D contains figures that show the haul routes for removing the wastes from each of the ten pot rooms.

2.1.1.1 North Crane Transfer Bay, Ends of Pot Rooms 6, 7, and 8 Decontamination Completed in April 2016

The North Crane Transfer Bay located at the ends of Pot Rooms 6, 7, and 8 was determined to contain K088 hazardous waste based on an evaluation of historical processes (Figure 7). DEQ mandated that a containment area be constructed, which Calbag did in December 2015. DEQ gave Calbag approval to decontaminate the former SPL digging area containment in April, 2016. Calbag performed decontamination procedures for this area as described below. Calbag decontaminated the equipment, the ore bags within the containment area, and then removed the residual dust and debris in the same containment area. After decontamination of the area, the containment itself was removed and new containments will be constructed, as the SPL digging areas are needed in the North Crane Transfer Bay at the ends of Pot Rooms 6, 7, and 8. After all of the cathodes have been removed and the SPL digging areas of the North Crane Transfer Bay at the ends of Pot Rooms 6, 7, and 8 have been decontaminated again, the concrete floors in the North Crane Transfer Bay at the ends of Pot Rooms 6, 7, and 8 will be demolished to ground surface, removed, and transported as K088 waste by Chemical Waste Management trucks to their facility in Arlington, Oregon. The procedures for decontamination of the containment that were performed at the ends of Pot Rooms 6, 7, and 8 in the North Crane Transfer Bay were as follows:

- Before each decontamination shift, the reinforced polyethylene containment in place was inspected to validate the integrity of the polyethylene curtain, and repairs or replacement of the polyethylene were made, if needed. The distance from the ceiling to the concrete floor deck is approximately 55 feet. Enough weight is affixed to the polyethylene where it meets the concrete floor, to keep it secured to the floor. Housekeeping is frequent.
- HEPA vacuumed all ore storage bags and non-disposable equipment. All recovered dust will be disposed of as K088 waste.

- A telehandler was used to move the ore storage bag and non-disposable equipment into a clean area. The ore storage bag and non-disposable equipment were inspected for dust, and re-vacuumed, if necessary.
- A second telehandler was used to reach into the clean room from a clean side, to remove the ore storage bag or non-disposable equipment, for placement in the storage area.
- Disposable materials were loaded into drums or super sacks. Once full, the container was sealed and the outside of the container was vacuumed. The 90-day hazardous waste storage time starts when the containers are sealed. Each container was labeled with a container number and date of final accumulation of waste. The removal, processing, storage, and transport of hazardous wastes will comply with the substantive requirements of 40 CFR §264, Subpart I - Use and Management of Containers.
- The telehandler was used to move drums or super sacks into the clean area. Drums or super sacks were inspected for dust and re-vacuumed, if necessary.
- A second telehandler was used to reach into the clean room from a clean side and remove drums or super sacks; upon approval of this WMP, the waste will be loaded onto trucks for disposal as K088 waste at the Chemical Waste Management facility in Arlington, Oregon.
- The SPL containment area was decontaminated starting with vacuuming the accumulated dust from the rafters, walls, and floor. All recovered dust will be disposed of as K088 waste.
- The plastic sheeting was removed and will be transported as K088 waste at the Chemical Waste Management facility in Arlington, Oregon.
- The walls and floors were re-vacuumed. All recovered dust will be disposed of as K088 waste.
- The remaining equipment, such as telehandlers, in the North Crane Transfer Bay of Pot Rooms 6, 7, and 8, were decontaminated. The tires were also decontaminated to ensure that waste is not tracked from the area.
- High volume HEPA filters will be installed in the containment area to create negative air pressure. Filters will be changed as they become plugged. Spent filters will be placed into a drum or super sack and once filled, the 90-day hazardous waste storage time will start. The drums will be disposed of as K088 waste.

Once decontamination of the North Crane Transfer Bay at the ends of Pot Rooms 6, 7, and 8 was completed, there was no further restrictions on travel through the area. New containment and decontamination areas will be built for Pot Rooms 7, 6, and 8 using the same procedures as described in Section 2.1.1 for all of the other Pot Room SPL digging areas. After all cathodes are removed from Pot Rooms 6, 7 and 8, the North Crane Transfer Bay concrete floors located at the

ends of Pot Rooms 6, 7, and 8 will be demolished and transported to the Chemical Waste Management facility in Arlington, Oregon, as hazardous waste.

2.1.2 Non-K088 Hazardous Waste

Samples will be collected for toxicity characteristic leaching procedure (TCLP) analysis as defined in the SAP (Appendix F) and QAPP (Appendix G), to determine if the materials are a characteristic hazardous waste. Whenever a characteristic waste is identified, the waste will be isolated before it is transported to the Chemical Waste Management hazardous waste disposal facility, following the procedures in Section 2.2.

Universal wastes are items like batteries, pesticides, mercury-containing equipment, and bulbs that contain hazardous substances. Universal wastes will be identified and transported to a central accumulation area in the casting house. Materials such as some neon lights may be reusable and will be sent to the appropriate facility for reuse. Chemical Waste Management has been contracted to lab-pack the universal waste, prepare the waste manifests, transport the waste to the Chemical Waste Management hazardous waste facility in Arlington, Oregon, and properly manage and dispose of the waste according to 40 CFR §273. If more than 5,000 kilograms of universal waste are accumulated at any one time, an EPA form 8700-12 will be used to notify EPA and DEQ. Universal waste will be transported to the hazardous waste landfill within one year of placement in the accumulation area. The Transport Spill Contingency Plan including haul route maps is in Appendix H. The waste manifests and disposal records are shown in Appendix I. Examples of monthly hazardous waste generator reports are shown in Appendix J.

Potentially hazardous wastes are present in small quantities in storage lockers throughout the facility. Instead of completing an inventory, all the waste will be packaged by personnel from Chemical Waste Management and shipped to the Chemical Waste Management facility as hazardous waste, following the procedures in Section 2.2 and shown in Appendix E.

2.1.3 Toxic Substances Control Act Waste

Capacitors in Building 1 may contain PCBs. Before the building is demolished, a comprehensive inspection will occur to identify capacitors, switches, and other electrical equipment that may contain PCBs. All equipment suspected of containing PCBs will be consolidated into a sheltered

holding area. Chemical Waste Management has been contracted to lab-pack the waste, prepare the waste manifests, transport the waste to the Chemical Waste Management hazardous waste facility in Arlington, Oregon, and properly manage and dispose of the waste. Concrete confirmation sampling described in Appendices F and G will include PCB laboratory analysis to identify presence of PCBs in the concrete floors, walls, and supports. PCBs are not regulated under RCRA. However, CFAC may crush the concrete from the ground level floor, supports and other concrete structures to be used later as fill material. The regulatory levels that will determine what can be used as fill material will be made under a different regulatory program. Authorization of the material used for fill is outside the parameters of this WMP.

2.1.4 Nonhazardous Waste

All waste debris and dust collected from the basement and concrete from the basement, ground floors, walls, and battery room floor will be sampled and analyzed for RCRA 8 metals, total cyanide, fluoride, and PCBs, following the procedures in the SAP (Appendix F) and the QAPP (Appendix G). Nonhazardous waste will be transported to a licensed landfill for disposal. Motor oil, hydraulic fluids, non-regulated and transformer oil will be packed and disposed of by Emerald Recycling and Disposal, a licensed oil recycler, following the requirements of 40 CFR §279 for used oil. The waste will be left in its original packaging or drummed in proper Department of Transportation shipping containers. It will be transported to a central accumulation area in the casting plant until Emerald Recycling and Disposal disposes of or recycles the waste.

2.1.5 Reusable Material

Steel, iron, aluminum, copper, concrete, and carbon will be reused, repurposed or recycled as described in the Report in Appendix B (Tetra Tech 2016). Scrap metals are not regulated under RCRA, however, waste material may have collected on scrap metals. The Report (Tetra Tech 2016) in Appendix B addresses waste determination procedures for the scrap metals. Details on the sale of the anode carbon and aluminum heel sampling are provided below.

2.1.5.1 Anode Carbon Actions

In September 2015, Calbag Resources LLC and Pacmet entered into an agreement whereas Pacmet agreed to purchase all anode carbon from the CFAC Aluminum Smelter in Columbia Falls, Montana. A copy of the purchase agreement was provided to DEQ at that time.

The anode carbon sold to Pacmet was removed from the anodes in Pot Room 1. A total of 1,707 net tons of anode carbon was purchased by Pacmet of Woodburn, Oregon, during the time period from early September 2015 through mid- October 2015. The anode carbon was sold for reuse to Pacmet, which will market the anode carbon as a product to produce new carbon steel. Attached in Appendix K of this document is the Anode Carbon Purchase Agreement between Calbag and Pacmet. Sampling data from the carbon anodes is in the Report (Tetra Tech 2016) in Appendix B.

Pacmet contractually took title and ownership of the anode carbon once Calbag loaded the anode carbon onto Pacmet trucks at the CFAC smelter located at 2000 Aluminum Drive, Columbia Falls, Montana, 59912. A total of 1,707 net tons of anode carbon purchased by Pacmet were transported by Pacmet to the Russell Property. A DEQ letter of violation was sent to CFAC and Calbag on October 26, 2015.

Calbag did not arrange trucking or storage of the anode carbon at the Russell Property, nor did Calbag enter into any agreement, written or verbal, with the owner of the Russell Property, for the storage of the anode carbon.

Based on the inventory spreadsheet provided to Calbag by Mark Russell, owner of the Russell Property, a total of 1,707 net tons of carbon anode purchased by Pacmet was transported to the Russell Property by Pacmet.

Calbag understands that Pacmet has removed all the anode carbon from the Russell Property and it has been transported to the Pacmet carbon recycling facility in Woodburn, Oregon.

2.1.5.2 Aluminum Heel Actions

There are 381 aluminum heels remaining in Building 1. The aluminum heel will be removed from the cathode and placed to the side. Aluminum heels are solid pieces of aluminum that form when electricity is turned off to the pot. The heel rests on top of carbon blocks as shown on Figure 5. The

heels are a reusable product. The heels are silvery white with a metallic luster. The carbon below the heel is black slag like material with a vitreous luster that will be disposed of as K088 waste. The carbon does not stick easily to the heel and should readily fall off as the heel is hammered with an excavator. As the heels are removed from the cathode, they will be hammered until visible black slag like carbon is removed. The heel will then be vacuumed to ensure it is free of carbon. Once vacuumed, the heel will be visually inspected again. If carbon material is still visibly present, then that area will be hand brushed and vacuumed again, until all visible carbon is removed. The heel will then be moved to a storage area prior to trucking to a facility where it will be melted down for reuse.

Once deemed visibly clean, the heel will then be moved out of the decontamination area and transferred to the heel storage area.

2.2 WASTE HANDLING AND DISPOSAL

All waste will be handled in compliance with RCRA and State of Montana waste disposal regulations. No listed hazardous waste will be stored longer than 90 days. Characteristic hazardous waste will be removed from the site within 90 days after analytical results are received and demonstrate the waste is hazardous, or 90 days from when the waste is excavated, whichever is later.

2.2.1 K088-Listed Waste

All K088 hazardous waste will be loaded from the SPL containment area directly into trucks for shipment under manifest, to the Chemical Waste Management facility in Arlington, Oregon. Appendix E contains Waste Management Inc. disposal procedures, forms, and verification. Loading K088 SPL into trucks will be completed as summarized below:

- Prior to allowing entry of the hauling truck into the SPL containment, the floor and surrounding area will be cleaned using HEPA vacuums.
- After the superintendent or field lead person inspects and approves the work area, the entrance to SPL containment will be opened and the hauling truck will be allowed to enter the SPL containment area.
- Localized air filtration will be set up near the truck bed and/or trailer and moved as needed during loading of the SPL material.

- The truck bed will be lined with plastic sheeting.
- The operator will then be allowed to load the SPL material into the hauling truck using work practices, like dropping waste from the bucket to the truck bed at the lowest height possible, that minimize dust (Appendix D).
- After the truck has been loaded with the SPL material, the liner will be sealed using duct tape and spray glue.
- The truck and floor will be vacuumed and swept to remove spilled waste.
- Tarps will be placed over the bed and trailer and secured.
- The truck will then move through the curtain to the decontamination area of the containment.

