Record of Decision

Operable Unit 1

North Alcoa (Alcoa Properties) Site

Saint Clair County

East St. Louis, Illinois

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LIST OF ACRONYMS

AOC	Administrative Order on Consent
ARARs	Applicable or Relevant and Appropriate Requirements
BERA	Baseline Ecological Risk Assessment
BHHRA	Baseline Human Health Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
EJ	Environmental Justice
EJSEAT	Environmental Justice Strategic Enforcement Assessment Tool
U.S. EPA	United States Environmental Protection Agency
FS	Feasibility Study
FFS	Focused Feasibility Study
IAC	Illinois Administrative Code
IB	Investigative Block
Illinois EPA	Illinois Environmental Protection Agency
IUECA	Illinois Universal Environmental Covenant Act
Mg/kg	Milligrams per kilogram
Mg/l	Milligrams per liter
MW	Monitoring Well
NCP	National Contingency Plan
ND	Not Detected

NPV	Net Present Value
O&M	Operation and Maintenance
OU	Operable Unit
RAA	Remedial Action Alternative
RAGS	Risk Assessment Guidance for Superfund
RAO	Remedial Action Objective
RDA	Residue Disposal Area
RI	Remedial Investigation
ROD	Record of Decision
RSL	Regional Screening Level
SPL	Spent Pot Liner
SVOC	Semi-volatile Organic Compound
Ug/l	Micrograms per liter
VOC	Volatile Organic Compound

This Record of Decision (ROD) documents the Operable Unit 1 (OU-1) interim remedy selected for the North Alcoa Site in East Saint Louis, Saint Clair County, Illinois. The interim ROD is organized in three sections: Part I contains the Declaration for the ROD, Part II contains the Decision Summary and Part III contains the Responsiveness Summary.

Part I Declaration

This section summarizes the information presented in the interim ROD and includes the authorizing signature of the United States Environmental Protection Agency (U.S. EPA) Region 5 Director of the Superfund Division.

Site Name and Location

The North Alcoa Site is located in East Saint Louis, Saint Clair County, Illinois, and consists of an approximately 400 acre parcel of land located in a mixed use area. The Site is bounded on the north by Lake Drive, on the east by the Alton and Southern Railway, on the south by Missouri Avenue and on the west by 29th Street (See Figure 1). OU-1, the subject of this interim ROD, is located within the Site boundaries (See Figure 3). The Site is not on the National Priorities List but is being addressed as a Superfund Alternative Site. The CERCLIS ID for the Site is ILSFN0508010.

Statement of Basis and Purpose

This decision document presents the selected interim remedy for the North Alcoa Site OU-1, which was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, 42 U.S.C. §9601 *et seq* and, to the extent practicable, the National Oil and Hazardous Substances Contingency Plan (NCP), 40 C.F.R. Part 300. This decision is based on the Administrative Record (AR) file for this Site. The AR Index identifies each of the items comprising the AR upon which the selection of the interim remedial action is based.

The State of Illinois staff has recommended concurrence with the selected remedy and the State concurrence letter will be added to the AR upon receipt.

Assessment of Site

The response action selected in this interim ROD is necessary to prevent further environmental risks and degradation from actual or threatened releases of hazardous substances into the environment. Such releases or threat of releases may present an imminent and substantial endangerment to public health, welfare, or the environment.

Description of the Selected Remedy

The selected interim remedy addresses the accumulation of aluminum smelting waste in surface soils at the North Alcoa Site OU-1 and the associated risks to human health and the environment.

The preferred alternative for remediating OU-1 at the North Alcoa Site is Alternative RAA-2.

RAA-2 addresses Site contamination by clearing vegetation as necessary to accommodate consolidation of waste, regrading soil and constructing a two-foot soil cover in compliance with State of Illinois solid waste landfill requirements (35 IAC 807.305(c) and 35 IAC 807.502), enhancing control of surface stormwater by re-contouring the edges of existing ponds and creating newly designed stormwater management structures, backfilling gullies, and providing ditches, piping, dikes and berms (See Figure 5), constructing fencing around the OU-1 area and the pond areas to restrict access, and placing industrial/commercial use environmental covenants that preclude disturbance of the remedy components over the OU-1 area, ensuring long term protection of the constructed remedy.

RAA-2 meets the threshold criteria, provides the best balance of U.S. EPA's evaluation criteria and was selected over the other alternatives because it is expected to prevent future exposure to contaminated soils through the installation and maintenance of an ARAR compliant cover, management of on-Site stormwater to minimize the risk of flooding adjacent properties, and installation of appropriate fencing around OU-1 with additional fencing around the stormwater ponds. RAA-2 also reduces risk within a reasonable timeframe and provides for long term reliability of the selected remedy.

Based on the information available at this time, U.S. EPA and Illinois EPA find that RAA-2 is protective of human health and the environment, complies with ARARs, is cost effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

The source control activities selected in this ROD are interim measures to prevent the further release of hazardous substances, pollutants or contaminants from the Site. A removal action interim measure removed spent pot liner (SPL) waste from the Site for off-Site disposal in 2006. U.S. EPA will continue through the remedial process to select and implement a final long-term remedial action for the remainder of the Site (OU-2), which will include groundwater and additional surface soils.

Statutory Determinations

This action is intended to provide interim source control measures to mitigate historical releases of contaminants at the Site. This action is a protective interim action that provides permanent steps to address exposure to Site waste in the OU-1 area. A final Site-wide remedy addressing the remainder of the Site will be evaluated subsequent to this remedy selection. This interim remedial action complies with those federal and state requirements that are applicable or relevant and appropriate for this interim action. This action is cost effective. This action utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

This interim remedy does not meet the statutory preference for use of treatment which permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances. The 2006 Site removal

action removed and disposed off-Site principal threat SPL waste found in IB-3c. Waste addressed by this OU-1 action is low level contamination that is cost-effectively managed on-Site with containment measures. Treatment of the high volume, low toxicity soils is not implementable at the Site.

Because this OU-1 remedy will result in hazardous substances remaining on-Site above levels that allow for unlimited use and unrestricted exposure (UU/UE), a review will be conducted every five years after commencement of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

ROD Data Certification Checklist

The following information is included in the decision summary section of this ROD. Additional information can be found in the Administrative Record for this Site.

- Contaminants of Concern (COC) and their respective concentrations (See Section 5).
- Risk presented by the COCs. A baseline risk assessment was not completed for the entire Site; however risks in the OU-1 area were calculated (See Section 7).
- Whether source materials constituting principal threats are found on-Site (See Section 11).
- Cleanup levels established for the COCs and the basis for these levels. The risk assessment determined that concentrations in surface soils pose unacceptable risk which requires a remedy. Cleanup levels were not determined for this interim remedy. The remedy will address the unacceptable risks with the construction of a clean two foot soil cover compliant with 35 IAC 807.305(c) and 807.502.
- Current and future land use assumptions (See Section 6).
- Potential land and groundwater use that will be available at the Site as a result of the selected remedy. Selection of the OU-1 interim remedy will not change any current land use. Groundwater use is not addressed in this action (See Section 6).
- Estimated capital, annual operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (See Section 10).
- Key factors that led to the selection of this OU-1 interim remedy (See Section 12).

Support Agency Acceptance

The Illinois EPA staff has recommended concurrence with the selected interim remedy. Illinois EPA's concurrence letter will be added to the Administrative Record upon receipt.

Authorizing Signature

Richard C Karl

Richard C. Karl, Director
Superfund Division

7-26-12

Date

Part II Decision Summary

1.0 Site Name, Location and Description

The North Alcoa Site consists of an approximate 400 acre parcel of land located in a mixed use area in East Saint Louis, Illinois. The Site is bounded on the north by Lake Drive, on the east by the Alton and Southern Railway, on the south by Missouri Avenue and on the west by 29th Street (See Figure 1). OU-1 is located within the Site boundaries (See Figure 3).

The Mississippi River is approximately three miles to the west of the Site. There are no significant surface water features located between the Site and the river. Frank Holten State Park is east of the Site, with several large lakes. The Site investigation found that the surface water features at the state park are not hydraulically connected to the North Alcoa Site via surface water pathways and are located upgradient, as is represented in the Site FFS report.

The Site is not on the National Priorities List but is being handled as a Superfund Alternative Site. U.S. EPA is the lead Agency for this Site and the Illinois EPA is the support Agency.

2.0 Site History and Enforcement Actions

Over the past 10 years, an administrative order on consent, a removal action and remedial site investigations have taken place at the Site. This section of the ROD provides the history of the Site and a brief discussion of the various removal, remedial and enforcement activities and associated investigations that have been conducted at the Site.

The Site is located in East Saint Louis, Saint Clair County, Illinois (See Figure 1). From approximately 1903 to 1957, Alcoa, Inc. conducted aluminum manufacturing and production operations at the former East Saint Louis Works facility on the south side of Missouri Avenue. Alcoa operated the facility primarily for the purpose of refining bauxite into alumina using the Bayer process which used hot sodium hydroxide in a pressurized digester to separate the aluminate liquor from the insoluble bauxite residue (red mud). In addition, the former East Saint Louis Works produced fluoride, as well as bauxite and fluoride based chemicals, including cryolite, aluminum fluorides and sodium acid fluoride. The residue remaining after alumina extraction during bauxite refining is known as "red mud" or after further processing, "brown mud." Both forms of bauxite residue were disposed of at the North Alcoa Site.

Beginning in the early 1900s, Alcoa placed the red and brown mud from manufacturing operations in disposal areas north of Missouri Avenue. Initially, the bauxite residue was disposed of at the edges of the former Pittsburg Lake. Over time, Alcoa constructed residue disposal areas (RDAs) at the Site that were contained within gypsum berms, to prevent the red and brown mud from migrating away from the disposal areas. The gypsum (calcium sulfate) was generated from Alcoa's hydrofluoric acid production process, which reacted fluorspar with sulfuric acid. Bauxite residue and gypsum are the primary waste products remaining at the Site. There are three RDAs, each approximately 40 acres, at the Site. These RDAs are adjacent to one another and form a triangular shape (See Figure 1).

The dike in RDA 1 was breached historically (likely in the 1930s) and a deeply incised, dendritic drainage pattern has developed in this area towards the south, allowing bauxite waste to migrate and accumulate in on-Site areas to the south. Low lying areas outside of the RDAs consist of wet areas and uplands with various fill materials at the surface.

The bauxite residue generally consists of fine grained red or brown clay/silt material. The material has high moisture content, and below the near surface, it is a semi-solid. The bauxite residue is soft, highly plastic, and not suitable as a sub grade for building construction or redevelopment without extensive engineering. This material is thick (or viscous) under normal conditions, but thins or liquefies when shaken, agitated, or otherwise stressed. The residue has poor trafficability when wet and can be difficult to access without special equipment, even in dry conditions.

2.1. History of Removal Activities and Investigations

From 1996 through 2000, the Illinois EPA, U.S. Army Corps of Engineers and Region 5 conducted investigations of the portions of the former East St. Louis Works Site that extends north from Missouri Avenue.

In 1996, the Illinois EPA, in cooperation with Region 5, conducted a study for the purpose of generating a "CERCLA Redevelopment Assessment" report for the Site. This study involved taking 118 soil samples and 9 groundwater samples, primarily in IB-2 and IB-3. Through this investigation, the following hazardous substances were detected at the Site: lead, cadmium, arsenic, cyanide and chromium. In August 1997, Illinois EPA returned to the Site, taking six sediment and five surface water samples. Data from these samples showed elevated levels of lead, arsenic, cadmium and cyanide.

In November 1999, the U.S. Army Corps of Engineers took geotechnical probe samples on the north side of Missouri Avenue, detecting elevated levels of lead and cyanide. On July 5, 2000, a U.S. EPA contractor produced a letter report based on 23 samples that detected elevated levels of lead in the red mud/berm edge of the "Brown" or "West" pond and the cinders south of the bermed ponds. The letter report also documented arsenic in the gypsum berms and cinders; cyanide in the cinders; and, chromium in the red mud.

Another operation that occurred at the Site was the former cryolite recovery process, which involved stockpiling of spent pot liner (SPL), a listed hazardous waste (KO88), within the North Alcoa Site prior to processing in operations located south of Missouri Avenue in Investigative Block 3c (See Figure 4). Sixteen piles of material in IB-3c were identified as containing spent pot liner material. In September 2006, this material was characterized as a principal threat waste due to its toxicity. An expedited removal action of the SPL waste for off-Site disposal was conducted by Alcoa and the City of East Saint Louis under the additional work provisions of the Remedial Investigation and Feasibility Study (RI/FS) Administrative Order on Consent (AOC) for the Site. See *Completion Report – Spent Pot liner Removal* (2006).

Alcoa removed approximately 1,500 tons of material from an approximate 1.6 acre area for off-Site disposal. After the removal, Alcoa conducted additional confirmation sampling, placed a geotextile filter material over the removal area and covered that with approximately six inches of clean soil (See Figure 4).

2.2 Enforcement Activities

On December 31, 2002, Alcoa and the City began a RI/FS for the Site pursuant to a U.S. EPA issued AOC. Alcoa submitted the Site draft RI report to U.S. EPA and Illinois EPA in February 2005. The Agencies provided initial comments in March 2005 and the report was revised and resubmitted in March 2009. The Agencies provided additional comments in April 2010 but the document has not been finalized to date.