Decontamination of the hauling truck and trailer will occur as follows:

- The truck, truck bed, and pup will be cleaned in the decontamination area using HEPA vacuums and hand brushes.
- After final cleaning, the truck, surrounding area around the truck, truck bed, and pup will be visually inspected by the superintendent or field lead person.
- The truck will then be guided out of the decontamination area of the containment area, ensuring that contaminants are not transferred out of the containment area.
- The waste will then be transported to the Chemical Waste Management facility in Arlington, Oregon.

K088 waste will not be handled or stored in areas other than the SPL containment area described in Section 2.1.1. All vacuums, collected dust, hoses, and plastic sheeting that may have come into contact with K088 waste will be disposed of as K088 waste. The steel plating on the floor will be cleaned by sweeping and vacuuming, and reused. The concrete below the metal plating will be cleaned by sweeping and vacuuming.

Appendix H includes the Transport Spill Contingency Plan. Appendix L provides the landfill agreement, which details that the Chemical Waste Management facility in Arlington, Oregon, has the capacity to transport and dispose of K088 waste.

2.2.2 Non-K088 Hazardous Waste

All characteristic hazardous waste as identified through the sampling and analytical procedures specified in the SAP (Appendix F) and QAPP (Appendix G), will be consolidated and loaded into trucks for shipment, under manifest, to the Chemical Waste Management facility in Arlington,

Oregon. The waste will be consolidated indoors and isolated through the use of tarps or access restrictions before it is shipped off site. Chemical Waste Management procedures and forms are provided in Appendix E.

All chemicals in the storage lockers will be consolidated into one area. Chemical Waste Management has been contracted to lab-pack and ship under manifest, all the chemical waste. The waste will be shipped to the Chemical Waste Management facility in Arlington, Oregon, as hazardous waste.

2.2.3 Toxic Substances Control Act Waste

All capacitors will be packed by Chemical Waste Management employees and shipped under manifest, to the Chemical Waste Management facility at Arlington, Oregon, for proper disposal.

2.2.4 Nonhazardous Waste

All waste that has been determined to be nonhazardous will be disposed of at Subtitle D landfills. The waste will be loaded into trucks, the truck beds will be covered, and the waste will be transported to the landfill for disposal.

2.3 WASTE TRANSPORT

All K088 waste, chemical locker waste, regulated PCB waste, and characteristic hazardous waste will be transported by Chemical Waste Management personnel, equipment, and vehicles. The trucks and trailers will be lined with plastic before they are loaded. After loading, the truck beds will be securely covered to prevent blowing waste. All trucks and drivers will be permitted for the transport of hazardous waste. All trucks and trailers will meet the requirements of 40 CFR §263, Subpart A, incorporated by reference in ARM 17.53.701. The waste will be transported to the Chemical Waste Management hazardous waste disposal facility in Arlington, Oregon. Appendix H contains the Transport Spill Contingency Plan for transport of waste from Montana to Oregon. The waste transport will meet the requirements of 40 CFR, §263, Subpart C.

2.4 BUILDING 1 CLOSURE AND POST-CLOSURE

Building 1 is comprised of six free-standing buildings without a contiguous roof line. There is a clear separation of roof lines and structures within the courtyards as shown in Figure 2. Five buildings contain two pot rooms per building. The cast house is a separate building. Calbag will demolish each building, one at a time. As described in the SAP (Appendix F) and the QAPP (Appendix G), the concrete from the ground floors, support structures, columns, and walls will be sampled as soon as all cathodes are removed from the pot room, to identify if the concrete can be pulverized, stored outside Building 1 as each pot room is demolished, and used as fill. The analytical results will be compared to 40 CFR §261.20, the narrative for hazardous waste determinations under RCRA and as shown in Figure 3 of this document. After the debris piles are sampled, characterized, and removed from the basement floors, any areas of concrete that are deemed hazardous waste per 40 CFR §261.20 will require removal and will be cut out and sent to the appropriate landfill. The remaining concrete basement floor and side walls may remain in place, upon coordination and approval of the other regulatory agencies involved with site-wide remedial activities. If the concrete is deemed clean by the regulatory agencies, then the concrete may be fractured, left in place, and mixed with fill to grade. All fill materials will be tested prior to use in the foundation to ensure the fill is clean. Decisions regarding fill material that may be used after all hazardous wastes are removed from Building 1 are outside the scope of the AOC. This approach will begin on Pot Rooms 1 and 2 (single structure) then move to Pot Rooms 3 and 4 (single structure) and so on. The roof line of the North Crane Transfer Bay can be pulled away from each pot line roof at the separation joint. The buildings will be demolished after the basements have been sampled, as detailed in the SAP (Appendix F) and QAPP (Appendix G). If sample results have exceedances, then that debris and any underlying concrete will be removed to the appropriate disposal facility.

The demolition, which is not part of the AOC, is planned to proceed as summarized below:

Once all of the cathodes are removed from each pot room in Building 1, the ground floor, support structures, walls, hammer heads, and bus supports will be sampled as described in Appendices F and G. If deemed clean under 40 CFR §261.20, and with approval of the regulatory agencies, the concrete will be pulverized and moved to an area outside Building 1 while awaiting the decision

outside the scope of this WMP to be used later as fill. The loose debris that accumulates in the basements will be swept and shoveled into piles for sample collection. There may be more than one pile in each basement. The ore debris piles will be sampled for disposal options and then removed from each pot room and taken to the appropriate disposal facility. Concrete samples will be collected from the floors and walls after the ore debris is removed from each pot room. The concrete and ore debris samples will be packed, transferred, and analyzed as described in the SAP in Appendix F and the QAPP in Appendix G of this document. Upon receipt of the sample results and using the waste determination decision tree in Figure 3, ore debris will be removed from Building 1 and taken to the appropriate disposal facility. Next, the inner concrete support structures will be demolished and then removed under roof while the pot room building is still erect. Concrete floor samples will be collected after the debris samples. The concrete will be transported to the concrete recycling area, then each pot room building will be demolished. The anticipated turnaround time for obtaining sample results is seven days. Analytical results will determine the appropriate landfill to dispose of the debris wastes. The clean basement concrete floors will be inspected for certification of closure. Upon approval of the regulatory agencies, including but not limited to, DEQ Remediation Division and the U.S. EPA, the foundation floors will be fractured to allow for drainage of rainfall, snow, and spring snow melt. If sample results show exceedances, that concrete area will be removed and disposed of at the appropriate landfill. The outside walls (only extending to ground surface) will remain in place. At this time, Calbag is not under contract to fill the basements. Filling the basements is a contract option that both Calbag and CFAC have to agree to. If CFAC decides to fill the foundation, it will be upon evaluation of the sample results and approval of the regulatory agencies under the site- wide remediation program. As mentioned above, the demolition is not part of the AOC. Decisions involving using the concrete as fill at the building site are between CFAC and the regulatory agencies. The AOC states that all cathodes must be removed over a period of two years. The proposed schedule is in Section 4.0 of this document.

Calbag will have a qualified, Professional Engineer certify that the building has been closed in accordance with 40 CFR §264 Subpart G and this WMP after all of Building 1 and its contents have been removed. However, the concrete basement floors and walls to ground surface will be intact. Concrete samples will be collected from the basement floors and walls as described in the SAP (Appendix F) and QAPP (Appendix G). Any concrete deemed hazardous per 40 CFR 261.20

and as determined by the waste determination decision tree shown in Figure 3 will be removed and disposed of as hazardous waste. Then, Calbag and a qualified Professional Engineer will inspect the foundation and sign the certificate of closure. After the certification of closure is approved by DEQ, and upon approval of other regulating authorities, CFAC and Calbag may enter into an agreement to fracture the concrete, to be used as fill. Other certified clean fill may also be placed in the foundation as well but all fill material is outside the jurisdiction of the AOC.

2.5 WASTE TRACKING AND DOCUMENTATION

Each cathode shell has a unique number that will be used to track cathode digging, waste loading and transport, and final disposal at the Chemical Waste Management facility. There are five pot lines at the CFAC Plant. There are two pot rooms in each pot line. The pot lines are numbered 1 through 5 from west to east (Figure 4). The cathodes are located in pairs. The western cathodes are numbered 1 through 60 from south to north, while the eastern cathodes are numbered 61 through 120 from south to north. The cathodes will be tracked using a four-digit number:

AA-BB

AA = Pot Room number from 01 to 10

BB = Cathode number from 01 to 60

Therefore, the cathode numbered 03-45 would be cathode 45 in Pot Room 3. The cathode number will be painted with permanent high visibility paint on each cathode as it is removed from the pot room. The cathode number will be recorded on the "Waste Disposal Record," hazardous waste transport manifest, and a confirmation of disposal form will be provided by Chemical Waste Management.

All other hazardous wastes will be manifested, documented, and tracked by Chemical Waste Management. Hazardous waste shipments will be electronically tracked using Chemical Waste Management's Electronic Management Reporting System at www.wastesolutions.com. This electronic system is updated daily and reports tonnage and disposal occurrences for each shipment. As a truck is loaded with waste, the waste type, date, truck number, and hazardous waste transport manifest number will be recorded on the "Waste Disposal Record." Chemical Waste Management will provide a confirmation of disposal for each waste under each manifest.

Nonhazardous waste shipments will be tracked using landfill scale tickets. Each load will be weighed when it arrives at the landfill and the truck number recorded. The scale tickets will be collected at the Calbag Environmental Specialist Office at the end of each day.

Reporting

All information on waste generation, storage, and disposal will be archived at the Environmental Specialist Office. Both the hard copies and an electronic copy of each waste shipment will be stored on site. The "Waste Disposal Records" will be in a notebook kept in the Environmental Specialist Office at CFAC. All handling records, dates, and initials will be recorded in the notebook. The waste disposal records will be provided to DEQ in the monthly status reports. All waste management forms are in Appendix I, and copies of a waste manifest and disposal verification are in Appendix J. The following reporting will occur:

- Daily inspections on the cathode digging area will be completed and recorded on the daily log.
- A copy of the waste transport manifest form is included as Appendix I. Appendix J has an examples of waste generator reports and the monthly status report form. These monthly reports will be submitted to Mike Rieger of DEQ. An annual Hazardous Waste Generator Report will be prepared and submitted to DEQ by February 28 of the year after the waste was generated.

3.0 INSURANCE BOND COST ESTIMATE

The parties to the AOC are obligated to "comply with the substantive requirements of a hazardous waste storage permit" (Appendix A). 40 CFR §264 Subpart H contains certain financial assurance requirements for the closure of a storage facility. Calbag has presented bond language to DEQ it believes fulfills the substantial requirements of 40 CFR §264 Subpart H as it pertains to the AOC.

The hazardous waste removal cost estimate is shown on Table 2. The estimated total cost of $9,127,230.00 includes the following: removal of pots and all associated hazardous wastes, hauling, transportation, disposal, and the Montana waste generator fee.

The estimated cost to transport and dispose the SPL (the K088 hazardous waste) in the 451 remaining cathodes at the CFAC facility is $7,450,520.00 and is derived as follows:

1) While the pots are of uniform size, the amount of SPL varies in each cathode, based on the age of the cathode and how much of the cathode block has baked-off. As the

aluminum reduction cell ages, the 13 cathode blocks per cathode reduce in size and weight. Each cathode has an average life span of 8 years.

2) The maximum capacity of the cathodes of 65 tons multiplied by 451 cathodes would yield a maximum possible K088 waste of 29,315 tons. However, the actual average weight based on past experience with identical cathodes at the Dalles Smelter facility is 59 tons per cathode.

3) Calbag has entered in a transportation and disposal agreement with Chemical Waste Management in Arlington, Oregon, to transport and dispose of all the KO88 generated from the 451 cathodes.

4) The written fixed unit price from Chemical Waste Management is $280 per ton.

5) Using 59 tons per cathode, Calbag will generate 26,609 tons of SPL on the project.

6) 26,609 tons using the fixed transportation and disposal rate equals a total cost of $7,450,520.00 in transportation and disposal expense.

7) The cost to crane the cathodes to the SPL digging areas, unload the SPL, and load into Chemical Waste Management trucks and decontaminate the trucks is $1,491,710.00.

In addition to the above costs, locker waste such as automotive chemicals, paint, solvents, PCB capacitors and other hazardous liquids at the plant will need to be properly removed and disposed of. Calbag estimates three truckloads (75 tons) of this material will be removed from the pot rooms. Calbag estimates a cost of $135,000 for the transportation and disposal of the locker and residual hazardous wastes.

Calbag estimates that there will be approximately $50,000 in Montana hazardous waste generator fees over a two year period.