Alcoa submitted the baseline human health risk assessment and the baseline ecological risk assessments in February 2005. The Agencies provided comments in March 2005 and Alcoa revised and resubmitted the assessments in April 2010. These risk assessments have also not been finalized to date. Rather than finalize the RI/FS and risk assessment documents, the PRPs prepared a Focused Feasibility Study (FFS) for OU-1 summarizing the pertinent information from the draft RI and risk assessment documents for the OU-1 area. U.S. EPA approved the FFS for OU-1 in April 2012.

The FFS documents the nature and extent of contamination in the OU-1 area, and provides the risk analysis showing the OU-1 risks that exceed U.S. EPA's risk range for residential and industrial exposure scenarios. U.S. EPA and Illinois EPA have overseen all of the RI/FS activities at the Site pursuant to this AOC.

3.0 Community Participation

U.S. EPA held a public meeting on September 3, 2003, at City Hall in East Saint Louis, announcing the beginning of the RI/FS process and describing the upcoming Site investigation in more detail.

The Proposed Plan and other relevant and supporting documents for the Site, including the test strip report, the focused risk analysis, the FFS report, and sampling results and removal reports, were made available to the public in April 2012. Copies of all the documents supporting the OU-1 remedy outlined in the Proposed Plan and contained in the AR file were made available to the public at the East Saint Louis City Hall, the East Saint Louis Public Library, and U.S. EPA Region 5 offices, where information repositories have been established. A notice of the availability of these documents and the release of the Proposed Plan was published in the Belleville News Democrat and the East Saint Louis Monitor. A 30 day public comment period was held from April 12, 2012 to May 14, 2012. A public meeting was held on April 17, 2012, to present the Proposed Plan to community members. At this meeting, representatives from U.S. EPA and Illinois EPA answered questions about the remedial alternatives and problems at the Site, and solicited community input on the proposed OU-1 interim source control remedy.

Subsequent to this public meeting, U.S. EPA received two requests for an extension to the public comment period, which was granted until June 13, 2012. U.S. EPA also conducted an additional availability session on June 7, 2012, to provide an additional opportunity for providing comment to community members who were unable to attend the first public meeting. U.S. EPA's responses to the comments received during the comment period are included in the Responsiveness Summary, which is included in Part III of this ROD.

The Site was screened for environmental justice (EJ) concerns using Region 5's EJ Assist Tool, which applies the interim version of the national EJ Strategic Enforcement Assessment Tool (EJSEAT). Census tracts with a score of 1, 2 or 3 are considered to be high priority potential EJ areas of concern according to U.S. EPA Region 5. This Site area is categorized with a score of 2, which means that Region 5 considers it a potential high priority EJ area of concern and the additional outreach described above is intended to maximize the ability of local citizens to voice comments on the proposed remedy. A list of approximately 20 neighborhood churches and organizations was developed and served as the basis for the additional outreach outlined above.

4.0 Scope and Role of Operable Unit

U.S. EPA's investigation and evaluation of cleanup options has been organized by operable units, (OUs). This action is the first of two operable unit actions taken at the Site. The area covered by this interim action is shown in Figure 3, and will encompass the actions necessary to address surface contamination and manage stormwater on-Site within the area shown on this figure. This area includes all of IB-1, IB-2, some of IB-3 and IB-4. The remaining operable unit action (OU-2) will address the rest of the Site outside of this footprint and will also address groundwater as a final action. Additional remaining work includes the finalization of risk assessments and the RI/FS for the remainder of the Site. U.S. EPA will announce a separate public comment period in the future during which comments will be accepted on the OU-2 alternatives. This OU-1 interim action will neither be inconsistent with, nor preclude, implementation of the final Site remedy.

5.0 Site Characteristics

This section provides an overview of the Site and summarizes the most current information available. Because U.S. EPA has not finalized the RI/FS for the Site, this OU-1 action summarizes the characteristics and presents risk information for the OU-1 area only (See Figure 3). Results for the rest of the Site will be reported in a subsequent OU-2 RI/FS report. The data for the OU-1 action is contained within the OU-1 FFS report.

The Site contains the following four main disposal areas, each with a number of subareas. The FFS refers to individual areas as Investigative Blocks, or IB areas. Some IBs are divided into smaller, sub-investigative blocks. These disposal areas are as follows and identified on Figure 3.

IB-1 Residue Disposal Areas (RDA)
- IB-1a RDA 1 (The Old Pond)
- IB-1b RDA 2 (The Brown Mud Pond)

IB-1c RDA 3 (The Red Mud Pond)
IB-2 Gypsum Dike Areas
IB-3 Other Areas of Alcoa Activities
IB-3a Brick Works/Childs Property
IB-3b Redevelopment Area
IB-3c SPL Stockpiling Area
IB-4 Areas of no Known Alcoa Activities
IB-4a North Wet Area
IB-4b Triangle Wet Area
IB-4c Ball Fields
IB-4d Berm Wet Area
IB-4e Active Commercial Area

5.1 Physical Characteristics

5.1.1 Site Geology

The Site is located in an area known as the American Bottoms, which consists of up to 120 feet of unconsolidated valley fill overlying Mississippian and Pennsylvanian bedrock. The valley fill is composed of ancestral Mississippi River alluvium, much of which is eroded and reworked glacial outwash deposits. Generally, there are two recognized unconsolidated formations in the valley fill: the Cahokia Formation and the underlying Henry Formation. The lower, more permeable portions of the Cahokia and the Henry Formation make up the American Bottoms Aquifer.

The Cahokia Formation is a floodplain deposit that is typically 30 to 50 feet thick. The upper 15 to 30 feet consists of fine-grained clay and silt materials. The lower part of the formation contains sand lenses and the sediments generally coarsen with depth. The Henry Formation consists of sand and gravel glacial outwash deposits that can be up to 120 feet thick. The Henry Formation comprises the majority of the American Bottoms Aquifer.

5.1.2 Hydrogeological Conditions

The American Bottoms Aquifer is very transmissive and is in hydraulic connection with the Mississippi River. The aquifer conditions range from unconfined to confined depending on the stage of the Mississippi River and the thickness of the overlying Cahokia Formation.

Groundwater is located approximately 8-16 feet below ground surface in the American Bottoms Aquifer. Groundwater is not used as a drinking water source in the City and groundwater has been historically used primarily for industrial purposes. Site data indicates that groundwater does not discharge to on-Site surface water. A survey completed during the RI found no potable use wells in the Site vicinity. Use of groundwater within the City limits is restricted by a groundwater ordinance that was passed in 1997. However, this ordinance has not been reviewed for enforceability since it was put in place and will be updated as part of the OU-1 institutional control (IC) activities. Groundwater samples were collected at five locations during the RI and showed minimal impact from the Site.

5.1.3 Groundwater Flow

Groundwater flow in the American Bottoms Aquifer is generally westward toward the Mississippi River; however, localized flow within the aquifer has historically been modified by industrial groundwater use. Aquifer (slug) tests were performed on these monitoring wells during the RI with the results showing that the hydraulic conductivity values ranged from 6.38×10^{-3} cm/s to 2.08×10^{-2} centimeters per second (cm/s).

5.1.4 Surface Water Hydrology

The Mississippi River is approximately three miles to the west of the Site. There are no significant surface water features located between the Site and the river. Frank Holten State Park is east of the Site, with several large lakes. These surface water features at the state park are not hydraulically connected to the North Alcoa Site via surface water or groundwater pathways and are located upgradient of the Site. There are both temporary and perennial surface water drainage on-Site in the OU-1 footprint with some areas containing surficial ponding.

Existing surficial ponds are located in IB-1a, IB-1b, IB-1c, and IB-4a. There are currently no storm drains or sewers that collect and funnel water away from the Site, resulting in these on-Site water features. The existing infrastructure in the area is not capable of accepting any surface water discharge from the Site mainly due to the conditions of the sewer infrastructure and the inability of the off-Site sewers to direct stormwater away from the Site. As a result, all stormwater flow is currently managed on-Site providing a measure of flood protection to adjacent properties.

5.2 Nature and Extent of Contamination

The nature and extent of contamination at the Site has been studied during several investigations conducted by the PRPs with U.S. EPA and Illinois EPA oversight. This section of the ROD summarizes the historical and current information available from these investigations, including the type of contamination that has been found in the OU-1 area of the Site; known or suspected sources of contamination, affected media, and the extent of contamination. The concentrations of the constituents detected in the samples were compared to human health or ecologically based criteria in the companion risk assessments. More information about the nature and extent of contamination will be reported as part of the Site-wide RI/FS, to be finalized as part of OU-2.

5.2.1 Contaminants of Concern

Known COCs for OU1 at the Site include, lead, vanadium, and radium-226 and radium-228. Lead is a highly toxic metal that was used for many years in paints and other products found in and around homes. Lead-based paint and lead contaminated dust are the main sources of exposure for lead in U.S. children. Lead-based paints were banned for use in housing in 1978. Lead exposure affects the nervous system and can cause a range of health effects, from behavioral problems and learning disabilities, to seizures and death. Children six years old and younger are most at risk.

Vanadium is a rare, soft, ductile gray-white element found combined in certain minerals and used mainly to produce certain alloys. It can be mixed with aluminum in titanium alloys and used in jet engines and high speed air-frames, and steel alloys which are used in axles, crankshafts, gears and other critical components. Vanadium can have a number of effects on human health, when the uptake is too high. When vanadium uptake takes places through air it can cause bronchitis and pneumonia. The acute effects of vanadium are irritation of lungs, throat, eyes and nasal cavities.

Radium forms when isotopes of uranium or thorium decay in the environment. In the natural environment, radium occurs at very low levels in virtually all rock, soil, water, plants, and animals. When uranium (or thorium) occurs in high levels in rock, radium is often also found in high levels. Radium occurs naturally in the environment. As a decay product of uranium and thorium, it is common in virtually all rock, soil, and water. Usually concentrations are very low.

Radium emits several different kinds of radiation, in particular, alpha and gamma radiation. Alpha radiation is only a concern if radium is taken into the body through inhalation or ingestion. Gamma radiation, or rays, can expose an individual even at a distance. As a result, radium on the ground, for example, can expose individuals externally to gamma rays or be inhaled or ingested with contaminated food or water. The greatest health risk from radium in the environment is its decay product, radon, which can collect in buildings.

Long-term exposure to radium increases the risk of developing several diseases. Inhaled or ingested radium increases the risk of developing such diseases as lymphoma, bone cancer, and diseases that affect the formation of blood, such as leukemia and aplastic anemia. These effects usually take years to develop. External exposure to radium's gamma radiation increases the risk of cancer to varying degrees in all tissues and organs.

5.2.2 Source of Contaminants

Although the contaminants found in the red and brown mud are concentrated in the three RDAs, there are indications that smaller amounts of red mud were deposited in other areas of the Site (See Figure 2). Some of these other areas are covered with a layer of black cindery material. Gypsum was produced as part of Alcoa operations and is present in dikes placed around the RDAs (IB-2). The RDA and gypsum areas are the major sources of the contamination present in OU-1.

5.2.3 Nature and Extent of Contamination

The following information summarizes the nature and extent of contamination in the OU-1 area, as summarized by the OU-1 FFS.

The remedial investigation (RI) included sampling of soils (surface and subsurface), sediment, surface water and groundwater (See Figures 2 and 3). RI sampling included monitoring for volatile organic compounds (VOCs), semi-volatile organics (SVOCs), polychlorinated biphenyl's (PCBs), pesticides, inorganic compounds and radionuclides. All media were found to contain concentrations of various compounds above the Region 3 Regional Screening Levels (RSLs). RSLs are typically used as a

preliminary screening tool to help to focus further characterization efforts and subsequent risk analyses for those contaminants exceeding an RSL.

The RI found red and brown mud in the OU-1 area contaminated with a combination of radium 226 (ranging from 0.19 pCi/g to 9.7 pCi/g) and radium 228 (ranging from 0.64 pCi/g to 40.0 pCi/g) exceeding the standards listed at 40 C.F.R. Part 192, and arsenic (ranging to 119 mg/kg), aluminum (ranging to 109,000 mg/kg), lead (ranging to 2,250 mg/kg), thallium (ranging to 195 mg/kg) and vanadium (ranging to 1,220 mg/kg) exceeding the Region 3 RSLs in soils (RSL arsenic - 1.6 mg/kg; RSL aluminum – 99,000 mg/kg; RSL lead – 1,000 mg/kg; RSL thallium – 8.2 mg/kg; RSL vanadium – 520 mg/kg). In addition, the gypsum was found to be contaminated with lead exceeding U.S. EPA's industrial screening level of 800 ppm.

Currently, the majority of the bauxite materials in the surficial pond areas are overlain with a thin organic layer, which in turn is overlain by heavy vegetation and standing water.

6.0 Current and Potential Future Site and Resource Uses

The North Alcoa Site is located in a mixed commercial/industrial/residential area. Regional land use in the vicinity of the Site includes residential, industrial and commercial uses, and parks. The property to the north and east of the Site is zoned as residential or urban land use. The area southwest of the Site and south of Missouri Avenue is zoned industrial while land use within the Site is zoned industrial/commercial by the City of East St Louis.

Groundwater is not within the scope of this interim remedy and will be discussed and addressed, as needed, in a future decision document (OU-2).

7.0 Summary of Site Risks

This is an interim action and is being taken to prevent further migration of site contaminants and environmental degradation. A final RI report has not been completed but a FFS report, including summaries of collected data, and calculations of human health and environmental risk, has been completed for OU-1. A formal risk assessment for the remainder of the Site will be finalized as part of OU-2 activities.