Chemical Waste Management is a third-party, and is neither a parent nor subsidiary of Calbag. At DEQ's request, Calbag can adjust this estimate for inflation pursuant to 40 CFR §264.142(b), or if the plan is modified pursuant to 40 CFR §264.142(c).

4.0 CATHODE and BUILDING 1 REMOVAL PROJECT SCHEDULE

4.1 CATHODE REMOVAL

Table 3 displays the project schedule for removal of the cathodes from pot lines 1 through 5, which includes Pot Rooms 1 through 10. There are 451 remaining cathodes in the 5 pot lines at the CFAC Facility. The first two pot lines were constructed beginning in 1953 and began operation in 1955.

Each pot line had 120 cathodes for a total of 240 total in pot lines 1 and 2 (Pot Rooms 1 through 4). Only 94 cathodes remain in pot lines 1 and 2. Twenty-two of the cathodes have the heel in place. The east three pot lines (3, 4 and 5, which includes Pot Rooms 5 through 10) were constructed in 1965 and began operation in 1967. As with the first two pot lines, each line had 120 cathodes for a total of 360 cathodes. There are 356 of the original 360 cathodes remaining in pot lines 3, 4, and 5. One cathode also remains in the "Pot Rebuild" area (a rebuilding area on the north side of the plant) where cathodes were rebuilt to be put in service when a cathode failed or had to be replaced due to age.

As shown in Table 3, the cathodes will be removed at a rate of two per day for seven days per week. At this rate, the cathodes in pot lines 1through 4 are expected to be removed in about 50 days. Calbag plans to resume removing cathodes in pot lines 5 through 10 in September 2016. Using the same production rate of two cathodes per day for seven days per week, all of the cathodes including the 1 cathode in the "Pot Rebuild" area (for a total of 357 cathodes) should be removed from Building 1 by about March 2018, which is less than two years from the day the first cathode is removed per the AOC. Once all ore debris has been removed from the basement and the basement floors are brushed clean, Calbag will obtain a certificate of closure in concurrence with DEQ and by approval of a certified professional engineer. All K088 and any other listed or characteristic wastes shall be removed within two years from the date the DEQ approves this WMP.

5.0 REFERENCES

Calbag Resources LLC. 2015. Draft Removal, Transportation, and Offsite Plan and Schedule for the Removal of K088 Hazardous Wastes and other Regulated Substances, Columbia Falls Aluminum Smelter Pot Room Building. August 7.

Columbia Falls Aluminum Company (CFAC). 2015. Columbia Falls Aluminum Company, LLC, Primary Aluminum Reduction Plant website, CFAC Brief History. Accessed on November 11, 2015: http://www.cfaluminum.com/cfac_history.htm.

Montana Department of Environmental Quality (DEQ). 2015. Administrative Order on Consent, Docket No. HW-15-01. June 10.

Tetra Tech, Inc. (Tetra Tech). 2015. Draft Waste Management Plan and Schedule for Spent Pot Liner Removal, Reuse, and Disposal, Columbia Falls Aluminum Company. November.

Tetra Tech. 2016. CFAC, Building 1, Reuse, Repurpose, and Recyclable Materials Waste Determination Summary Report. January.

U. S. Environmental Protection Agency (EPA). 1989. Letter from Sylvia K. Lowrance, Director Office of Solid Waste, U.S. EPA, to Jack Goldman, Ph.D. Manager, Environmental Services for the Aluminum Association. March 3, 1989.

TABLES

TABLE 1
INVENTORY

Description	Inventory Type
K088	Hazardous Waste
Locker Waste for Lab Pack	Hazardous Waste
Concrete – limited to the north crane transfer bay at the ends of Pot Rooms 6, 7, and 8	Hazardous Waste
Other Concrete	TBD
Office Contents, Wood, Walls, Doors, Ceilings, Glass	Nonhazardous Waste
Anode Carbon	Reuse
Aluminum Heels	Reuse
Interior Structural Building Components	Disposal or Reuse
Aluminum Scrap	Reuse
Ferrous Scrap	Reuse
Copper Scrap	Reuse
Stainless Steel Scrap	Reuse
Anode Carbon	Reuse
Brass Scrap	Reuse
Fiber Scrap – Cardboard – Office Paper	Reuse
Plastics	Reuse
Transformer Oils below 49 ppm	Reuse
Universal Wastes	Hazardous Waste
Asbestos	Flathead County or Private Landfill
Aluminum Ore – Cast House & North Crane Transfer Bay	Nonhazardous Waste
Waste Oils – Hydraulic, Motor Oil, Gear Oil	Reuse
Cryolite Bath	Nonhazardous Waste or Reuse

Notes:
TBD = to be determined
ppm = parts per million

Table 2
Hazardous Waste Removal Cost Estimate

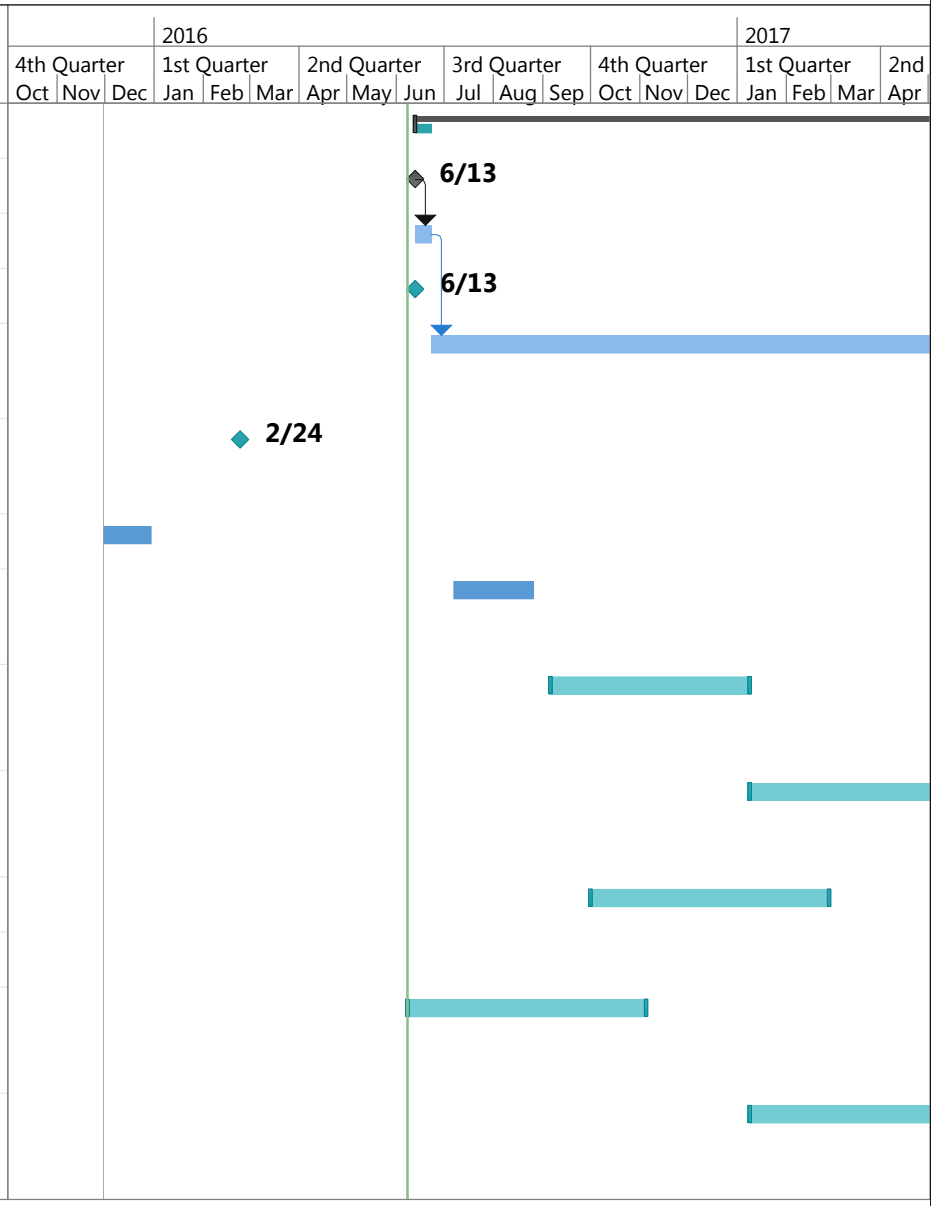
Cost Build- ups	Rate	Measure	Unit	Hours	Days	
Pot Rooms 1 - 4						
80,000 excavator with thumb and bucket	$ 85.00	hr.	1	10	64	$54,400.00
80,000 excavator with 10,000# hammer	$ 95.00	hr.	1	10	64	$60,800.00
WA 250 loader with grapple bucket	$ 67.50	hr.	1	10	64	$43,200.00
Hurricane Vacuum (includes replacement filters)	$ 60.00	hr.	1	10	64	$38,400.00
sub total						$196,800.00
Pot Rooms 5 - 10 - 358 Cathodes						
80,000 excavator with thumb and bucket	$ 85.00	hr.	1	10	202	$171,700.00
80,000 excavator with 10,000# hammer	$ 95.00	hr.	1	10	202	$191,900.00
WA 250 loader with grapple bucket	$ 67.50	hr.	1	10	202	$136,350.00
Hurricane Vacuum (includes replacement filters)	$ 60.00	hr.	1	10	202	$121,200.00
Sub Total						$621,150.00
Labor Burden in SPL Digging Room						
2 FTE Operators for Equipment	$ 35.00	hr.	2	10	221	$154,700.00
2 FTE Labor	$ 31.00	hr.	3	10	221	$205,530.00
sub total						$360,230.00
Small Tools Support Equipment						
Demo Saws (Husky 1200cc)	$ 2.12	hr.	3	10	85	$5,406.00
Demo Blades	$ 0.88	hr.	3	10	85	$2,244.00
Cutting Torches - support Equip	$ 3.71	hr.	3	10	225	$25,042.50
Air Plant	$ 4.40	hr.	2	10	225	$19,800.00
Light Plant	$ 2.50	hr.	1	10	225	$5,625.00
Impact drivers, sockets, air hoses	$ 0.85	hr.	5	10	225	$9,562.50
PPE Clothing and Respirators	$ 1.65	hr.	4	10	225	$14,850.00
sub total						$82,530.00
Project Indirects						
Fuel	$16.00	hr.		10	225	$36,000.00
MOG Maintanence Overhead and Grease	$5.50			10	225	$12,375.00
Construct Containment Area for each pot room (5)	$25,000.00	lump		5		$125,000.00
Decon Containment Area (5)	$5,000.00	lump		5		$25,000.00
sub total						$198,375.00

Tons p/pot	# of pots	Sub total	Cost p/ton	Total	
59	451	26,609	280	7,450,520.00	Handling, transportation & disposal of SPL (Chemical Waste Management)
				$1,491,710.00	Removal of pots and loading of SPL
				135,000.00	Other hazardous wastes
				50,000.00	MT Hazardous Waste Generator Fees
				9,127,230.00	

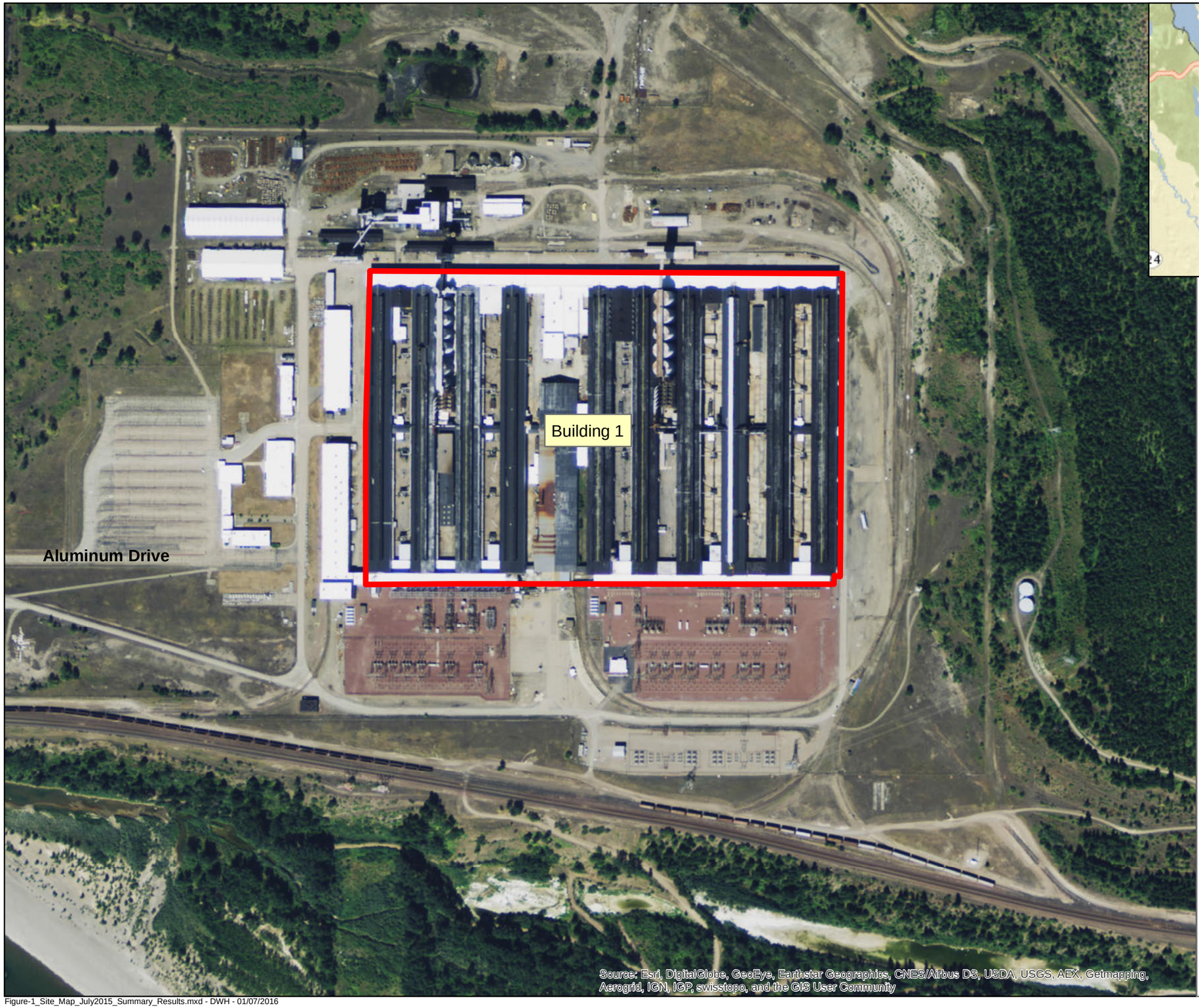
Sub Contractor Cost - Dig - Load out 451 Cathodes						$1,459,085.00
Calbag Oversight Cost						
Project Director	$ 65.00	hr	1	2	225	$ 14,625.00
Project Manager	$ 45.00	hr	1	2	225	$ 10,125.00
Safety Manager	$ 35.00	hr	1	2	225	$ 7,875.00
Total Cost Estimate						$1,491,710.00

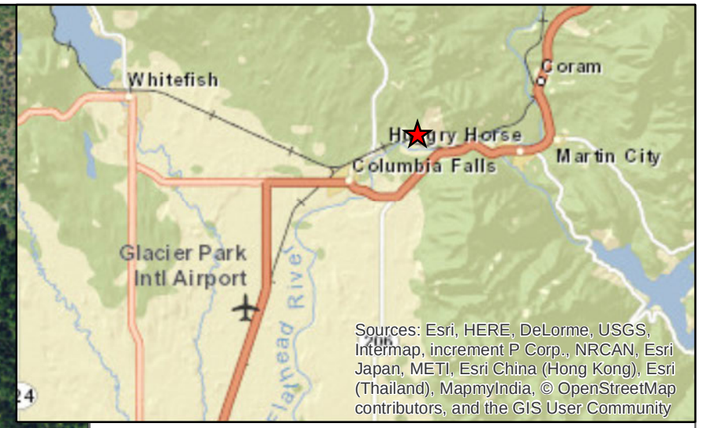
Table 3: Columbia Falls Aluminum Smelter Pot Room Building Removal Project Schedule

ID	Task Name	Duration	Start	Finish
1	**Planning and Approvals**	**1240 days**	**Mon 6/13/16**	**Mon 11/4/19**
2	Submit Final WMP to DEQ	0 days	Mon 6/13/16	Mon 6/13/16
3	DEQ Review and Approval	10 days	Mon 6/13/16	Wed 6/22/16
4	**WMP Plan Approved**	**0 days**	**Mon 6/13/16**	**Mon 6/13/16**
5	Anode/Cathode Digging and Removal, Loading, Records	760 days	Thu 6/23/16	Sun 7/22/18
6	Remove Anodes from Pot Rooms 1-5	0 days	Wed 2/24/16	Wed 2/24/16
7	Remove Anodes from Pot Line 6	30 days	Mon 11/30/15	Tue 12/29/15
8	Remove Cathodes from Pot Lines 1 - 4	50 days	Thu 7/7/16	Thu 8/25/16
9	Remove Anodes from Pot Rooms 6-10	125 days	Tue 9/6/16	Sun 1/8/17
10	Remove Cathodes from Pot Rooms 5 - 10	240 days	Mon 1/9/17	Tue 9/5/17
11	Demolish Pot Lines 1 - 4	150 days	Sat 10/1/16	Mon 2/27/17
12	Demolish Pot Lines 5-10	200 days	Wed 9/6/17	Sat 3/24/18
13	Remove Non-K088 Hazardous Wastes from Pot Lines 1-4	150 days	Wed 6/8/16	Fri 11/4/16
14	Remove Non-K088 Hazardous Wastes from Pot Lines 5-10	200 days	Mon 1/9/17	Thu 7/27/17