The PRPs conducted a baseline risk assessment (BHHRA) which evaluated risks and hazards to human health and the environment from exposure to contaminants in OU-1 at the Site, in present and reasonably anticipated future exposure scenarios, as summarized in the OU-1 FFS report.

The risk assessment evaluated the following exposure scenarios:

- current/future resident
- current/future Site trespasser
- current/future construction worker
- current/future industrial worker

- future sports player
- future youth baseball player

Generally, U.S. EPA's acceptable cancer risk is 1×10^{-4} to 1×10^{-6}, which translates to excess cancer risks in the range of one in ten thousand to one in one million, and the acceptable non-cancer Hazard Index is less than 1.0. U.S. EPA takes action when cancer risks exceed the range of 10^{-4} to 10^{-6}, or the Hazard Index is greater than 1.0, based on reasonably anticipated future land use and Site specific exposure scenarios.

The BHHRA for the Site identified unacceptable cancer risk and/or a non-cancer Hazard Index greater than 1.0 from exposure to on-Site residents via ingestion, inhalation and external exposure in IB-1, IB-2 and IB-4 (See Table 1). The BHHRA also identified unacceptable cancer risk for commercial/industrial exposure via ingestion, inhalation and external exposures in IB-1 (See Table 2).

The majority of the carcinogenic risks calculated for human health are from exposure to radium 226 and radium 228. The majority of the non-cancer risks for human health are from exposure to vanadium (See Tables 1, 2 and 3).

Ecological Risks

A baseline ecological risk assessment was also conducted which concluded that no unacceptable ecological risk exists in the OU-1 area (See Table 4). It is expected that the final grading and installation of an appropriate cover system will provide additional protection for future ecological receptors from any contaminated media in the OU-1 area.

7.1 Basis for Interim Response Action

The focus of this interim remedial action is to provide source control measures to address the waste materials that pose unacceptable risks to human health and the environment. This action will include monitoring, installation of fencing, the placement of an ARAR compliant soil cover, and the enactment of institutional controls in the form of environmental covenants. The presence of contaminants in the soil may present an imminent and substantial endangerment to human health or the environment without these remedial measures.

This interim action will address risks in the OU-1 area while the PRPs continue to conduct RI/FS work for the OU-2 area.

8.0 Remedial Action Objectives

Remedial action objectives (RAOs) are specific goals developed to protect human health and the environment based on unacceptable risks calculated in a site-specific risk assessment. The RAOs provide the basis for developing cleanup options that will be protective of human health and the environment. The RAOs address Site-related receptor and pathway risks and hazard exceedances based on the results of the BHHRA.

Based on the RI investigation results, the following remedial action objectives are identified for this interim remedial action.

- Prevent future direct contact exposure by humans working in industrial exposure scenarios to soil with lead concentrations greater than 800 mg/kg, which is the U.S. EPA screening level for industrial/commercial exposure.
- Prevent human exposure (through absorption, ingestion and/or external radiation) from contaminant concentrations resulting in cumulative risks exceeding the U.S. EPA baseline risk range of 10^{-4} to 10^{-6}, including radium and other radionuclides and vanadium found in bauxite residue and gypsum waste.
- Prevent future residential exposure to unacceptable on-Site contamination.

9.0 Description of Alternatives

This section provides a narrative summary of each alternative evaluated to address the unacceptable risks calculated in the OU-1 risk assessment. An interim remedial action was determined to be necessary to implement source control activities while the RI for the Site is completed. Reflecting the limited scope and purpose of this interim action, three remedial alternatives were developed, and evaluated and compared to address the contamination in OU-1.

Remedial Action Alternative (RAA)-0: No Action

U.S. EPA includes a "no-action" alternative as a basis for comparison to the other cleanup alternatives. The no further action alternative does not include any physical remedial measures to address any Site-related media. Since no action would be taken, this option will not protect human health and the environment from either current or future risk.

Estimated Capital Costs:	$0
Estimated O&M Costs	$0
Estimated Present Worth Cost	$0

RAA-1: Restricted Access

This alternative consists of physical and institutional controls via easement/restrictive covenants to prohibit access to the RDAs and the gypsum areas. A fence would be constructed around the areas comprised of IB-1, IB-2 and IB-4a as well as around the perimeter of the OU-1 area (See figure X). This alternative includes an Illinois Universal Environmental Covenant Act (IUECA) determination which precludes land uses inconsistent with the remedy and precludes disturbance of the remedy components. Institutional controls would be created by implementing environmental covenants compliant with IUECA for these areas to ensure long term protection. This alternative would not comply with Illinois Solid Waste regulation 35 IAC 807.305(c) final cover ARAR.

Estimated Capital Cost:	$546,000
Estimated O&M Cost:	$44,000
Estimated Present Worth Cost:	$650,000

RAA-2: Containment with Placement of an ARAR Compliant Cover and On-Site Stormwater Management

This alternative consists of placement of a two foot cover over the OU-1 area, in compliance with the cover requirements identified at 35 IAC 807.305(c) and 35 IAC 807.502 (See Figure 5). The OU-1 area would be regraded to provide a sustainable slope and would be covered with a two foot thick soil layer to prevent direct contact. Stormwater within the OU-1 area would be managed in storm water basins designed to contain a 100-year storm event on-Site. This design would utilize the existing ponded areas on the Site as part of the design of the stormwater retention system. This alternative would also include monitoring the installed cover and the stormwater ponds to ensure long term performance.

Institutional controls would be created by implementing environmental covenants compliant with IUECA for these areas, as provided for in RAA-1 above.

Prior to implementing the soil cover, Site preparation activities would include installation of security fencing and preparation of access roads and staging areas. A pre-design field investigation to fill in remaining engineering data gaps may be implemented as part of the final design preparation.

Estimated Capital Costs:	$24,520,704
Estimated O&M Costs:	$38,000
Estimated Present Worth Costs:	$24,990,000

10.0 Summary of Comparative Analysis of Alternatives

Section 121(b) (1) of CERCLA presents several factors that U.S. EPA is required to consider in its assessment of alternatives. Building on these specific statutory mandates, the NCP articulates nine evaluation criteria to be used in assessing the individual remedial alternatives. The purpose of this evaluation is to promote consistent identification of the relative advantages and disadvantages of each alternative, thereby guiding selection of remedies offering the most effective and efficient means of achieving site remediation goals. While all of the nine criteria are important, they are weighed differently in the decision making process depending on whether they evaluate protection of human health and the environment or compliance with federal and State requirements, standards, and criteria (threshold); consider technical or economic merits (balancing criteria); or involve evaluation from the State and the public that may influence the final remedy selection (modifying criteria). Each of these nine criteria is described below.

Threshold Criteria

1. **Overall Protection of Human Health and the Environment** focuses on how an alternative achieves protection over time and indicates how each source of contamination would be minimized, reduced, or controlled through treatment, engineering, or institutional controls. The evaluation of the degree of overall protection associated with each alternative is based largely on the exposure pathways and scenarios set forth in the baseline human health risk assessment.
2. **Compliance with ARARs** addresses whether alternatives meet applicable or relevant and appropriate federal and State requirements.

Balancing Criteria

3. **Long Term Effectiveness and Permanence** addresses the results of a remedial action in terms of the risk remaining at the Site after response objectives have been met.
4. **Reduction of Toxicity, Mobility or Volume through Treatment** addresses the statutory requirement for selecting remedial actions that employ treatment technologies that reduce the toxicity, mobility or volume of the hazardous constituents present in the impacted media to the maximum extent practicable.
5. **Short Term Effectiveness** addresses the effects of the alternatives during the construction and implementation phases (i.e. remediation risks) until the remedial action objectives are met.
6. **Implementability** considers the technical and administrative feasibility of implementing the remedial alternative, including factors such as the relative availability of goods and services.
7. **Cost** includes estimated capital, annual O&M costs, and net present value of capital and O&M costs including long term monitoring.

Modifying Criteria

8. **State Agency Acceptance** considers whether the State support Agency concurs with the selected remedy for the Site.
9. **Community Acceptance** addresses the public's general response to the remedial alternatives and the preferred alternative presented in the Proposed Plan.

Each of the nine evaluation criteria are discussed below with respect to the alternatives under consideration for this interim action.

10.1 Overall Protection of Human Health and the Environment

Alternatives RAA-0 and RAA-1 are not protective of human health and the environment because they do not address the risks posed by exposure to Site contamination as presented in the risk assessment. RAA-1 restricts access to the bauxite and gypsum areas with fencing that must be maintained, but does not provide a cover to prevent contact with these materials. Alternative RAA-2 is protective of human

health and the environment as it includes placement of a cover over the waste materials that eliminates exposure and addresses risk. The ponds contain an organic layer that has developed over the bauxite, which includes vegetation and standing water that will be maintained in the remedy implementation to provide protection against contact with any exposed bauxite material over the long term.

10.2 Compliance with ARARs

The ARAR analysis included in the FFS identified the ARAR requirement for OU-1 to be a soil cover complying with the provisions of 35 IAC 807.305(c) over the soils, which includes two feet of suitable material defined as uncontaminated, cohesive soil that can be compacted and closure of the Site consistent with 35 IAC 807.502 to minimize further maintenance and control post-closure releases. The ARAR analysis included in the FFS also determined that there was no ARAR for the pond areas.

Alternatives RAA-0 and RAA-1 do not comply with the appropriate ARARs for the waste material cover. RAA-2 would be designed and implemented to comply with all Site ARARs. Specifically, the soil cover over the waste materials and post-closure maintenance would comply with 35 IAC 807.305(c) and 35 IAC 807.502 requirements.

10.3 Long Term Effectiveness and Permanence

RAA-0 and RAA-1 are not effective in the long term nor are they permanent. However, in the pond areas, fencing, existing vegetation and standing water could help to prevent exposure to waste materials. The test strip field work has demonstrated that the RAA-2 soil cover would provide both protectiveness and permanence over the long term, as summarized in the data analysis contained in the Phase 2 geotechnical report. The organic material, vegetative cover and standing water in the ponds would provide both protectiveness and permanence over the long term, as summarized in the AR. Implementation of the required operation and maintenance will ensure that these soil covers will be effective over the long term.

10.4 Reduction of Toxicity, Mobility or Volume Through Treatment

The containment technologies identified in RAA-1 and RAA-2 are not treatment technologies and therefore, do not reduce toxicity, mobility or volume within the soil matrix. Treatment of high volume, low toxicity soils is not feasible at the Site. Alcoa's 2006 SPL removal work removed principal threat waste for off-Site disposal. Treatment of the wastes currently on-Site to reduce toxicity, mobility or volume is not implementable.

10.5 Short Term Effectiveness

RAA-1 can be implemented in the shortest timeframe without any adverse impacts from the installation of access restrictions such as fencing and could be completed in a matter of months. RAA-2 can be completed in one to two construction seasons. Any adverse impacts to workers or to the surrounding area from regrading of the waste materials, the reconfiguration of the on-Site ponds, and the installation of the soil cover can be properly managed through Site specific health and safety planning and

compliance with standard cover installation practices. Minimal environmental impacts are anticipated from the cover construction.

10.6 Implementability

All alternatives are readily implementable. Installation of fencing is a typical construction activity. Development of and implementation of enforceable restrictive covenants is also a typical activity. Most tasks in RAA-2 are common, reliable construction activities that do not entail any significant technical difficulties. Some aspects of this alternative, such as constructing a cover over semi-solid bauxite materials will require specific expertise to implement. That expertise is readily available.

10.7 Cost

The estimated capital, Net Present Value (NPV) and O&M costs for the remedial alternatives are as follows and are based on U.S. EPA FS cost guidance and use a 7% discount rate:

	RAA-1 Restricted Access	**RAA-2 ARAR-compliant cover**
Capital Costs	$546,000	$24,520,704
Annual O&M Costs	$44,000	$38,000
Present Worth Costs	$650,000	$24,990,000

10.8 State Acceptance

The Illinois EPA staff has recommended concurrence with the selection of RAA-2 as an OU-1 interim remedy. Illinois EPA's concurrence letter will be added to the AR upon receipt.

10.9 Community Acceptance

During the public comment period, the community expressed support for RAA-2. U.S. EPA has prepared a Responsiveness Summary that summarizes the public comments and U.S. EPA's responses to those comments. The Responsiveness Summary is included in Part III of this ROD.

11.0 Principal Threat Waste

The NCP establishes an expectation that U.S. EPA will use treatment to address the principal threats posed by a Site, wherever practical. The principal threat concept is applied to the characterization of "source material" at a Superfund Site. Source material includes or contains hazardous substances, pollutants or contaminants that act as a source for migration of contaminants to groundwater, surface water or air, or acts as a source for direct exposure. U.S. EPA has defined principal threat wastes as those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur.

The SPL material at the Site was comprised of KO88 waste, which is a listed hazardous waste. This waste is classified as a principal threat waste because it is highly toxic. This waste was identified early in the RI/FS process in IB-3b and was the subject of a September 2006 removal action, completed by a PRP pursuant to the additional work provisions of the RI/FS AOC. The area removed totaled approximately 1.6 acres and approximately 1,500 tons of material; and waste was sent off-Site for disposal (*See Completion Report-Spent Pot Liner Removal 2006*). The PRP placed a geotextile fiber material over the removal area and then covered that with approximately six inches of clean soil. Treatment of the remaining high volume, low toxicity soils that are the subject of this interim remedial action is not implementable at the Site.