FIGURES





Locator Map

LEGEND

★ Columbia Falls Aluminum Company

Pot Room Building Complex/Building 1

N

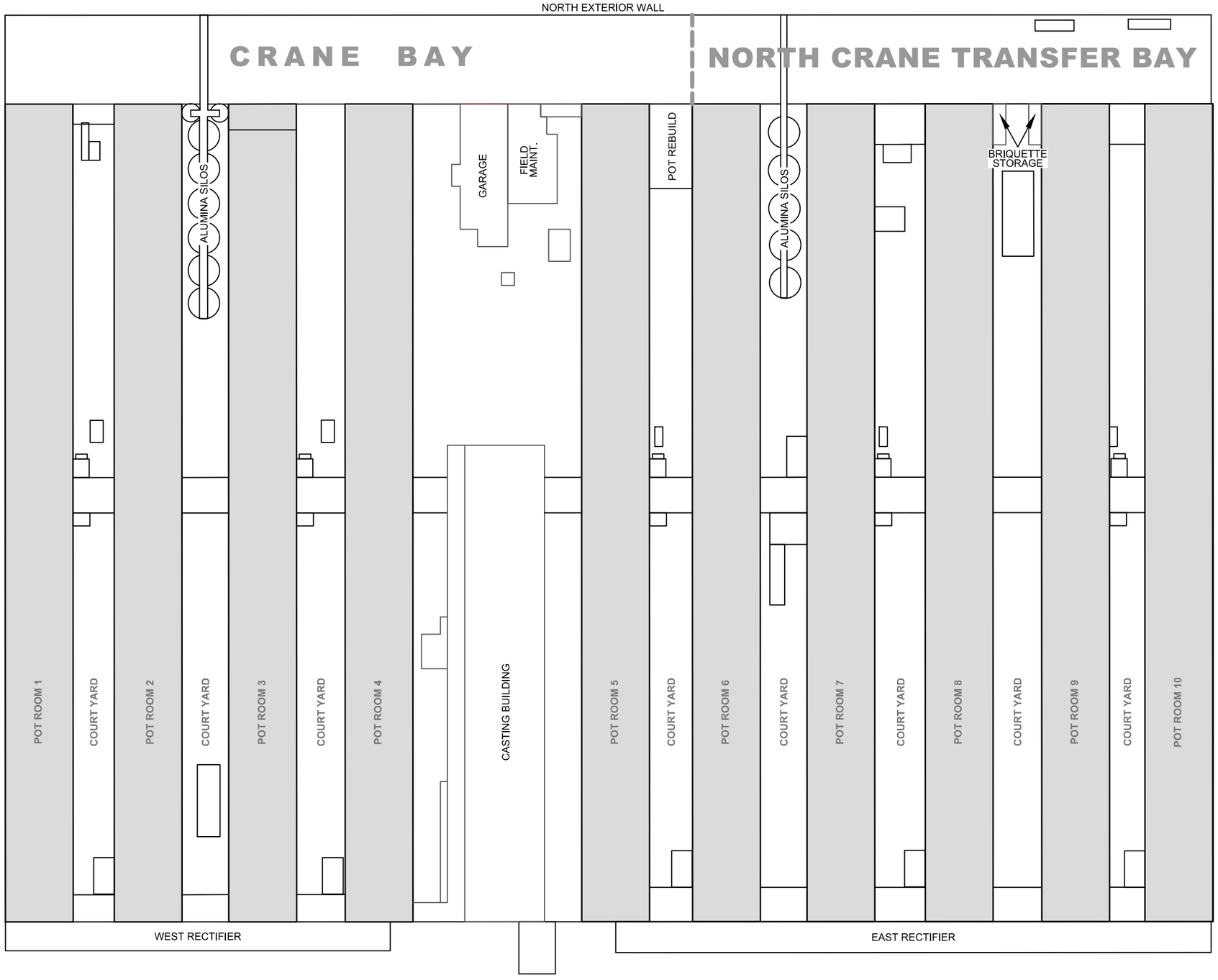
0 400 800

Feet

CFAC-Columbia Falls Aluminum Company
Columbia Falls, Montana

FIGURE 1
POT ROOM BUILDING COMPLEX
SITE MAP

Figure-1_Site_Map_July2015_Summary_Results.mxd - DWH - 01/07/2016



N

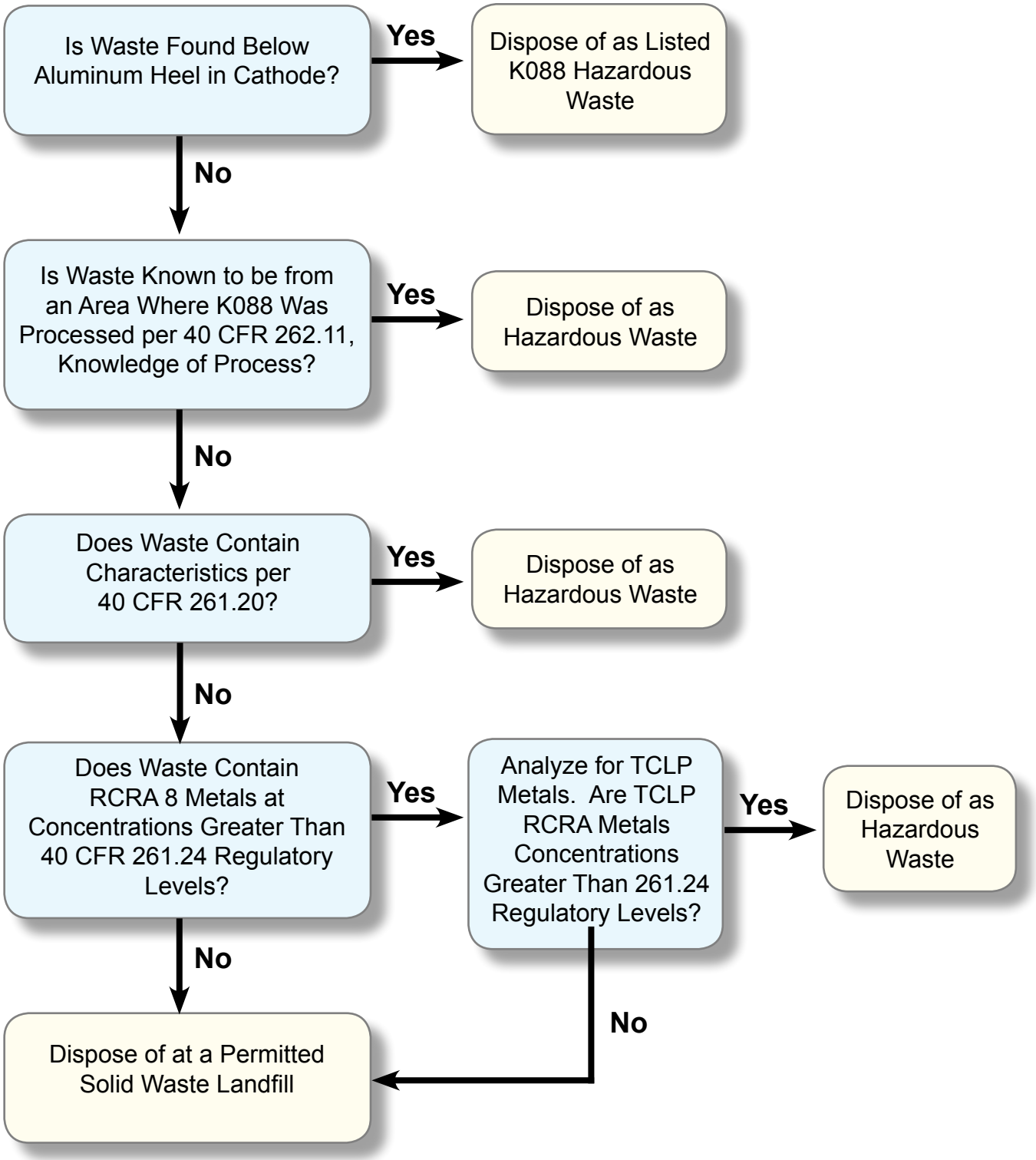
SCALE: NO SCALE

CFAC-Columbia Falls Aluminum Company
Columbia Falls, Montana

FIGURE 2
BUILDING 1 BASE MAP

SOURCE: MODIFIED FROM CFAC-COLUMBIA FALLS ALUMINUM COMPANY

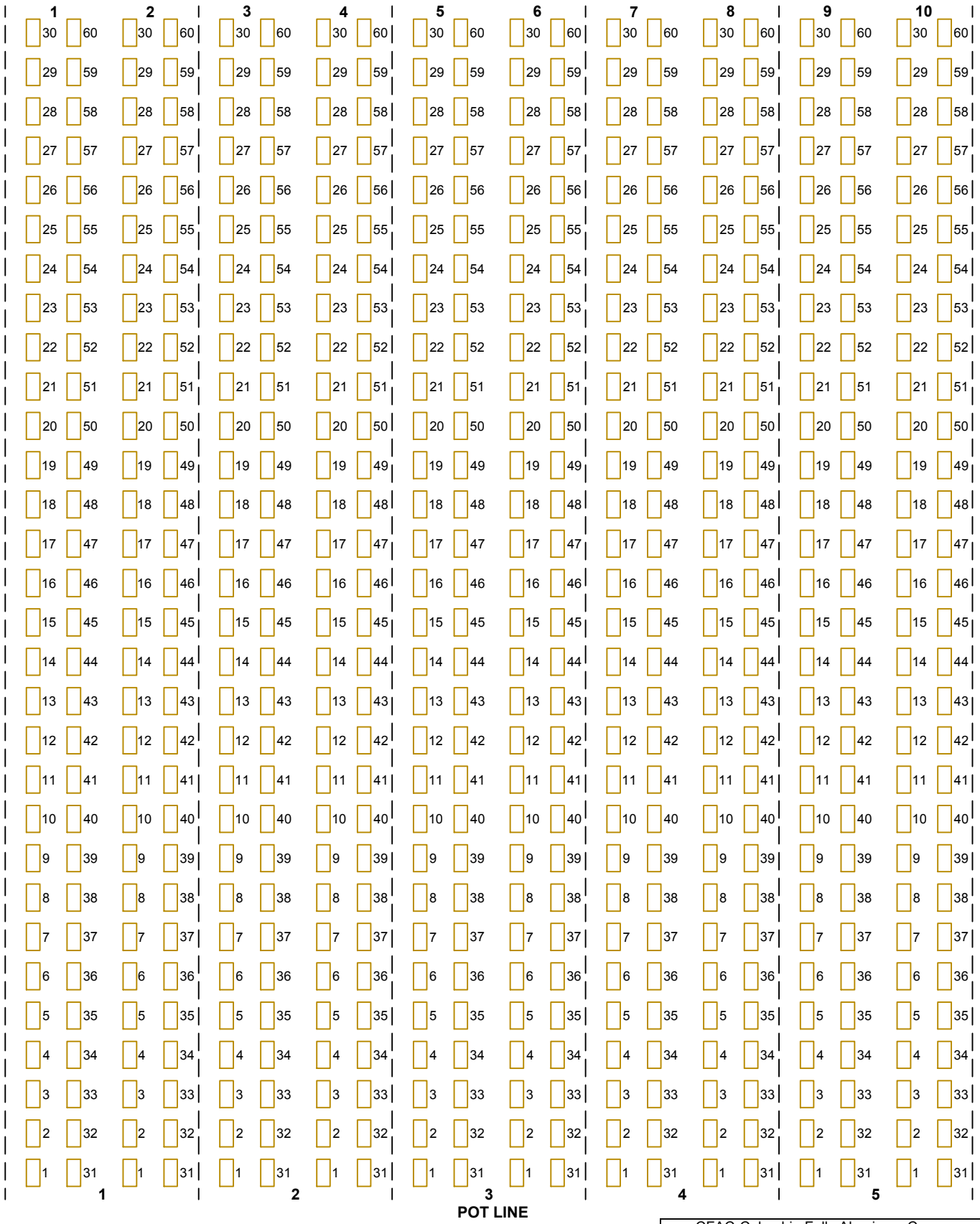
Figure 2_Building 1 Base Map.dwg - DWH - 03/03/2016



NOTE
TCLP - Toxicity Characteristic Leaching Procedure
mg/kg - Milligrams per Kilogram
RCRA - Resource Conservation and Recovery Act
ppm - Parts per Million

CFAC - Columbia Falls Aluminum Company
Columbia Falls, Montana

FIGURE 3
Waste Disposal Identification Flow Chart



LEGEND

POT AND NUMBER

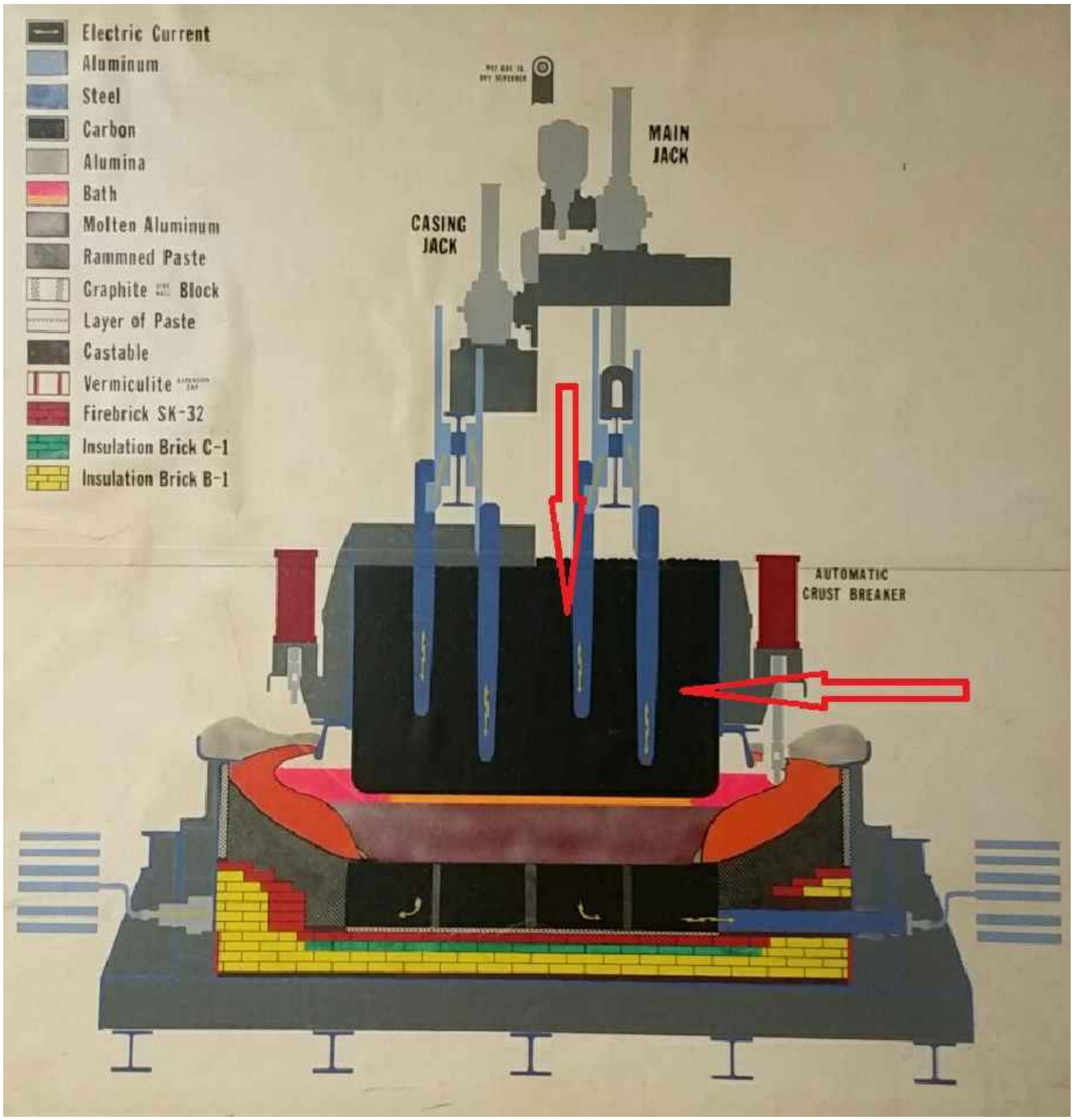
POT LINE WALL

SCALE: NO SCALE

CFAC-Columbia Falls Aluminum Company
Columbia Falls, Montana

FIGURE 4
CATHODE INVENTORY NUMBERING SYSTEM

Figure 4_Cathode Inventory Numbering System.dwg - DWH - 03/02/2016



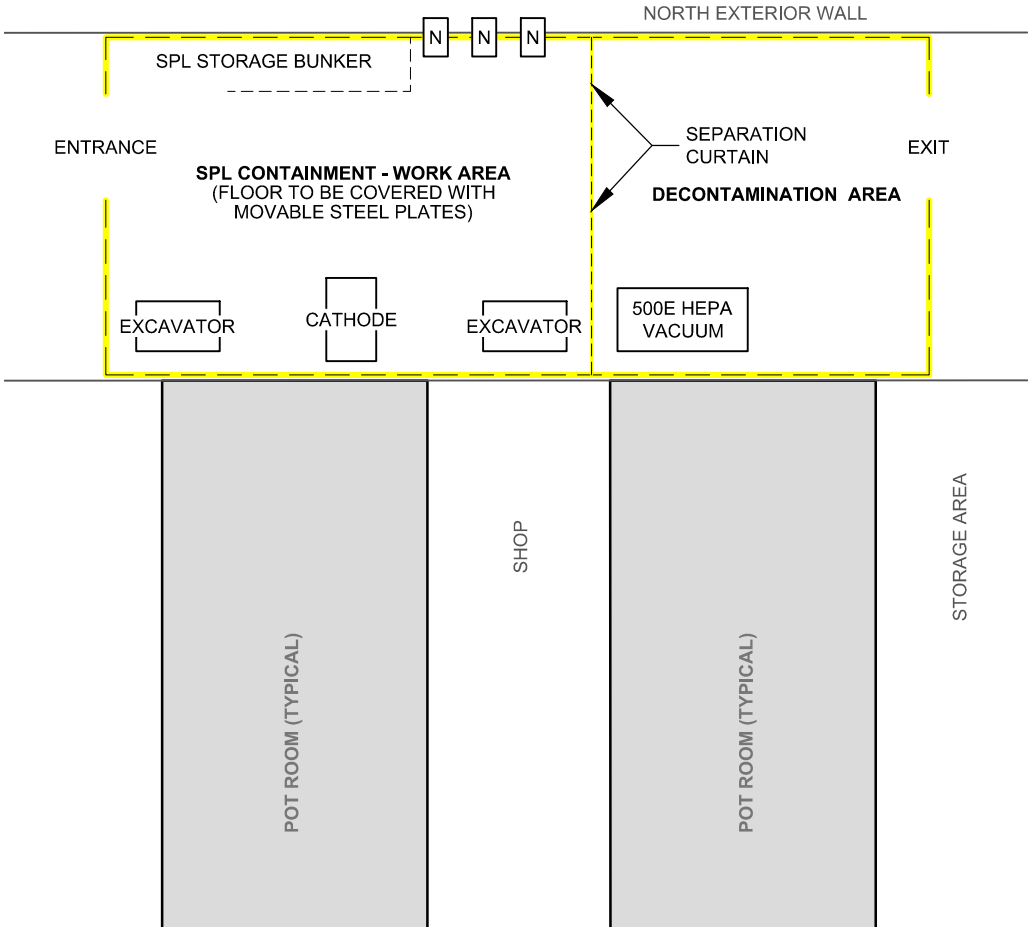
CFAC-Columbia Falls Aluminum Company
Columbia Falls, Montana