12.0 Selected Remedy

U.S. EPA has selected Alternative RAA-2 as the interim remedy for the OU-1 area.

12.1 Summary of the Rationale for the Selected Remedy

The selected remedy is considered an interim remedial action for the Site. This interim action is intended to address the contamination issues in the OU-1 area while the final remedy for the remainder of the Site is determined, and later implemented.

Based on the information available, the selected remedy satisfies the following statutory requirements of CERCLA Section 121(b): 1) it is protective of human health and the environment; 2) it complies with ARARs specific to the interim OU-1 action; 3) it is cost-effective; and 4) utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

The interim remedy does not meet the statutory preference for the use of treatment which permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances. The 2006 Site removal action removed principal threat SPL waste found in IB-3c of the Site. This waste was disposed off-Site. Waste addressed by this interim action is low level contamination that is cost-effectively managed on-Site with containment measures. Treatment of the high volume, low toxicity soils is not implementable.

The selected remedy will be effective in the long-term and unacceptable short-term impacts are not expected to occur. The selected remedy is cost-effective because its costs are proportional to the overall effectiveness as indicated by the long-term and short-term effectiveness and the degree of treatment practicable. The remedy is readily implementable, supported by the Illinois EPA, and generally accepted by the public. The selected remedy presents the best balance of the NCP remedy selection criteria.

12.2 Description of Remedial Components

The selected interim action addresses the risks calculated for the OU-1 area of the Site and includes the following source control activities:

- Preparation of Site access roads and staging areas
- Grading/reconsolidation of on-Site soils
- Placement of two foot soil cover in compliance with 35 IAC 807.305(c) and 35 IAC 807.502
- Stormwater management in stormwater basins
- Installation of clean water conveyance to manage stormwater along Lake Drive
- Fencing around ponds and around OU-1 area
- Establishment of institutional controls over OU-1 area restricting future use to industrial/commercial and preclude disturbance of the remedy components
- Operation and maintenance of the cover remedy in compliance with 35 IAC 807.502

There will be no ARAR compliant cover in the areas of OU-1 where the existing stormwater ponds will be redesigned to accommodate the surface water runoff requirements of the installed soil cover. These ponds contain an organic layer that has developed over the bauxite, which includes vegetation and standing water that will be maintained as part of the remedy implementation to provide added protection against contact with any exposed bauxite material over the long term.

The FFS indicated that either a vegetative or a gravel and geotextile top cover layer would provide equivalent performance and could be placed over the remedy cover for long-term maintenance. The PRPs have asked U.S. EPA to accept the gravel and geotextile cover for the final cover layer, which results in a higher estimated cost than presented for Alternative RAA-2 in the FFS and the Proposed Plan. Both the vegetative and the gravel and geotextile cover satisfy U.S. EPA's nine evaluation criteria. Implementation of the gravel and geotextile cover will better prepare the Site for potential future redevelopment. Because U.S. EPA has determined that either cover will provide equivalent requisite protection and comply with 35 IAC 807.502, either cover may be implemented. The final cover layer among these two alternatives will be documented as part of the final remedial design.

12.3 Summary of Estimated Remedy Costs

Cost estimates are found in Section 9.0. The information for the cost estimate summary is based on best available information regarding the anticipated scope of the selected remedy. This is an order of magnitude engineering cost estimate that is expected to be within +50/-30 percent of the actual project cost.

12.4 Expected Outcomes of the Selected Remedy

This interim action for the North Alcoa Site will prevent further migration of contaminants from the OU-1 area, thereby preventing further environmental degradation; and provide protection to human health and the environment under reasonable industrial/commercial future land use scenarios.

13.0 Statutory Determinations

Under CERCLA Section 121 and the NCP, the lead Agency must select remedies that are protective of human health and the environment, attain federal and state requirements that are applicable or relevant and appropriate for this remedial action (or invoke an appropriate waiver), are cost-effective, and utilize permanent solutions to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the toxicity, mobility or volume of hazardous wastes as a principal element and a bias against off-Site disposal of untreated wastes. The following sections discuss how the selected remedy addresses these statutory requirements.

13.1 Protection of Human Health and the Environment

The selected remedy is an interim remedy. It will be protective of human health and the environment for the risks identified in OU-1. The selected remedy will provide adequate steps to reduce the mobility of wastes in the OU-1 area by placement of a soil cover, which will reduce infiltration through the materials and provide for direct contact exposure protection. The selected remedy will not pose unacceptable short term risk during construction and will also accommodate future Site redevelopment over the OU-1 area.

13.2 Compliance with ARARs

The selected remedy is expected to comply with the State and federal ARARs that are specific to the scope of this interim action. Upon the completion of the Site RI/FS, U.S. EPA will propose a remedial action for the rest of the Site, which will achieve all final Site ARARs, including those for groundwater. The ARARs for this interim action are listed in Section 10.2, above. All federal and any more stringent State ARARs identified for this interim action will be met. The ponds that are located within the OU-1 area that will be reconfigured for on-Site stormwater management will not receive an ARAR compliant cover. These ponds contain an organic layer that has developed over the bauxite, which includes vegetation and standing water that will be maintained as part of the remedy implementation to provide added protection against contact with any exposed bauxite material over the long term.

13.3 Cost-effectiveness

U.S. EPA has determined that the selected remedy is cost-effective and represents a reasonable level of protectiveness for the money to be spent. In making this determination, the following definition was used: "A remedy shall be cost-effective if its costs are proportional to the overall effectiveness." (NCP, Section 300.430(f) (1) (ii) (D)). "Overall effectiveness" was evaluated by assessing three of the five balancing criteria (long term effectiveness and permanence, reduction in toxicity, mobility or volume through treatment, and short term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness. The relationship of the overall effectiveness of this interim remedial action was determined to be proportional to its costs; therefore the remedy represents a reasonable level of protectiveness for the money spent. The estimated present worth cost of the selected interim remedial action is $24,990,000.

13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable

This interim remedial action uses permanent solutions and treatment to the maximum extent practicable. The previous removal of the SPL waste materials addressed the principal threat waste and removed it from the Site. The high volume and low toxicity of the waste materials in the OU-1 area makes treatment impracticable. The selected soil cover will be designed to be permanent and long lasting. A long term, permanent, solution for the rest of the Site is anticipated in the OU-2 cleanup plan, to be completed at a later date.

13.5 Preference for Treatment as a Principal Element

The selected interim action does not address the statutory preference for treatment as a principal element. However, the previous removal and off-Site disposal of the SPL material removed this principal threat waste from the Site. The high volume, low toxicity, waste materials remaining in the OU-1 area do not warrant additional treatment.

13.6 Five Year Review Requirements

Because this remedy will result in hazardous substances, pollutants or contaminants remaining on-Site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action to ensure that the selected remedy is, or will be, protective of human health and the environment.

14.0 Documentation of Significant Changes

The Proposed Plan for the North Alcoa OU-1 action identified Alternative RAA-2 as the preferred interim remedial action for the Site. The Proposed Plan comment period ran from April 12, 2012 to June 13, 2012. CERCLA Section 117(b) and NCP at 300.430(f) (5) (iii) require an explanation of significant changes from the remedy presented in the Proposed Plan that was published for public comment. Upon review of all written and verbal comments submitted during the public comment period, U.S. EPA determined that a significant change to the remedy as identified in the Proposed Plan was not necessary.

Part III Responsiveness Summary

In accordance with CERCLA Section 117, 42 U.S.C. §9617, U.S. EPA released the proposed plan and AR on April 12, 2012, and the public comment period ran through June 13, 2012, to allow interested parties to comment on the Proposed Plan for this Site. U.S. EPA held a public meeting on April 17, 2012 at the East Saint Louis, Illinois City Hall and an availability session on June 7, 2012 at the East Saint Louis, Illinois Public Library. Approximately 40 people attended the public meeting and hearing and approximately 20 people attended the availability session. Representatives from the Illinois EPA, the City of East Saint Louis, and local media were present at the public meeting.

This Responsiveness Summary provides both a summary of the public comments U.S. EPA received regarding the Proposed Plan for the North Alcoa Site OU-1 and U.S. EPA's answers to those comments. U.S. EPA received written comments (via fax, regular and electronic mail) and verbal comments at the public meeting. Copies of all of the comments received (including the verbal comments contained in the transcript from the public meeting) are included in the AR for the Site. U.S. EPA, in consultation with the Illinois EPA, carefully considered all comment prior to selecting the interim remedy in this ROD. A complete copy of the Proposed Plan, AR, and other pertinent documents are available at the East Saint Louis, Illinois Public Library, 5300 State Street, East Saint Louis, Illinois; City Hall, 301 Riverpark Drive, East Saint Louis, Illinois and U.S. EPA Region 5, 77 West Jackson, Chicago, Illinois.

U.S. EPA received comments from the general public and the City of East Saint Louis. For purposes of this Responsiveness Summary, the comments are summarized and similar comments may have been consolidated or grouped by issue. Comments in their entirety can be found in the AR.

The comments are organized as follows:

Comments from the City of East Saint Louis:

Comment 1

The Mayor asked that any on-Site activities be closely monitored to ensure protectiveness and thanked the Agencies for their work on the Site in advance of potential future redevelopment.

Response 1

U.S. EPA appreciates the support and will work to ensure that any future site redevelopment is consistent with the Site remedy and is given the full opportunity to succeed. U.S. EPA and Illinois EPA will monitor all activities at the Site, from design and construction of the remedy to long term maintenance, to ensure that the remedy provides long term protection.

Comments from the General Public

Comment 2

A commenter welcomed the long awaited cleanup of the Site and stated their support for the proposed solar energy site reuse. The commenter stated concerns about environmental protection and that any future site development be soundly designed, built and be economically viable. The commenter also expressed concern that the City not be unduly burdened with cleanup costs.

Response 2

U.S. EPA appreciates the support for potential future Site redevelopment and shares those views. U.S. EPA is selecting the remedy for this Site to be protective of human health and the environment. U.S. EPA appreciates that this remedy can be designed and built to remain protective and allow for

reuse that the public supports. The City is one of the parties responsible for cleanup at the Site and has been discussing its contribution to the Site remedy through a settlement to implement the selected remedy.

Comment 3

A commenter expressed satisfaction that the proposed remedy was containment and that cost was not the major factor in remedy selection at the Site. The commenter wanted assurances that the remedy would be constructed correctly.

Response 3

U.S. EPA acknowledges the support for the proposed remedy. Cost is only one of five balancing criteria in remedy selection. U.S. EPA will remain involved in reviewing and monitoring all design, engineering, construction, and long-term operation and maintenance of the Site remedy to confirm that the selected remedy is constructed correctly and remains protective. Since waste will remain in OU-1, U.S. EPA will review the remedy every five years.

Comment 4

A commenter stated that U.S. EPA had failed to adequately address environmental justice at the Site by failing to utilize enhanced outreach to local citizens to allow for participation in the Superfund process, and requested, along with another commenter, an extension of the public comment period.

Response 4

U.S. EPA and Illinois EPA Environmental Justice personnel have been consulted for this Site. We believe we have conducted appropriate enhanced public outreach for the community. U.S. EPA granted the commenter's request to extend the public comment period an additional 30 days. U.S. EPA hosted an availability session in addition to the public meeting to allow for extended outreach and to enhance direct communications with the local community representatives. In particular, U.S. EPA provided notice in local newspapers of the extended outreach; and sent out letters to approximately 20 religious and neighborhood organizations describing the proposed remedy, announcing the opportunity to submit comments during an extended comment period, and announcing the availability session.

Comment 5

A commenter stated that U.S. EPA had failed to consider all alternatives to remediate the Site, such as an alternative that would completely remove all Site wastes, and made note that Alcoa was a profitable company and should be required to remove the waste from the Site.

Response 5

U.S. EPA acknowledges and appreciates the commenter's request for us to consider removal of all waste from the Site. U.S. EPA screened removal of all Site wastes and determined that the costs, risks

and benefits of this alternative did not merit full consideration. Early in the FFS process, Alcoa evaluated removal of all Site waste in accordance with U.S. EPA's preliminary screening analysis of effectiveness, implementability and cost, and complete removal was further evaluated up to the Proposed Plan. This consideration is referenced in a letter report dated April 5, 2012.

Alcoa estimated that over 3 million cubic yards of waste materials are present above ground in OU-1 and assumed that there may be as much as 6.5 million cubic yards present below ground. The nature of the waste materials makes it difficult to manage and ultimately remove. Most of this material would have to be stabilized before removal due to its engineering properties. It would also be difficult to dispose of this material due to the enormous amounts of material that would require excavation and removal. Finally, the cost estimate given to remove the materials above ground was in excess of $280 million and to remove the below ground waste as well, in excess of $500 million. U.S. EPA screened this alternative from further consideration for those reasons.

Comment 6

A commenter questioned whether climate change and greenhouse gas emissions were considered in the site investigations. Specifically, the commenter questioned whether potential increased rainfall as predicted by climate modeling, was considered in the proposed soil cover alternative. The commenter also questioned whether any long term impacts from site flooding were evaluated with respect to long term effectiveness and permanence.