FIGURE 5
ALUMINUM REDUCTION CELL
CROSS SECTION

SOURCE: MODIFIED FROM CFAC-COLUMBIA FALLS ALUMINUM COMPANY

SCALE: NO SCALE

Figure 5_Aluminum Reduction Cross Section.dwg - DWH - 03/02/2016



LEGEND

N 2000 CFM NEGATIVE AIR MACHINE WITH HEPA FILTERS

CONTAINMENT AREA

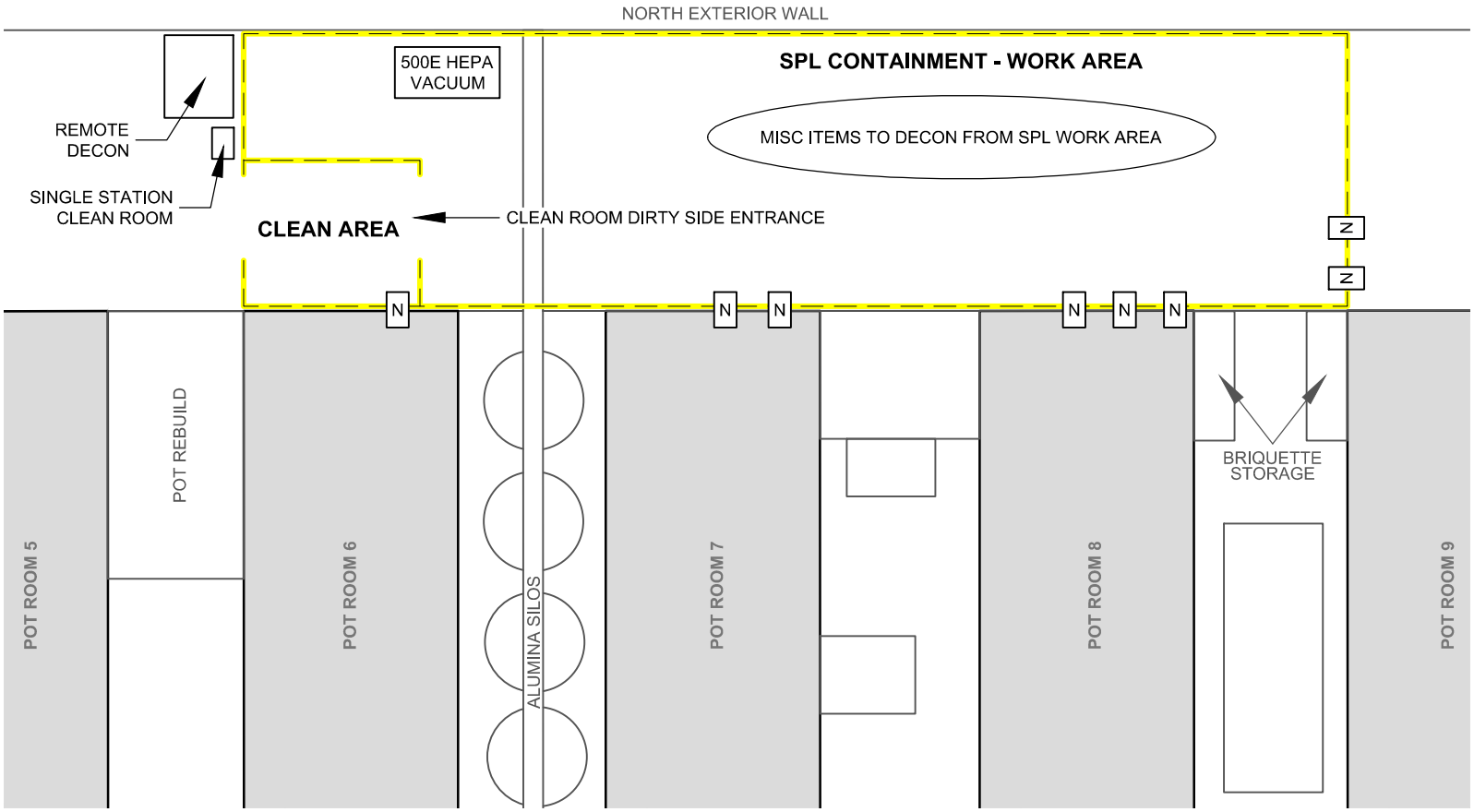
SCALE: NO SCALE

CFAC-Columbia Falls Aluminum Company
Columbia Falls, Montana

FIGURE 6
EXAMPLE OF POT ROOMS
SPL DIGGING CONTAINMENT AND
DECONTAMINATION AREA

SOURCE: MODIFIED FROM CFAC-COLUMBIA FALLS ALUMINUM COMPANY

Figure 6_Example-SPL Digging Containment and Decon- DWH - 03/02/2016



LEGEND

N — 2000 CFM NEGATIVE AIR MACHINE WITH HEPA FILTERS

CONTAINMENT AREA

SCALE: NO SCALE

SOURCE: MODIFIED FROM CFAC-COLUMBIA FALLS ALUMINUM COMPANY

CFAC-Columbia Falls Aluminum Company
Columbia Falls, Montana

FIGURE 7
POT ROOMS 6, 7, AND 8
PRE SPL DIGGING DECONTAMINATION

Figure 7_Pot Rooms 6-7-8 Pre SPL Digging Decon.dwg - DWH - 03/02/2016

Appendices A - L

Provided Separately

Attachment 1 EPA Guidance Document

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 30 2003

MEMORANDUM

SUBJECT: Transmittal of Interim Guidance on Financial Responsibility for Facilities Subject to RCRA Corrective Action

FROM: Susan E. Bromm
Director, Office of Site Remediation Enforcement

Robert Springer
Director, Office of Solid Waste

TO: RCRA Senior Policy Advisors, Regions I - X
RCRA Enforcement Managers, Regions I - X
RCRA Key Contacts, Regions I - X

This memorandum transmits the attached document entitled "Interim Guidance on Financial Responsibility for Facilities Subject to RCRA Corrective Action." Financial assurance is an important aspect of the corrective action program. This document provides decision makers guidance in the implementation of financial responsibility requirements to ensure that owners and operators provide evidence of financial responsibility for corrective action that may become necessary in the future. This guidance will also assist the states that are authorized for corrective action in the implementation of financial assurance requirements, ***so*** please share it with them as appropriate.

In some cases there may be some facility owners and operators that are unable or fail to provide financial assurance. Prompt enforcement action against non-compliant, financially viable entities is generally appropriate. We recognize that facility owners and operators that are bankrupt or have other financial problems may have difficulty securing financial assurance. We encourage innovative and site-specific approaches to address the difficulties financially stressed companies have in meeting financial assurance requirements. This guidance does not prescribe the use of any particular approach. Decision makers have the discretion to use approaches described here, or on a case-by case basis adopt a different approach as appropriate.

We appreciate the input we received from the Regional and State representatives who helped shape this document. Thank you to those of you who allowed members of your staffs to work on it. Some of them participated on the workgroup, and some reviewed drafts of the guidance and provided comments. We received input from all 10 Regions as well as from ASTSWMO's Corrective Action and Permitting Task Force and the States of Arkansas, California, Florida, Illinois, Michigan, New York, Ohio, Virginia, and Washington.

Our offices are working on several projects in the area of financial assurance. We are forming work groups with your staffs and interested states to facilitate communication by sharing case studies and best practices. In addition, financial assurance training modules and courses are under development, as are efforts to include financial assurance data in RCRAInfo. For more information regarding financial assurance for corrective action, please contact Mary Bell at (202) 564-2256 or Dale Ruhter at (703) 308-8192.

Attachment

cc:
Regional Counsels (Regions I - X)
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Interim Guidance on Financial Responsibility for Facilities Subject to RCRA Corrective Action

Table of Contents

Section 1: Introduction

The purpose of this document is to provide guidance to EPA Regions and States authorized for corrective action ("authorized states") regarding corrective action financial responsibility requirements at hazardous waste facilities subject to the Resource Conservation and Recovery Act (RCRA). This guidance addresses RCRA corrective action financial responsibility provisions at hazardous waste treatment, storage and disposal facilities (TSDFs) that are permitted or subject to RCRA § 3008(h) orders. [1]

This document does not address financial responsibility requirements for closure, post-closure care or third-party liability. [2] In addition, this document does not address every available option or approach; and some of the ideas suggested in this document may not be appropriate for all facilities. Finally, regulators should be aware that state laws and regulations may differ from federal requirements and may affect how the regulatory agency handles financial responsibility requirements.

Corrective action entails conducting cleanup activities to address all unacceptable risks to human health or the environment from the release of hazardous waste or hazardous constituents at TSDFs. [3] The corrective action process generally includes the following elements: initial site assessment, site characterization, environmental indicators, selection and implementation of the remedy. [4]

If corrective action, when necessary, cannot be completed prior to the issuance of a permit to an owner or operator of a TSDF by the Administrator or an authorized State, the permit must contain a schedule of compliance for completing such corrective action and assurances of financial responsibility. [5] Thus, both EPA and authorized States must include assurance of financial responsibility for corrective action in permits that require corrective action. EPA is

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[1] Advance Notice of Proposed Rulemaking, Scope and Definitions, 61 Fed. Reg. 19432, at 19441 (May 1, 1996) (hereinafter "the 1996 ANPR").

[2] Regulations for closure, post-closure care and third-party liability are found in 40 CFR Part 264, Subpart H for owners and operators of permitted hazardous waste facilities, and 40 CFR. Part 265, Subpart H for owners and operators of facilities operating under interim status.

[3] See, e.g., discussion of corrective action authority in the context of permitting and Section 3008(h) orders in the 1996 ANPR at 19442-43 and 19453-54 (discussion of the definitions of "release" and "solid waste management unit").

[4] The 1996 ANPR at 19436 and 19443; Environmental Indicators for Corrective Action and Corrective Action Process. RCRA Cleanup Reforms (www.epa.gov/correctiveaction).

[5] RCRA § 3004(u), 42 U.S.C. § 6924(u).

authorized to issue administrative orders or file civil judicial actions that impose corrective action financial responsibility requirements on facilities subject to 3008(h) orders. [6]

The primary purpose of the financial responsibility requirements for corrective action is to assure that funds will be available when needed to conduct necessary corrective action measures. [7] The intent of the RCRA financial responsibility requirements is, in part, to reduce the number of TSDFs that are insolvent or abandoned by their owners and operators, leaving the costs of corrective action to be borne by the public. [8]

Congress intended that facility owners and operators ensure that adequate funds would be available to complete the required corrective action so contaminated TSDFs do not become the responsibility of the federal Superfund or State cleanup programs. [9] It is important for regulators to require facility owners and operators to obtain financial assurance when the companies are financially healthy, so that resources are set aside in the event a company hits a financial decline.

The Agency recognizes that there may be some facility owners and operators that are unable or fail to provide financial assurance. Prompt enforcement action against non-compliant, financially viable entities is generally appropriate. In cases where the owner or operator is insolvent or bankrupt and is having difficulty securing financial assurance, regulators could consider requiring the owner or operator on a case-by-case basis to provide financial assurance pursuant to a compliance schedule as part of an enforcement action, while also performing the necessary corrective action. Regulators are encouraged to work with financially distressed facility owners and operators to develop practical facility-specific cleanup goals that protect human health and the environment, and to assure, using all appropriate tools, that the regulated community complies with financial assurance requirements.

EPA has not promulgated detailed regulations for financial assurance for corrective action. EPA codified the statutory requirements for owners and operators of permitted facilities, but did not codify requirements for owners and operators of facilities operating under interim status. Regions and authorized States have discretion in determining how to address the corrective action financial assurance requirements at each RCRA TSDF to meet the regulatory and statutory requirements in light of the specific circumstances at that facility.

EPA recognizes that the main goal of regulators in implementing the corrective action

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[6] RCRA § 3008(h), 42 U.S.C. § 6928(h); see e.g., 63 Fed. Reg. 56710, at 56716 (Oct. 22, 1998) and 65 Fed. Reg. 70954, at 70966 (Nov. 28, 2000).

[7] Interim final rule with request for comments, Future Regulatory Activity, 47 Fed Reg. 32274, at 32279 (July 26, 1982).