Response 6

All Superfund site remedies are designed to be long lasting and permanent. They are designed taking into account information such as rainfall and other natural consequences such as earthquakes. Design of our selected remedies includes safety factors so that there is additional protection against these occurrences. Each remedy design contains an operation and maintenance plan that includes monitoring and provisions for the repair of any subsidence or erosion issues that arise over time. This ensures that the implemented remedy will provide protection as long as is necessary. All of these factors have been evaluated for this OU-1 remedy. The OU-1 remedy will be designed to contain on-Site a 100-year storm event. The cover will be maintained and monitored in perpetuity to ensure long term protection. Upon its completion, the operation and maintenance plan will be available to the public in the repositories. Also, because waste is left in place, U.S. EPA is required to re-evaluate the protectiveness of the remedy every five years.

Comment 7

A commenter asked whether seismic events and their impacts on the Metro East area were considered for the levee system near the Mississippi River as well as on the Alcoa Site, to prevent any migration of wastes from the Alcoa Site.

Response 7

U.S. EPA appreciates the commenter's concern about seismic events and their potential impacts on the

river levees, as well as the Alcoa site. Any impacts from major river flooding would indeed be catastrophic for the entire Metro East area. However, failure of the levees near the river is expected to have minimal impact on the Alcoa site, three miles away. The cover design will include safety factors for potential seismic events so that any negative impacts can be minimized. The design will also include a monitoring plan that will evaluate the cover after any weather events to determine if any repairs are necessary.

Comment 8

A commenter asked for further information that would indicate that the two foot cap was protective.

Response 8

A test study was conducted in the fall of 2011 where the two foot cover was placed over a small area of the exposed bauxite and this cover was mechanically stressed. Engineering measurements were taken during the study and continue to be taken, all of which indicate that the cover is protective and remains structurally sound throughout seasonal weather changes. This two foot cover will also be monitored and maintained as long as waste remains on-Site. U.S. EPA is required to re-evaluate the protectiveness of this remedy every five years. This cover will also eliminate the potential for any Site waste materials to migrate away from the Site, once constructed and maintained.

Comment 9

A commenter asked for more information on potential impacts on wildlife at the Site.

Response 9

Risks to wildlife were assessed using standard U.S. EPA risk assessment guidance. Samples were collected of sediment and surface water at the Site, including from the layer of organics present in the on-Site ponds. These results were used to assess ecological risks at the Site and the results indicated that risks to wildlife were within U.S. EPA's acceptable risk range for ecological risk.

Comment 10

A commenter asked for information comparing the remedy proposal at the Alcoa Site in an environmental justice community with other similar sites in other non environmental justice communities.

Response 10

The process for investigation and evaluation of a Superfund Site and the process for remedy selection are the same, regardless of whether the Site is located in an environmental justice community or a non-environmental justice community. The U.S. EPA EJ program provides policies to enhance the fair treatment and meaningful involvement of all communities and persons with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Additional information regarding the U.S. EPA environmental justice program can be found at http://www.epa.gov/environmentaljustice/.

With this policy in mind, U.S. EPA has taken additional steps for this Site to seek out community members, and inform, educate, and involve them in the Site issues and particularly in its comment period, and then to consider their concerns in the decision making process. The comments received from citizens and community leaders indicate broad community support for the selected remedy. Engineering and constructing a cover over low risk, high volume, waste material is a very common remedy and provides long term protection from exposure.

Comment 11

A commenter asked for increased opportunities for public involvement and more convenient access to Site materials that support the remedy proposal.

Response 11

U.S. EPA released the proposed plan for a 30 day public comment period on April 12, 2012 and conducted a public meeting on April 17, 2012, with approximately 40 individuals in attendance, including the Mayor and other representatives from the City. The administrative record supporting the proposed plan was sent to two local repositories, the East Saint Louis City Hall and the East Saint Louis Public Library. This information was released simultaneously with the proposed plan. During the public comment period, U.S. EPA received a request for additional community outreach with an extension to the comment period. In response to this request, U.S. EPA extended the comment period an additional 30 days, sent out an announcement for this extension to area residents, including those who had attended the initial public meeting, as well as approximately 20 additional religious and community organizations, including the East Side Health District. U.S. EPA also held an availability session on June 7, 2012 at the East Saint Louis Public Library to answer questions with approximately 20 people in attendance. In addition, U.S. EPA has placed a number of key documents for the Alcoa Site on U.S. EPA's website, which is located at http://www.epa.gov/region5/cleanup/northalcoa/.

Comment 12

A commenter asked if the proposed solar development would result in a less costly cleanup for the Site.

Response 12

U.S. EPA evaluated waste cover proposals for compliance with the relevant and appropriate requirements, which are the waste cover regulations of the State of Illinois. The proposed cover for this Site, with an estimated cost in excess of $24 million dollars, was found to be fully in compliance with the regulations. The test study of the proposed cover documents the cover's long term stability and reliability. U.S. EPA is selecting this remedy based on the results of the nine criteria evaluation, and the remedy is being selected without regard to whether the proposed reuse of the Site occurs. The proposed Site solar development did not lessen the costs of the selected remedy.

Comment 13

A commenter asked if the proposed solar redevelopment could also be accomplished after complete removal of the waste material.

Response 13

As indicated above in response to Comment 5, complete removal of waste from the Site is not a remedy alternative that met criteria for full consideration. The solar developer has indicated that the anticipated Site configuration, once the remedy is constructed, would be conducive to solar redevelopment based on a number of factors including the anticipated slope of the cover. Complete removal of Site waste would significantly alter the Site configuration, require extensive amounts of fill materials and regrading to achieve the Site conditions conducive to solar reuse, and would require a significantly extended construction schedule. It is unknown if this or another solar developer would be interested in the Site at that time.

Comment 14

A commenter questioned the construction of solar panels over the bauxite waste due to the bauxite's potential instability during wet periods.

Response 14

U.S. EPA appreciates the concern with the stability of the cover and underlying wastes. The Site investigation includes a test study documenting that the cover over the waste materials, including the bauxite, provides the necessary stability and seasonal protection from contact with the waste. During the conduct of the test study, the proposed soil cover was stressed to indicate the potential for instability that may occur with loads during wet and dry weather, with no indication of instability issues identified either during the test, or during subsequent monitoring. Impacts from rain were measured with piezometers during the test study with the results indicating that the cover remained stable and protective. In addition, U.S. EPA is required to re-evaluate the protectiveness of this remedy every five years.

Comment 15

A commenter expressed concern that contamination of the air during remedy implementation be avoided at all costs. In addition, a comment was made requesting that a permanent air monitoring station be placed at the Site.

Response 15

The Site health and safety plan will include air monitoring requirements during implementation of the remedial action, to provide protection for remedial workers and the surrounding community. The Site Operation & Maintenance plan will also address the need for air monitoring subsequent to the remedy construction, including both temporary and permanent air monitoring locations. However, the contaminated areas will be covered with the selected remedy, so no impacts from the covered area are anticipated once the cover construction is completed.

Comment 16

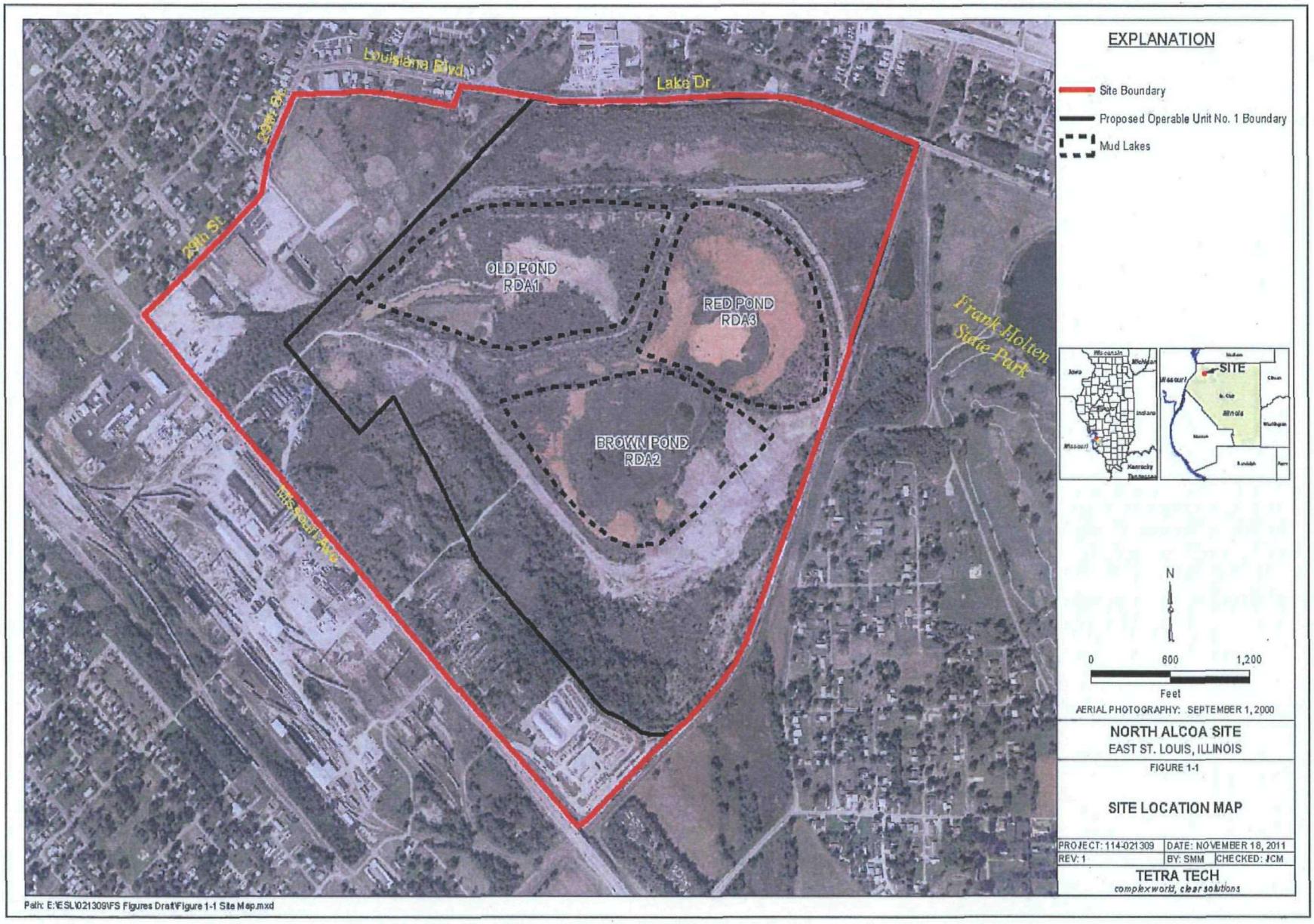
A commenter expressed concerns about radiation exposure being linked to specific family health issues and asked if any compensation was available.

Response 16

U.S. EPA has forwarded the comments to the East Side Health District for specific follow-up actions, as they would have access to area-wide health concerns and could better answer these questions. U.S. EPA is not aware of any specific links from Site contamination to these specific family health concerns.

Figures

Figure 1-Site Map



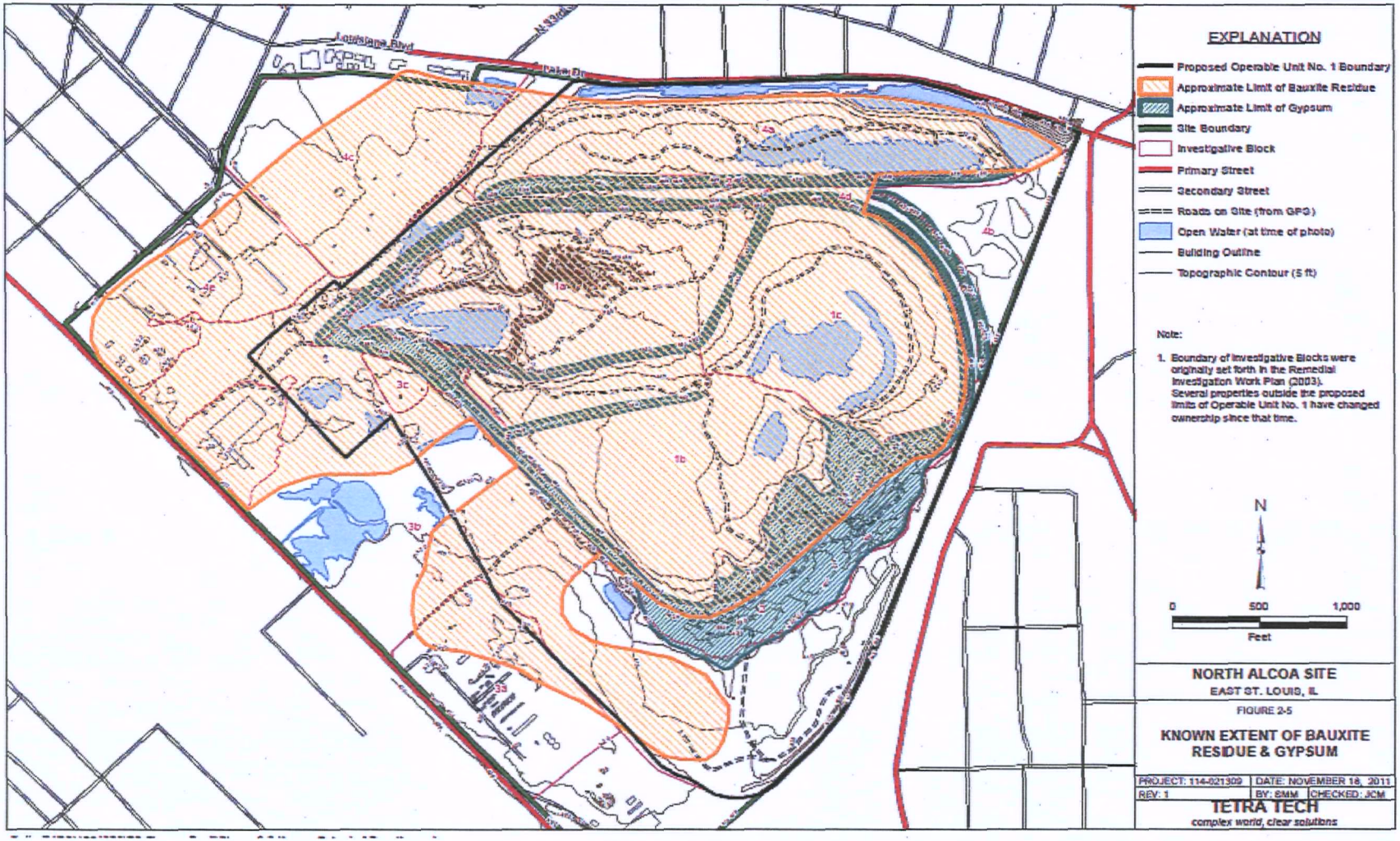
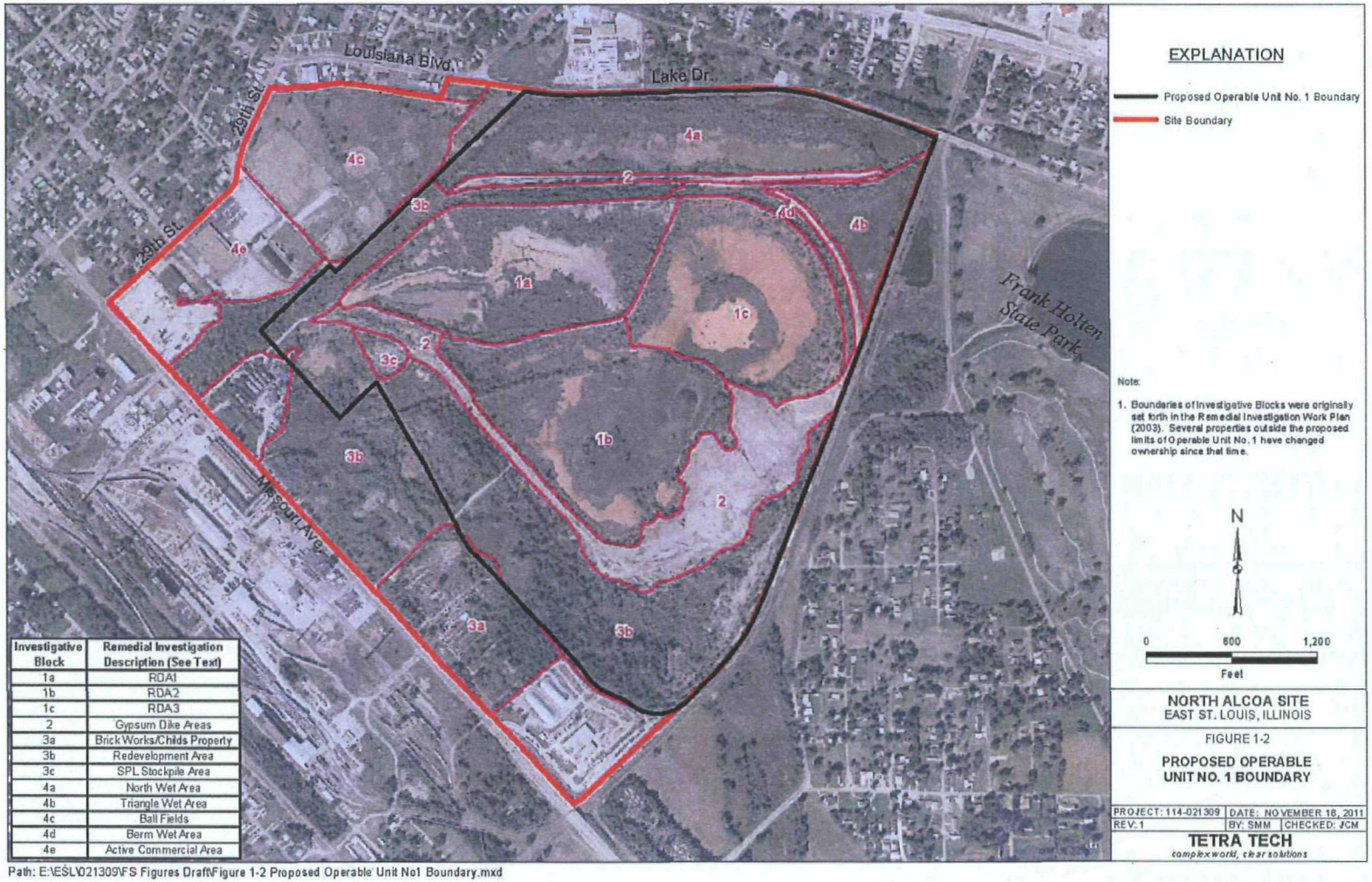


Figure 2 Extent of Bauxite Waste

Figure 3 OU-1 Boundary Map



Investigative Block	Remedial Investigation Description (See Text)
1a	RDA1
1b	RDA2
1c	RDA3
2	Gypsum Dike Areas
3a	Brick Works/Childs Property
3b	Redevelopment Area
3c	SPL Stockpile Area
4a	North Wet Area
4b	Triangle Wet Area
4c	Ball Fields
4d	Berm Wet Area
4e	Active Commercial Area

Path: E:\ESL\021309\FS Figures Draft\Figure 1-2 Proposed Operable Unit No1 Boundary.mxd

Figure 4 SPL removal area

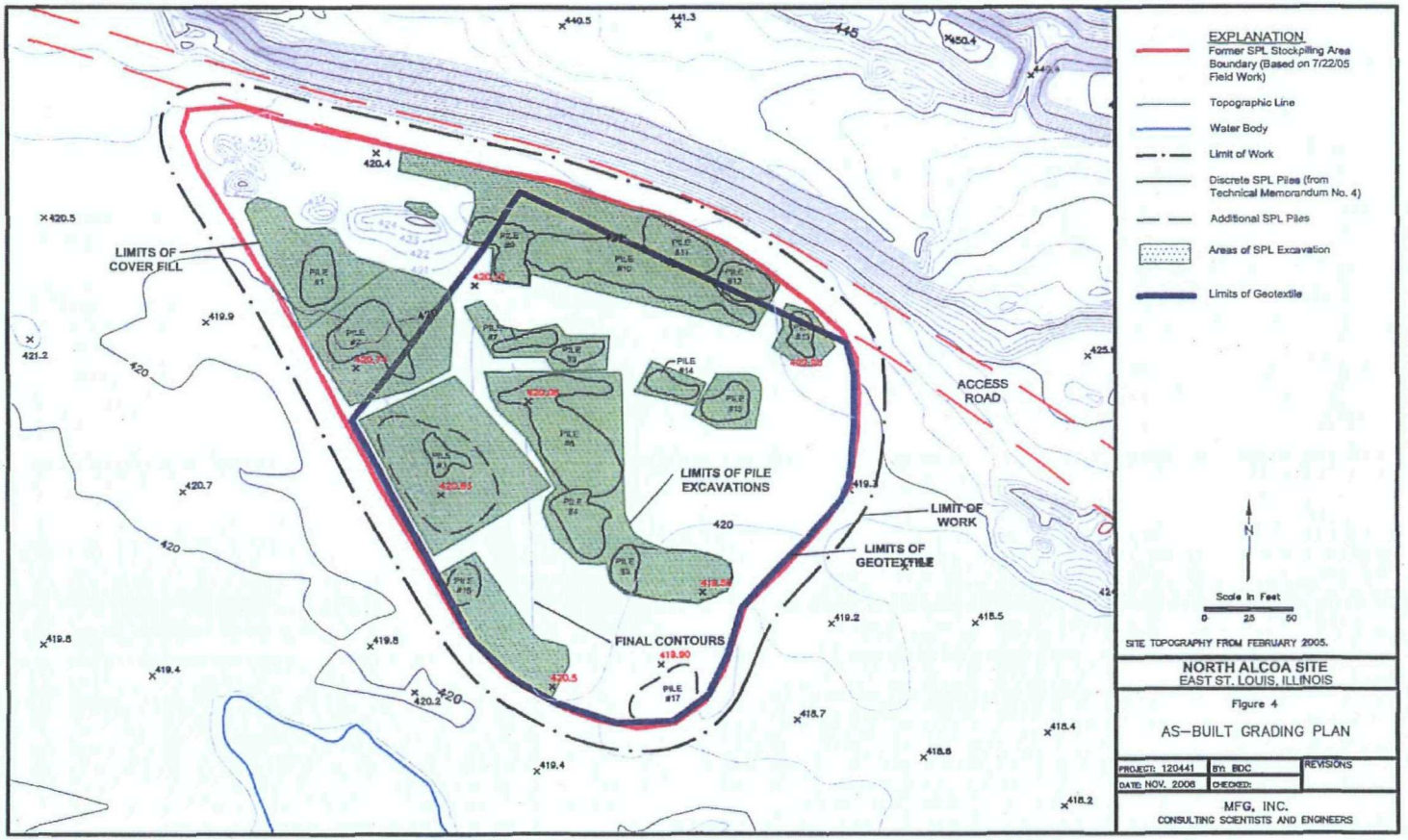
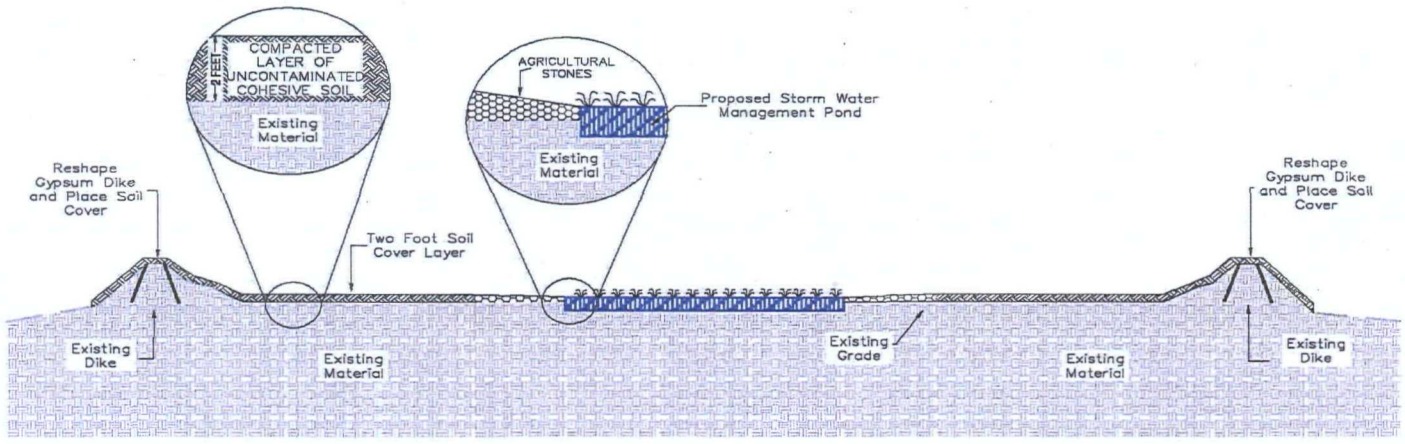


Figure 5 RAA - 2 Cap Figure



NOT TO SCALE

LEGEND

EXISTING GRADE/MATERIAL

2-FOOT SOIL COVER LAYER

PROPOSED STORM WATER MANAGEMENT POND

NORTH ALCOA SITE
EAST ST. LOUIS, ILLINOIS

Figure 6-2

RAA–2
CONCEPTUAL DESIGN
CROSS–SECTION

PROJECT: 021363	BY: SMM	REVISIONS 02
DATE: MARCH 2012	CHECKED: BLM	

TETRA TECH
COMPLEX WORLD, CLEAR SOLUTIONS

Tables

Table 1
DRAFT FINAL HYPOTHETICAL RESIDENTIAL RECEPTOR (0-2 ft EPCs)
100% of daily soil ingestion rate

IB-1

Radiation exposure for resident IB-1

COPC	Cancer risks		
	Ing	Inh	Ext
Ra226+D	1.68E-06	3.78E-09	5.15E-04
Ra228+D	1.52E-05	6.82E-09	2.99E-03
Th-232	1.92E-06	5.64E-08	8.30E-08
U-238+D	1.06E-06	1.02E-08	2.31E-05
Total=	1.99E-05	7.72E-08	3.52E-03

IB-1 Chemicals of concern

COPC	Total Health Risk		
	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Aluminum	6.40E-01	6.88E-02	-
Arsenic	8.58E-01	9.25E-02	4.74E-05
Chromium (total)	-	-	-
Chromium(III) calculated	4.07E-03	4.36E-04	-
Chromium(VI) calculated	3.39E-01	3.64E-02	6.24E-05
Vanadium	1.63E+00	1.74E-01	-
Total	3	0.4	1.E-04

Lifetime excess cancer risks from hypothetical residential exposure scenario to IB-1	
Lifetime excess cancer risks =	4.E-03
Child Non-cancer risks =	3
Adult Non-cancer risks =	0.4

IB-2

Radiation exposure for resident IB-2

COPC	Cancer risks		
	Ing	Inh	Ext
Ra226+D	2.09E-07	4.72E-10	6.44E-05
Ra228+D	1.08E-06	4.83E-10	2.12E-04
Th-232	1.36E-07	4.00E-09	5.88E-09
U-238+D	1.97E-07	1.88E-09	4.27E-06
Total=	1.62E-06	6.83E-09	2.80E-04

IB-2 Chemicals of concern

COPC	Total Health Risk		
	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Arsenic	3.69E-01	3.98E-02	2.04E-05
Vandium	1.20E+00	1.28E-01	-
Totals	1.56E+00	1.68E-01	2.04E-05

Lifetime excess cancer risks from hypothetical residential exposure scenario to IB-2	
Lifetime excess cancer risks =	3.E-04
Child Non-cancer risks =	1.56
Adult Non-cancer risks =	0.2

IB-4

IB-4a 0-2ft bgs

COPC	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Aluminum	8.63E-01	9.28E-02	-
Arsenic	9.70E-01	1.06E-01	5.37E-05
Benzo(a)pyrene	-	-	2.21E-06
Totals	1.83E+00	1.99E-01	5.59E-05

IB-4c 0-2ft bgs

COPC	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Arsenic	7.00E-01	7.65E-02	3.88E-05

IB-4e 2-10ft bgs

COPC	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Arsenic	7.33E-01	8.02E-02	4.07E-05

Lifetime excess cancer risks from hypothetical residential exposure scenario to IB-4a	
Lifetime excess cancer risks =	6.E-05
Child Non-cancer risks =	1.83
Adult Non-cancer risks =	0.2

Bold value: summed risks that are greater than the EPA risk range of 10^{-6} to 10^{-4} or HI greater than 1.