[8] The 1996 ANPR at 19434, Statutory and Regulatory Requirements.

[9] The 1996 ANPR at 19434, Statutory and Regulatory Requirements.

requirements is to protect human health and the environment presented by releases at RCRA facilities, and that financial assurance involves matters with which regulators are sometimes not familiar. By this guidance, EPA hopes to assist regulators in understanding the purpose and importance of financial assurance for corrective action and the regulator's role in ensuring that financial assurance is sufficient.

This guidance document does not address all issues related to financial responsibility for facilities subject to RCRA corrective action. We expect to issue follow-up guidance to address some of the outstanding issues, such as model language options for administrative orders.

Section 2: Statutory and Regulatory Requirements for Providing Financial Assurance for Corrective Action at Hazardous Waste Treatment, Storage and Disposal Facilities

RCRA TSDF owners and operators are required to demonstrate financial responsibility for corrective action as may be necessary to protect human health and the environment primarily to ensure adequate funds are available to undertake the necessary corrective action at the facility in the event, for example, the facility owners and operators are unable or fail to do so. Under RCRA § 3004(u), permits issued by the Administrator or a State "shall contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and assurance of financial responsibility for completing such corrective action."

RCRA § 3004(v) further requires that corrective action be taken beyond the facility boundary where necessary to protect human health and the environment unless the facility owner or operator concerned demonstrates to the satisfaction of the Administrator that, despite its best efforts, it was unable to obtain the necessary permission to undertake off-site corrective action.

Federal regulations at 40 CFR § 264.101 codify the requirements of RCRA § 3004(u) and (v). "The owner or operator of a facility seeking a permit for the treatment, storage or disposal of hazardous waste must institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit" and "the permit will contain assurances of financial responsibility for completing such corrective action." Further, "[t]he owner or operator must implement corrective actions beyond the facility property boundary, where necessary . . . "; and "[a]ssurances of financial responsibility for such corrective action must be provided."

At permitted TSDFs, financial assurance requirements for corrective action are imposed through the permit. The part of the permit that includes requirements for financial assurance for corrective action may be issued by an authorized State, or where States are not authorized, by EPA.

At facilities that are issued RCRA § 3008(h) orders, EPA may rely on its administrative order authority, rather than on permits, to impose financial assurance requirements. Under RCRA §

3008(h), EPA may issue administrative orders requiring corrective action or such other response measures as EPA may deem necessary to protect human health or the environment. EPA's authority under this section includes, among other things, the authority to require financial assurance for corrective action. Most authorized States have § 3008(h)-like authority. Regulators are encouraged to include financial responsibility requirements in corrective action orders issued to TSDF owners and operators.

RCRA regulations authorize the use of various mechanisms to provide financial assurance for closure, post- closure, and third-party liability including any one, or a combination of, if appropriate, trust fund, surety bond, letter of credit, insurance, corporate guarantee, or qualification as a self-insurer by means of a financial test. EPA may allow these financial mechanisms to establish financial assurance for corrective action under either permits or administrative orders. EPA may allow other financial mechanisms as well if the facility owner or operator demonstrates to the satisfaction of the Agency, that such mechanisms provide an acceptable level of financial assurance, and the mechanism is otherwise consistent with federal law. [10] Authorized States may allow these or other financial assurance mechanisms that are consistent with the requirements of their own laws and provide adequate assurance. [11]

Section 3: Implementation of Financial Assurance Requirements for Corrective Action: Timing, Cost Estimating and Mechanisms

In the legislative history of RCRA § 3004(u), Congress expressed concern that unless all hazardous constituents released from solid waste management units at permitted facilities are addressed and cleaned up more sites will be added to the Superfund program in the future, with little prospect for control or cleanup. [12] Although detailed regulations to govern financial assurance for corrective action were proposed by the Agency, they were not finalized. Instead, EPA codified the statutory requirements for owners and operators of permitted facilities. The Agency has emphasized that regulators should ensure that financial assurance requirements are applied appropriately to ensure remedies proceed expeditiously and facility owners and operators have the necessary funds to implement corrective action. [13]

3.1 Timing and Cost Estimating

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[10] For further discussion of this subject, see preamble to the Proposed Rule, Allowable Mechanisms, 55 Fed. Reg. 30799, at 30856 (July 27, 1990), and RCRA § 3004(a) & (t), 42 U.S.C. § 6924(a) & (t); 40 CFR Parts 264, Subpart H & 265, Subpart H.

[11] RCRA § 3009, 42 CFR § U.S.C. § 6929.

[12] The 1996 ANPR at 19434, citing H.R. Rep. No. 198, 98th Cong., 1st Sess., part 1, 61 (1983).

[13] The 1996 ANPR at 19455.

The Agency has acknowledged the difficulties regulators face in determining when financial assurance for corrective action should be established and the amount of financial assurance to require. In the 1996 ANPR, EPA stated that financial assurance demonstrations have been ordinarily required at the time of remedy selection. [14] The Agency has also said the degree of investigation and subsequent corrective action necessary to protect human health and the environment varies significantly across facilities. Since few cleanups will follow exactly the same course, decision makers should have significant latitude to structure the corrective action process, develop cleanup objectives, and select remedies appropriate for facility-specific circumstances.[15] Since no final rule was issued by the Agency concerning the timing of financial assurance for corrective action, regulators have the flexibility to tailor the timing and requirements for financial responsibility to facility-specific circumstances. [16]

In determining the timing and the amount of financial assurance at a particular site, there are several approaches for regulators to consider. One approach is to require financial assurance for known releases at the time of final remedy selection, and the associated cost estimates are known. The advantage of this approach is that the regulator can use this cost to determine the amount of financial assurance to require. However, a disadvantage to this approach is that funds are set aside relatively late in the process, often not before major costs are incurred. [17] Since it frequently takes several years from the time a facility becomes subject to corrective action for the facility to reach the final corrective measures selection stage of the process, there is a risk that a facility owner or operator's financial situation could deteriorate during that time. If the owner or operator's financial health declines and there is not sufficient financial assurance in place, the responsibility to fund the cleanup may shift to the regulating agency and/or taxpayers.

Another approach in determining the timing and amount of financial assurance at a particular facility is to require owners and operators to demonstrate financial assurance once it is determined corrective action is necessary, but before the corrective measures are selected and corrective action costs are known. This approach would require a facility owner or operator or the regulator to make an early estimate of the likely cost of corrective action at the facility, and require the facility owner or operator to provide financial assurance for that cost. After the corrective measures are determined and better cost estimates are known, the financial assurance could be adjusted up or down, consistent with the revised cost estimate. This approach would set aside funds for corrective action costs at an earlier stage. However, it may be difficult to

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[14] The 1996 ANPR at 19454, Financial Assurance.

[15] The 1996 ANPR at 19440, Program Management Philosophy.

[16] The 1996 ANPR at 19454, Financial Assurance.

[17] The 1986 ANPR at 37860, Timing and Amount of Financial Assurance.

determine a reasonable amount for some facilities.[18]

Regulators also should consider the nature of the cleanup involved at a particular site. Although early implementation of the corrective action program focused on final cleanups, more recently the trend has been towards ensuring interim measures and stabilization. [19] Since final remedy implementation may be delayed at some facilities, based on information available at the beginning of the corrective action process, it may make sense to require TSDF owners and operators to demonstrate financial assurance for early stages of the corrective action process on a site-specific basis. For example, where it is known that the costs of the investigation are certain to be quite substantial and/or when the facility is in poor financial condition, regulators may wish to consider requiring financial assurance to cover the estimated cost of the investigation. At other facilities, regulators may determine it is necessary and appropriate to require financial assurance for significant interim measures as well. An example of such an interim measure is installing and maintaining a groundwater well system to stop a plume of contamination from further migration.

Initially, the financial assurance required could be limited to those activities, such as the investigation and interim measures, that are deemed necessary at the beginning of the process. Later, if it is determined that additional corrective measures are required and what those corrective measures will be, regulators could require financial assurance to be established for those corrective measures. Regulators could structure the financial assurance requirements in the permit or administrative order so that the facility owner or operator could demonstrate financial assurance incrementally. The financial assurance could be adjusted as the work is conducted, and as the costs of subsequent stages become known. Some financial assurance mechanisms might be better suited to this approach than others.

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[18] The 1986 ANPR at 37860, Timing and Amount of Financial Assurance.

[19] As the corrective action program began to mature it became clear to regulators that final cleanups were difficult and time consuming to achieve, and an emphasis on final remedies at just a few facilities could divert limited resources from addressing ongoing releases and environmental threats at many other facilities. As a result, the Agency established the Stabilization Initiative in 1991 which increased the rate of corrective actions by focusing on near-term activities to control or abate threats to human health and the environment and prevent or minimize the further spread of contamination. In addition, in response to the Government Performance and Results Act of 1993 (GPRA) and criticism that the agency focused too much on administrative process rather than actual cleanups, EPA developed two specific environmental indicators for the corrective action program: Human Exposures Controlled Determination and Groundwater Releases Controlled Determination. The indicators are facility-wide measures that are obtained when there are no unacceptable risks to humans due to contaminants or when migration of contaminated groundwater is controlled. Thus, the current approach to corrective action focuses on ensuring interim measures and stabilization actions (The 1996 ANPR at 19436).

There are potential advantages in requiring TSDF owners and operators to demonstrate financial assurance earlier and incrementally, rather than at final remedy selection. This approach could assure that funding will be available for stabilization activities so that the facility does not present an unacceptable risk in the near-term if it defaults. Demonstrating financial assurance incrementally could increase the amount of resources available for cleanup work while reducing the financial burden on the facility owners and operators of providing a large amount of financial assurance for remedy implementation.

Depending on the mechanism selected, it is possible for the regulator to structure the requirement for financial assurance so that the amount set aside is reduced or increased at specified intervals as the corrective action work is characterized and conducted. Permits or administrative orders would be modified accordingly. Regulators may structure the financial assurance so the amount is reconsidered at regular intervals (e.g., annually) corresponding with completion of the various stages of corrective action at a particular facility. The amount of financial assurance should also account for inflation.

We recommend that estimates be based on costs that would be incurred by an independent, third-party in order to ensure that the full costs of corrective action will be covered in the event an owner or operator is not able to fulfill its obligations. EPA's 1986 proposed rule for financial assurance for corrective action contains some discussion of some of the elements that may be relevant to a cost estimate. [20] Often, however, regulators will need to rely on the institutional knowledge that exists in their Region or State to estimate the costs of some of these activities when actual costs are not known.

The language of the permit or administrative order should be crafted carefully to ensure that the financial assurance requirements are clearly set forth and that the amount necessary for the particular facility is established and maintained. Regulators may also consider including a provision in an order providing that if the facility owner or operator fails to establish and maintain the financial assurance as required, the facility owner or operator may be subject to enforcement action, including civil penalties. In addition, clear definitions of operative terms, such as "failure to fulfill corrective action obligations" will help insure compliance.

3.2 Mechanisms

Since EPA has not promulgated specific regulations for financial assurance for corrective action, regulators have the flexibility to determine which mechanism an owner or operator may use to satisfy the financial assurance requirements. Often regulators look to other regulatory provisions pertaining to financial assurance for guidance such as the regulations for closure and post-closure care and third-party liability at TSDFs at 40 CFR Part 264, Subpart H. These provisions allow owners and operators of TSDFs to demonstrate financial responsibility through a trust fund,

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[20] Advance Notice of Proposed Rulemaking, 51 Fed Reg, 37854, at 37862 (Oct. 24, 1986) (hereinafter "the 1986 ANPR").

surety bond, a letter of credit, insurance, corporate guarantee, or qualification as a self-insurer by means of a financial test. Any one, or any combination of these mechanisms may be used if appropriate, to satisfy the financial assurance requirements for corrective action given the specific circumstances. EPA may allow other mechanisms to provide financial assurance for corrective action as well, if the facility owner or operator demonstrates to the satisfaction of the Agency that such mechanisms provide an acceptable level of financial assurance, and the mechanisms are otherwise consistent with federal law. [21] States may use these or other financial assurance mechanisms, provided they are permissible under their own laws and provide adequate levels of assurance. Each mechanism has unique characteristics so regulators should carefully evaluate the advantages and disadvantages of each when determining which should be used.