Table 2
DRAFT FINAL HYPOTHETICAL FULL-TIME INDUSTRIAL/COMMERCIAL RECEPTOR (0-2 ft EPCs)
100% of daily soil ingestion rate

IB-1

Radiation exposure for worker IB-1

COPC	Cancer risks		
	Ing	Inh	Ext
Ra226+D	5.53E-07	3.33E-09	1.36E-04
Ra228+D	5.03E-06	6.00E-09	7.89E-04
Th-232	6.35E-07	4.97E-08	2.19E-08
U-238+D	3.51E-07	8.94E-09	6.09E-06
Total=	6.56E-06	6.79E-08	9.31E-04

IB-1 Chemicals of concern

COPC	Total Health Risk		
	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Aluminum	0.00E+00	3.29E-02	-
Arsenic	0.00E+00	4.36E-02	7.00E-06
Chromium (total)	-	-	-
Chromium(III) calculated	0.00E+00	2.07E-04	-
Chromium(VI) calculated	0.00E+00	1.73E-02	9.32E-06
Vanadium	0.00E+00	8.28E-02	-
Total	0.00E+00	0.2	1.6E-05

Lifetime excess cancer risks from worker exposure scenario to IB-1	
Lifetime excess cancer risks =	**1.E-03**
Adult Non-cancer risks =	0.2

IB-2

Radiation exposure for worker IB-2

COPC	Cancer risks		
	Ing	Inh	Ext
Ra226+D	6.91E-08	4.16E-10	1.70E-05
Ra228+D	3.56E-07	4.25E-10	5.59E-05
Th-232	4.50E-08	3.52E-09	1.55E-09
U-238+D	6.50E-08	1.65E-09	1.13E-06
Total=	5.35E-07	6.01E-09	7.40E-05

IB-2 Chemicals of concern

COPC	Total Health Risk		
	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Arsenic	0.00E+00	1.87E-02	3.01E-06
Vandium	0.00E+00	6.09E-02	-
Totals	0.00E+00	0.08	3.01E-06

Lifetime excess cancer risks from worker exposure scenario to IB-2	
Lifetime excess cancer risks =	8.E-05
Adult Non-cancer risks =	0.08

IB-4

IB-4a 0-2ft bgs

COPC	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Aluminum	0.00E+00	4.43E-02	-
Arsenic	0.00E+00	4.93E-02	7.92E-06
Totals	0.00E+00	9.36E-02	7.92E-06

IB-4c 0-2ft bgs

COPC	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Arsenic	0.00E+00	3.56E-02	5.72E-06

IB-4e 2-10ft bgs

COPC	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Arsenic	0.00E+00	3.73E-02	5.99E-06

Lifetime excess cancer risks from worker exposure scenario to IB-4a	
Lifetime excess cancer risks =	8.E-06
Adult Non-cancer risks =	0.09

Bold value: summed risks that are greater than the EPA risk range of 10^{-6} to 10^{-4} or HI greater than 1.

Table 3

DRAFT FINAL TRESPASSER[1] 20 DAY/YEAR SUMMARY SHEET (0-2 ft EPCs)

100% of daily soil ingestion rate

IB-1

Radiation exposure for trespasser IB-1

COPC	Cancer risks		
	Ing	Inh	Ext
Ra226+D	1.06E-07	9.01E-11	6.28E-06
Ra228+D	9.65E-07	1.62E-10	3.64E-05
Th-232	1.22E-07	1.34E-09	1.01E-09
U-238+D	6.74E-08	2.42E-10	2.81E-07
Total=	1.26E-06	1.84E-09	4.30E-05

IB-1 Chemicals of concern

COPC	Total Health Risk		
	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Aluminum	9.14E-03	5.23E-03	-
Arsenic	1.25E-02	7.05E-03	1.71E-06
Chromium (total)	-	-	-
Chromium(III) calculated	5.81E-05	3.32E-05	-
Chromium(VI) calculated	4.84E-03	2.77E-03	2.23E-06
Vanadium	2.32E-02	1.32E-02	-
Total	0.05	0.03	3.94E-06

Lifetime excess cancer risks from trespasser exposure scenario to IB-1	
Lifetime excess cancer risks =	5.E-05
Child Non-cancer risks =	0.05
Adult Non-cancer risks =	0.03

IB-2

Radiation exposure for trespasser IB-2

COPC	Cancer risks		
	Ing	Inh	Ext
Ra226+D	1.33E-08	1.13E-11	7.85E-07
Ra228+D	6.83E-08	1.15E-11	2.58E-06
Th-232	8.64E-09	9.53E-11	7.17E-11
U-238+D	1.25E-08	4.48E-11	5.20E-08
Total=	1.03E-07	1.63E-10	3.42E-06

IB-2 Chemicals of concern

COPC	Total Health Risk		
	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Arsenic	5.30E-03	3.03E-03	7.33E-07
Vandium	1.70E-02	9.74E-03	-
Totals	2.23E-02	1.28E-02	7.33E-07

Lifetime excess cancer risks from trespasser exposure scenario to IB-2	
Lifetime excess cancer risks =	4.E-06
Child Non-cancer risks =	0.02
Adult Non-cancer risks =	0.01

IB-4

IB-4a 0-2ft bgs

COPC	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Aluminum	1.23E-02	7.06E-03	-
Arsenic	1.41E-02	7.98E-03	1.93E-06
Totals	2.64E-02	1.50E-02	1.93E-06

IB-4c 0-2ft bgs

COPC	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Arsenic	1.00E-02	5.77E-03	1.38E-06

IB-4e 2-10ft bgs

COPC	Child Non-Cancer	Adult Non-Cancer	Lifetime Cancer Risk
Arsenic	1.06E-02	6.04E-03	1.46E-06

Lifetime excess cancer risks from trespasser exposure scenario to IB-4a	
Lifetime excess cancer risks =	2.E-06
Child Non-cancer risks =	0.03
Adult Non-cancer risks =	0.02

1 Trespasser assumed to be a local resident - older child/adolescent (6-16 years old) through adult years for 30 years total Exposure Duration.

Appendix A

Administrative Record Index

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMEDIAL ACTION

ADMINISTRATIVE RECORD
FOR
NORTH ALCOA SITE
EAST ST. LOUIS, ST. CLAIR COUNTY, ILLINOIS

ORIGINAL
APRIL 11, 2012

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	00/00/00	Fusinski, K., U.S. EPA	Novak, D., U.S. EPA	Memorandum re: Review of the Draft Focused Feasibility Study for Operable Unit 1 at the North Alcoa Site **(SDMS ID: 431529)**	2
2	00/00/00	MACTEC	File	Map: Overall Site Plan for the North Alcoa Site **(SDMS ID: 431530)**	2
3	03/22/66	Illinois EPA	File	Rules and Regulations for Refuse Disposal Sites and Facilities **(SDMS ID: 431531)**	8
4	07/31/73	Illinois Pollution Control Board	File	Rules and Regulations: Chapter 7 - Solid Waste **(SDMS ID: 431532)**	23
5	02/18/97	Sorenson, P., Illinois EPA	Cordes, M. City of East St. Louis/ Business & Economic Development Department	CERCLA Redevelopment Assessment Report for the Former Alcoa Property **(SDMS ID: 424261)**	210
6	12/31/02	U.S. EPA	Respondents	Administrative Order on Consent for Remedial Investigation/Feasibility Study for the North Alcoa Site **(SDMS ID: 170359)**	76
7	07/01/03	U.S. EPA	File	Statement of Work for Remedial Investigation/ Feasibility Study/Oversight for the North Alcoa Site **(SDMS ID: 431533)**	14
8	07/24/03	MFG, Inc.	Alcoa, Inc.	Remedial Investigation and Feasibility Study Work Plan for the North Alcoa Site **(SDMS ID: 431534)**	485

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
9	01/07/04	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Draft Technical Memorandum 6: Proposed Plan for SPL Area, Investigative Block No. 3c for the North Alcoa Site **(SDMS ID: 431535)**	178
10	02/26/04	Weddell, R., Alcoa Remediation Management	Novak, D., U.S. EPA	Letter re: Draft Pre-Remedial Investigation (TM #1) and SPL Area Investigation Reports for the North Alcoa Site **(SDMS ID: 431536)**	195
11	03/30/04	Weddell. R., Alcoa, Inc.	Novak, D., U.S. EPA	Technical Memorandum #2: Effectiveness of City of East St. Louis Groundwater Ordinance as Institutional Control **(SDMS ID: 430179)**	16
12	04/07/04	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: MFG Comments on TM #1 (Draft Pre-Remedial Investigation) for the North Alcoa Site **(SDMS ID: 430159)**	2
13	04/30/04	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Technical Memorandum #3: Status of Existing Wells (DRAFT) **(SDMS ID: 430180)**	100
14	05/18/04	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: U.S. EPA Comments to the April 30, 2004 TM #3-Status of Existing Water Wells for the North Alcoa Site **(SDMS ID: 430160)**	2
15	07/06/04	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Technical Memorandum re: Field Sampling Plan Addendum, Proposed IB 5a Off-site Investigatory Borings, Phase 1 RI/FS, North Alcoa Site **(SDMS ID: 430161)**	4
16	07/14/04	Novak, D., U.S. EPA	McCulley, B., MFG, Inc.	E-mail Message re: U.S. EPA Comments on QAPP and Field Sampling Plan for the North Alcoa Site **(SDMS ID: 430162)**	2
17	08/16/04	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Letter re: Alcoa's Draft Response to U.S. EPA Comments on the Phase 1 Ecological Risk Assessment for the North Alcoa Site **(SDMS ID: 431537)**	12

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
18	08/19/04	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Technical Memorandum 6: Draft Bauxite Residue Soil Amendment Work Plan **(SDMS ID: 430181)**	21
19	09/03/04	Weddell, R., Alcoa Remediation Management	Novak, D., U.S. EPA	Memorandum re: Field Sampling Plan Addendum No. 2 - Modifications to the Field Sampling Plan for the Radiological Characterization of Bauxite Residue and Gypsum for the North Alcoa Site **(SDMS ID: 431538)**	198
20	09/13/04	Novak, D., U.S. EPA	McCulley, B., MFG, Inc.	E-mail Message re: U.S. EPA Approval of September 3 Field Sampling Plan Addendum 2 for the North Alcoa Site **(SDMS ID: 430163)**	1
21	09/22/04	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Technical Memorandum re: Field Sampling Plan Addendum No.3-Modifications to the Field Sampling Plan Phase II Ecological Data Needs **(SDMS ID: 430182)**	12
22	10/01/04	Novak, D., U.S. EPA	McCulley, B., MFG, Inc.	E-mail Message re: EPA Comment on the FSP Addendum to the Phase 2 Ecological RI Report **(SDMS ID: 430170)**	2
23	02/22/05	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Letter re: Resolution of EPA Review Comments on Technical Memorandum 3 - Status of Existing Water Wells at the North Alcoa Site **(SDMS ID: 430164)**	2
24	02/22/05	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Letter re: Resolution of EPA Review Comments on Technical Memorandum 2-Effectiveness of the City of East St. Louis Groundwater Ordinance as an Institutional Control **(SDMS ID: 430165)**	1

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
25	02/22/05	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Letter re: Resolution of EPA Review Comments on Technical Memorandum 1 - Pre-Remedial Investigation /Feasibility Study Site Reconnaissance **(SDMS ID: 430166)**	2
26	03/22/05	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: U.S. EPA *Comments on the Draft* Human Health Risk Assessment for the North Alcoa Site **(SDMS ID: 431539)**	7
27	03/22/05	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: U.S. EPA Comments on the Draft Baseline Ecological Risk Assessment for the North Alcoa Site **(SDMS ID: 431540)**	4
28	06/09/05	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Letter re: Alcoa's Response to U.S. EPA Comments on the Baseline Ecological Risk Assessment for the North Alcoa Site **(SDMS ID: 431541)**	10
29	06/09/05	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Letter re: Alcoa's Draft Response to U.S. EPA Comments on the Baseline Human Health Risk Assessment for the North Alcoa Site **(SDMS ID: 431542)**	8
30	06/09/05	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Letter re: Alcoa's Draft Response to U.S. EPA Comments on the Remedial Investigation Report for the North Alcoa Site **(SDMS ID: 431543)**	9
31	09/12/05	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: U.S. EPA Comments on the Draft Feasibility Study for the North Alcoa Site **(SDMS ID: 431544)**	13
32	10/05/05	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Letter re: Alcoa's Draft Response to U.S. EPA Review Comments on the Feasibility Study for the North Alcoa Site **(SDMS ID: 431545)**	26

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
33	12/12/05	Watson, R., R. Lanham & T. Miller, Illinois EPA	Novak, D., U.S. EPA	Memorandum re: Illinois EPA Comments on the Feasibility Study for the North Alcoa Site **(SDMS ID: 431546)**	5
34	03/02/06	MFG, Inc.	Alcoa, Inc.	Revised Final Spent Potliner Removal Plan for the North Alcoa Site **(SDMS ID: 431547)**	45
35	12/06/06	MFG, Inc.	Alcoa, Inc.	Completion Report: Spent Potliner Removal for the North Alcoa Site **(SDMS ID: 431548)**	38
36	02/27/07	McCulley, B., Tetra Tech	Novak, D., U.S. EPA	E-mail Message re: Tetra Tech Responses to EPA's February 26, 2007 Comments to the SPL Removal Plan for the North Alcoa Site **(SDMS ID: 430167)**	4
37	03/11/10	Karecki, E., U.S. Fish & Wildlife Service	Novak, D., U.S. EPA	Memorandum re: Response to PRP Response to Comments on Baseline Risk Assessment **(SDMS ID: 431551)**	2
38	03/26/07	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Technical Memorandum 9: Field Sampling Plan Addendum for Former Spent Pot Lining Stockpiling Area, Investigation Block No. 3c, North Alco Site w/Cover Letter **(SDMS ID: 430168)**	7
39	03/17/09	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Technical Memorandum 10: Investigation of Former Spent Pot Lining Stockpiling Area, Investigation Block No. 3c, North Alcoa Site **(SDMS ID: 430169)**	87
40	03/17/09	Tetra Tech	U.S. EPA	Draft-Revised Remedial Investigation Report for the North Alcoa Site **(SDMS ID: 430178)**	203
41	09/11/09	Lanham, R., Illinois EPA	Novak, D., U.S. EPA	Letter re: Illinois EPA Comments on the Revised Draft Remedial Investigation Report for the North Alcoa Site **(SDMS ID: 431549)**	10

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
42	03/11/10	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: U.S. EPA Comments on the Revised RI Report for the North Alcoa Site **(SDMS ID: 431550)**	12
43	07/23/10	Karecki, E., U.S. EPA	Novak, D., U.S. EPA	E-Mail Transmission re: Draft Response to Alcoa Ecological Health Risk Assessment w/ Reply History **(SDMS ID: 431552)**	1
44	08/05/10	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: U.S. EPA Comments on the Revised Ecological Risk Assessment for the North Alcoa Site **(SDMS ID: 431553)**	4
45	08/23/10	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Letter re: Alcoa's Draft Response to U.S. EPA Comments on the Revised Baseline Human Health Risk Assessment for the North Alcoa Site **(SDMS ID: 431554)**	15
46	08/23/10	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Letter re: Alcoa's Draft Response to U.S. EPA Comments on the Revised Ecological Risk Assessment for the North Alcoa Site **(SDMS ID: 431555)**	10
47	09/10/10	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Letter re: Alcoa's Draft Response to U.S. EPA Comments on the Revised Ecological Risk Assessment for the North Alcoa Site **(SDMS ID: 431556)**	10
48	09/10/10	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Letter re: Alcoa's Draft Response to U.S. EPA Comments on the Revised Baseline Human Health Risk Assessment for the North Alcoa Site **(SDMS ID: 431557)**	15
49	10/21/10	DePree, P. & P. Pontoriero, Mactec Engineering & Consulting	Hanselman, J., Brightfields Development, LLC	Letter re: Scope of Work for Geotechnical Reconnaissance and Excavation of Test Pits for the Preliminary Geotechnical Investigation Potential Solar Project for the Former Alcoa East St. Louis Site **(SDMS ID: 431558)**	4

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
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52	07/19/11	Lanham, R., Illinois EPA	Novak, D., U.S. EPA	Letter re: Illinois EPA Comments on the Tetra Tech Technical Memorandum and the Draft Annotated FS Outline for the North Alcoa Site **(SDMS ID: 431561)**	7
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54	07/22/11	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: TCLP and TACO ARARs Memorandum for the North Alcoa Site **(SDMS ID: 431563)**	3
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57	08/05/11	McCulley, B., Tetra Tech	Novak, D., U.S. EPA	Memorandum: Tetra Tech Comments on U.S. EPA's Cumulative Risk Assessment for the North Alcoa Site **(SDMS ID: 431566)**	3

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60	08/19/11	Lanham, R., Illinois EPA	Novak, D., U.S. EPA	Letter re: Illinois EPA Comments on Earthwork Specification for the North Alcoa Site **(SDMS ID: 431569)**	2
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62	09/09/11	Lanham, R., Illinois EPA	Novak, D., U.S. EPA	Letter re: Illinois EPA Comments on the Proposed Soil Test Strip Procedure for Operable Unit 1 at the North Alcoa Site **(SDMS ID: 431571)**	4
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64	09/16/11	Hager, J. & P. Pontoriero, AMEC E&I, Inc.	Novak, D., U.S. EPA	Letter re: AMEC Response to U.S. EPA Comments on the OU1 Field Test Strip Investigation Workplan for the Former Alcoa East St. Louis Site **(SDMS ID: 431573)**	4
65	09/21/11	Novak, D., U.S. EPA	Pontoriero, P., AMEC E&I	Letter re: U.S. EPA Approval of the OU1 Test Strip Investigation Workplan for the North Alcoa Site **(SDMS ID: 431574)**	2

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67	09/23/11	Carson, R., Illinois EPA	Novak, D., U.S. EPA	Letter re: Illinois EPA Comments on the Draft Concept Drainage Analysis for the North Alcoa Alternative NPL Site **(SDMS ID: 431576)**	3
68	09/27/11	Novak, D., U.S. EPA	Pontoriero, P., AMEC E&I Holdings	Letter: Storm Water Summary for the North Alcoa Site **(SDMS ID: 431577)**	3
69	10/07/11	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: U.S. EPA Comments on the Draft Focused Feasibility Study for Operable Unit 1 at the North Alcoa Site **(SDMS ID: 431578)**	7
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71	10/20/11	Lanham, R., Illinois EPA	Novak, D., U.S. EPA	Letter re: Illinois EPA Comments on the Draft ARARs for Operable Unit 1 at the North Alcoa Site **(SDMS ID: 431580)**	7
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74	11/14/11	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: U.S. EPA Comments on the Radiological Survey Work Plan for the North Alcoa Site **(SDMS ID: 431583)**	2

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81	12/20/11	Hill, C., Illinois EPA	Novak, D., U.S. EPA	Letter re: Illinois EPA Comments on the Draft Revised Focused Feasibility Study Revision 1 for Operable Unit 1 at the North Alcoa Site **(SDMS ID: 431590)**	4
82	12/21/11	Novak, D., U.S. EPA	Pontoriero, P., AMEC E&I Holdings	Letter re: Questions About Post-Construction Pond Memo for the North Alcoa Site **(SDMS ID: 431591)**	2

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84	01/06/12	Foxfire Scientific	Alcoa, Inc.	Radiological Survey Report for the North Alcoa Site **(SDMS ID: 431593)**	1349
85	01/13/12	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: U.S. EPA Comments on the Draft Revised Focused Feasibility Study Revision 1 for Operable Unit 1 at the North Alcoa Site **(SDMS ID: 431594)**	5
86	01/18/12	DePree, P. & P. Pontoriero, AMEC E&I, Inc.	Novak, D., U.S. EPA	Letter re: AMEC Response to Comments on Revision 1 for the OU1 Field Test Strip and Test Load Program Report for the Former Alcoa East St. Louis Site **(SDMS ID: 431595)**	13
87	01/25/12	Ingram, W. & P. Pontoriero, AMEC E&I, Inc.	Novak, D., U.S. EPA	Letter re: Amec Response to Questions Concerning the November 15, 2011 Memorandum on the Post-Construction Pond at the Former Alcoa East St. Louis Site **(SDMS ID: 431596)**	9
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89	01/27/12	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: U.S. EPA Comments on the Radiological Survey Report for the North Alcoa Site **(SDMS ID: 431598)**	2

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91	02/09/12	Weddell, R., Alcoa, Inc.	Novak, D., U.S. EPA	Technical Memorandum #10: *Investigation of Former* Spent Pot Lining Stockpiling Area, Investigation Block No. 3c **(SDMS ID: 430169)**	87
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93	02/15/12	Chapman, J., U.S. EPA	Novak, D., U.S. EPA	Memorandum re: Comments on Field Sampling Plan for Pond Area, Investigative Block No. 1b and the Draft Technical Memorandum from Alcoa to U.S. EPA for the North Alcoa Site **(SDMS ID: 431601)**	1
94	02/17/12	Hill, C., Illinois EPA	Novak, D., U.S. EPA	Letter re: Illinois EPA Response to U.S. EPA Review of the Draft Revised Focused Feasibility Study, Revision 1 for Operable Unit 1 at the North Alcoa Site **(SDMS ID: 431602)**	4
95	02/22/12	Pontoriero, P. & J. Hager, AMEC E&I, Inc.	Singer, M., AMEC E&I, Inc.	Memorandum re: Discussions of Steps Required to Install Liner in Pond Areas at the North Alcoa Site **(SDMS ID: 431603)**	4
96	03/12/12	Allen, J., Formation Environmental	McCulley, B., Tetra Tech	Memorandum re: Summary of the Revised Risk Calculations for Pond in IB-1B Using Organic Layer COPC Concentrations **(SDMS ID: 431604)**	9
97	03/14/12	Hill, C., Illinois EPA	Novak, D., U.S. EPA	Letter re: Illinois EPA Comments on the Draft Proposed Plan for the North Alcoa Site **(SDMS ID: 431605)**	9

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99	03/26/12	Novak, D., U.S. EPA	Weddell, R., Alcoa, Inc.	Letter re: U.S. EPA Comments on Alcoa's Response to Agency Comments on the Focused Feasibility Study Report for Operable Unit 1 at the North Alcoa Site **(SDMS ID: 431607)**	3
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103	04/09/12	DePree, P. & P. Pontoriero, AMEC Environmental & Infrastructure, Inc.	Novak, D., U.S. EPA	Letter re: Responses to Comments on the Pre-Design Investigation Report, Proposed Solar Redevelopment Project, OU1, North Alcoa Site **(SDMS ID: 430172)**	3
104	04/09/12	AMEC Environmental & Infrastructure, Inc.	U.S. EPA	Pre-Design Investigation Report-Proposed Solar Redevelopment Project, Former Bauxite Residue Disposal Areas, Revision 1, OU1, North Alcoa Site, Text, Tables, Figures & Appendices **(SDMS ID: 430171)**	266
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1	00/00/00	Martindale, B., Hoelscher Engineering & P. Osman, IDNR	File	"Why the Concern with Levees? They're Safe Right?"	
2	03/01/11	Kuehn, R., Washington University School of Law	McMullen, K. & T. George, U.S. Corp of Engineers	Letter re: Southwestern Illinois Flood Prevention District Council Applications for Authorization to Perform Improvements to the Metro East Levee Systems (File Nos. MVS-2011-803, MVS-2011-805 & MVS-2011-806)	
3	04/00/12	U.S. EPA		Proposed Plan Presentation for the North Alcoa Site Operable Unit 1	
4	04/17/12	Hamlin, B., Keefe Reporting Company	U.S. EPA	Public Meeting Transcript: Proposed Plan - North Alcoa, Operable Unit 1	
5	04/17/12	Resident	U.S. EPA	Public Comment Sheet re: Proposed Cleanup Plan for the North Alcoa Site OU1	
6	06/12/12	Funk, A., Metro East Citizens Air Project, University of Illinois	Novak, D., U.S. EPA	E-mail Message re: Comment to the Proposed Plan for the North Alcoa Site OU1	
7	06/12/12	Resident	Novak, D., U.S. EPA	E-mail Message re: Public Comment to the Proposed Plan for the North Alcoa Site OU1	

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8	06/13/12	Resident	Novak, D., U.S. EPA	E-mail Message re: Public Comment to the Proposed Plan for the North Alcoa Site OU1	
9	06/13/12	Andria, K., American Bottom Conservancy & S. Ballard, Sierra Club	Novak, D. & D. Novak, U.S. EPA	E-mail Message re: Comments to the Proposed Plan for the North Alcoa Site OU1	
10	00/00/00	U.S. EPA	Public	Record of Decision (ROD) for the North Alcoa Site Operable Unit 1 **(PENDING)**	
11	00/00/00	Illinois EPA	U.S. EPA	Letter re: Illinois EPA Concurrence with the Record of Decision for North Alcoa Site Operable Unit 1 **(PENDING)**	