Regulators may also look to the regulations for municipal solid waste landfill facilities at 40 CFR Part 258.74, Subpart H, and the regulations for underground storage tanks at 40 CFR Part 280.90, Subpart G for guidance as well. [22]

EPA urges regulators to exercise caution in drafting the actual language of the mechanism to be used for a specific facility. For example, regulators should not necessarily rely on the exact language in the regulations because that language does not relate specifically to corrective action. The language of the mechanism or instrument for financial assurance should be drafted for the specific purpose of providing financial assurance for corrective action at the specific facility being addressed in order to ensure its availability in the event that the owner or operator fails to fulfill its obligations.

The permit or administrative order can be drafted to include provisions to help ensure the adequacy of the financial assurance mechanism. For example, the document could be drafted to include the specific mechanism the facility owner or operator must provide or a specific range of options that would be acceptable to the regulating agency. For administrative orders, the selected mechanism would require approval by the regulating agency. In addition, the administrative order could set forth consequences in the event the owner or operator fails to establish and maintain the financial assurance as required.

Use of each mechanism implicates a specialized area of law and finance. Regulators should work with experts in those fields in reviewing the mechanisms proposed prior to approval to ensure sufficiency. Once a mechanism is selected, there are various techniques to ensure the mechanism remains effective. In the regulations mentioned above, for example, mechanisms such as the financial test are monitored to ensure the company continues to meet both the financial and the record keeping and reporting requirements. Monitoring of third-party mechanisms, such as surety

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[21] Proposed Rule, Allowable Mechanisms, 55 Fed. Reg. 30799, at 30856 (July 27, 1990).

[22] The financial assurance regulations referenced above are available electronically at www.epa.gov/epahome/cfr40 (Title 40, Chapter I, Subchapter I Solid Wastes (Parts 239-299), Part 264 p.64; Parts 258.74 p.47; Parts 280.90 p.36).

bonds also ensures the surety remains financially viable. This can be done, for example, by confirming that the surety continues to be included in the U.S. Treasury's Circular 570. Monitoring by regulators can be facilitated by, for example, imposing regular reporting requirements on the owner or operator.

As important as regular monitoring are requirements for reporting any termination or cancellation of the financial assurance instrument. The regulatory authority could require notice of the intent to cancel, terminate or fail to renew an instrument. This notice could provide sufficient time for the owner or operator to obtain a replacement or, if one is not available, allow the regulator enough time to call in the instrument and ensure that funds will be available for the work. In addition, when a corporate guarantee is used, the corporate guarantor could be required to provide immediate notice whenever it no longer meets the financial test. When this occurs, the facility owner or operator could be required to provide an alternative financial assurance mechanism. The financial assurance regulations referenced above provide examples of how this can be structured.

In sum, regulators have considerable discretion in determining how to address financial assurance requirements that are protective of human health and the environment. The Agency suggests using the approach that is best suited to the particular facility being addressed. Practical cleanup requirements should be developed that enhance timely, efficient and protective cleanups based on facility-specific circumstances.

Section 4: Responding to Facilities that Claim an Inability to Provide Financial Assurance for Corrective Action

4.1 Evaluating the Financial Health of a Facility Where the Owner/Operator Claims a Limited Ability to Provide Sufficient Financial Assurance

Where financial assurance for corrective action has not yet been provided by the owner or operator of a TSDF, an owner or operator could claim, at the time the financial assurance must be provided, that it cannot afford the required financial assurance or claim that no one is willing to provide it for them. Where corrective action cannot be completed prior to issuance of the permit RCRA and current federal regulations explicitly mandate permits issued to owners and operators of TSDFs must contain schedules of compliance for corrective action and assurances of financial responsibility for completing such corrective action. [23] Likewise, owners and operators of facilities subject to RCRA 3008(h) administrative orders are typically required to provide financial assurance. In cases where the facility owner or operator claims it is unable to afford the required financial assurance, EPA recommends that regulators evaluate the financial health of the owner or operator to determine whether the claim is valid. Regulators should obtain the expertise of a financial analyst when making this determination.

[23] RCRA § 3004(u), 40 CFR § 6924(u); 40 CFR § 264.101.

A good starting point for reviewing the financial condition of an owner or operator would be the individual or company's financial statements and tax returns. Generally, reviewing a company's records from the last five years will be sufficient. The facility owner or operator should not have any difficulty voluntarily providing such information to document a legitimate claim.

Regulators should keep in mind that the value of an entity's financial statements and tax returns is limited because these documents generally reflect past financial performance from which future performance may only be predicted. They do not provide certainty about an owner or operator's future financial situation.

Regulators should also keep in mind that an owner or operator that submits financial information generally will have the expectation that such information will be retained as confidential and not released to the public. EPA has specific procedures that must be followed in the event that an entity that submits financial information claims that the information is confidential. [24] Each State regulator is encouraged to review his or her State's rules regarding such information.

Besides financial information provided by the owner or operator, regulators may also find useful information from other sources, such as Dun & Bradstreet (D&B), the Securities and Exchange Commission (SEC), and LEXIS-NEXIS. In addition, both Moody's and Standard & Poor's provide bond ratings. These services may have information that may be helpful in predicting a company's future performance, and therefore, its ability to provide financial assurance.

D&B can provide a broad range of information such as bankruptcy filings, suits and liens, and credit opinions. Regulators can use D&B to identify and group entities within an organization, and link parents with subsidiaries. D&B also provides business deterioration and high risk alerts.

Private services, such as D&B, provide useful reference tools, but the costs of collecting and analyzing the data from these services can be high, so regulators may not have access to them. Access to EDGAR, SEC's online database is publicly available at no cost. EDGAR is available at www.sec.gov/index/htm. However, the SEC only has financial information on publicly traded companies, with assets of $10 million or higher. It is important to note that previous analysis by EPA found significantly higher bankruptcy rates for owners and operators that have a net worth less than $10 million. [25]

If the regulator determines that the owner or operator's claim is valid, the regulator must decide the best course of action to try to bring the owner or operator into compliance with financial assurance requirements during the period leading up to final remedy selection. If the facility owner or operator concerned demonstrates that it is working toward complying with the requirements, and that there is a reasonable prospect of providing financial assurance in the near

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[24] 40 CFR Part 2.208, Subpart B.

[25] Notice of Proposed Rulemaking, 59 Fed. Reg. 51523, at 51527 (Oct. 12, 1994).

future, the regulator may consider requiring the owner or operator to provide the financial assurance in accordance with a schedule, while also performing the necessary corrective action. The compliance schedule should clearly set forth, in detail, what the owner or operator must do, when the owner or operator must do it, and the milestones and reporting requirements. In addition, the compliance schedule should require the owner or operator to submit updates on its financial situation. For interim status facilities, regulators should consider including such terms in an administrative order. For permitted facilities, the regulators may need to modify the permit to accomplish the same result.

If the regulator determines that the facility owner or operator's claim is not valid, a variety of options are available to the regulator to ensure that the owner or operator complies with the financial assurance requirements. For example, depending upon the circumstance the regulator could issue an administrative order requiring compliance with RCRA financial assurance requirements and/or seek penalties for noncompliance, or file an action for injunctive relief in court.

4.2 Environmental Claims in Bankruptcy Filings

When the owner or operator of a facility subject to RCRA corrective action requirements files for bankruptcy, financial assurance issues become further complicated. While bankruptcy law is generally favorable to the government in enforcing corrective action and financial assurance requirements against debtors, there are often other considerations that should be evaluated pragmatically.

Typically, a financially distressed business will continue to operate and will file a Chapter 11 bankruptcy case, which provides an opportunity for the company to restructure its debts. If the company cannot solve its financial problems, it may seek to liquidate by filing a Chapter 7 bankruptcy case or by having its Chapter 11 case converted to Chapter 7 liquidation. Issues relating to financial assurance vary depending upon whether the bankruptcy case is a Chapter 11 or Chapter 7 case.

In a Chapter 11 bankruptcy case, the debtor usually remains in possession and control of its property and continues to operate its business while seeking a solution to its financial problems. A Chapter 11 debtor is not excused from its obligation to comply with environmental laws and regulations in the operation of its business, including financial assurance requirements.[26] The regulating agency may take appropriate enforcement action to compel compliance or to assess a

[26] In Safety-Kleen, Inc. (Pinewood) v. Wyche, 274 F.3d 846 (4th Cir. 2001), the court held that in a Chapter 11 case a state administrative order requiring compliance with RCRA financial assurance requirements remains in effect, notwithstanding the filing of a Chapter 11 petition by the debtor because the primary purpose of financial assurance requirements is to deter environmental misconduct.

civil penalty.[27] Environmental enforcement actions brought by the government against companies in bankruptcy are generally excepted from the bankruptcy automatic stay pursuant to the "police power" exemption in 11 U.S.C. §362 (b)(4).

The regulating agency's response to a Chapter 11 bankruptcy may differ depending on the situation. For example, if the facility owner or operator has established and is maintaining adequate financial assurance at the time that it declares bankruptcy, then the regulating agency could act to secure that financial assurance by whatever means is appropriate given the particular financial assurance mechanism. It is possible that, upon notice of bankruptcy, the issuer may attempt to terminate an instrument established for financial assurance. In such a case, the regulating agency will have to act swiftly to decide whether to make a demand for payment to secure the funds before the termination of the specific financial assurance instrument occurs. Such demand for payment would typically direct payment of the secured amount into an already established standby trust, where the funds would be available to finance the ongoing corrective action work. This approach works best where the mechanism for demanding such payment is specified in the language of the specific instrument that established the financial assurance. Ultimately, the party responsible for payment on the financial assurance will be forced to bring a claim in the bankruptcy proceeding against the debtor for any payment required by the regulating agency under a financial assurance mechanism established prior to the filing of bankruptcy (such claims are considered "contingent claims" and are subject to bankruptcy).

Where the facility owner or operator has not established financial assurance or an appropriate amount of financial assurance for corrective action, it is important for the regulating agency to assert itself in the bankruptcy proceeding to ensure that the resources of the owner or operator are available to address the necessary corrective action. Facilities that file for Chapter 11 bankruptcy protection and plan to emerge from bankruptcy as an operating TSDF could be required as part of the bankruptcy process, to establish and maintain financial assurance for corrective action. Regulating agencies need to be involved in the bankruptcy proceeding to ensure that this is the case. Where an owner or operator that has declared Chapter 11 bankruptcy does not intend to continue operating as a TSDF and will, therefore, no longer receive hazardous waste, the regulating agency should endeavor to ensure that sufficient resources are made available to complete the necessary corrective action at the facility.

Regulators should also be aware that some bankruptcy courts allow Chapter 11 liquidations where the debtor remains in possession, no trustee is appointed, and the debtor proposes and the creditors vote on and approve a plan of liquidation. Abandonment of contaminated property may occur in such Chapter 11 liquidations.

In a Chapter 7 bankruptcy case, the debtor ceases operations and its business is liquidated. A Chapter 7 trustee is appointed who sells the assets of the debtor and distributes any proceeds to

[27] Once a penalty is assessed or a judgment on the penalty is obtained, the automatic stay prohibits collection activities other than through the bankruptcy process.

creditors in accordance with the priority scheme set forth in the Bankruptcy Code. The Chapter 7 trustee may seek to abandon contaminated property that cannot be sold. While the debtor's obligations for cleaning up the contaminated property are not discharged by the bankruptcy, the debtor rarely has the resources to perform such work. More often than not, the financial assurance previously established by the debtor may be the only significant source of funding for corrective action.

Issues that arise when a regulated entity files for bankruptcy are complex. In some instances the law is unsettled or may vary depending upon the jurisdiction. Regulators must consult with legal counsel when cases involving bankruptcy arise in order to ensure that their regulating agency's rights are preserved.

Section 5: Conclusion

RCRA requires permits issued to owners and operators of hazardous waste TSDFs to provide assurances of financial responsibility for completing corrective action as may be necessary to protect human health and the environment. In addition, financial assurance requirements should generally be included in corrective action administrative orders issued under Section 3008(h) of RCRA, 42 U.S.C. § 6928(h). Regulators have flexibility to tailor financial responsibility requirements to facility-specific circumstances. EPA recommends structuring the governing document, either permit or administrative order to ensure that facility owners and operators obtain an appropriate mechanism to satisfy the financial responsibility requirements for corrective action. The mechanism should ensure that sufficient funds are available to undertake the necessary corrective action at the facility in the event the facility owner or operator is unable or fails to so do. Failure of a facility owner or operator to comply with financial responsibility requirements may put human health and the environment at risk.

Section 6: Use and Purpose of this Document

This document is not a regulation nor does it change or substitute for the statutory provisions described in this document. Moreover, this document does not confer legal rights or impose legal obligations upon any member of the public.

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