UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

APR 2 3 2012

ACTION MEMORANDUM

SUBJECT: Request for a Time-Critical Removal Action and Exemption from the 12-Month Statutory Limit at the Iron Mountain Lake Subsite, Big River Mine Tailings, Operable Unit 1, St. Francois County, Missouri

FROM: J. Heath Smith, On-Scene Coordinator
Emergency Response and Removal South Branch

THRU: Scott D. Hayes, Chief
Emergency Response and Removal South Branch

TO: Cecilia Tapia, Director
Superfund Division

Site ID: 07CR / RV005

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action and 12-Month Statutory Limit Exemption at the Big River Mine Tailings site, OU1, Iron Mountain Lake subsite (Site) located within St. Francois County, Missouri. Soils at 11 residential properties have been found to exceed the removal action levels proposed in this Action Memorandum. Lead is a heavy metal and has been listed as a hazardous substance pursuant to section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9602, 40 CFR § 302.4, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The primary objective of this removal action is to eliminate or reduce potential ingestion exposure due to the presence of lead and other heavy metals largely at or near the surface of soils at the Site. The U.S. Environmental Protection Agency (EPA) will excavate and remove all soils and/or waste exceeding 400 milligrams per kilogram (mg/kg) at residential properties where (1) a composite sample exceeds a concentration of 800 mg/kg lead, or (2) a composite sample exceeds a concentration of 400 mg/kg and a child with an elevated blood lead level (>10 micrograms per deciliter) resides. The EPA will also address other residential type properties and child high use areas (e.g., schools, day care centers, playgrounds, parks and green ways, as defined in the Superfund Residential Lead Sites Handbook) that meet the removal criteria through this removal action.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal Site Evaluation

The mayor of Iron Mountain Lake requested an environmental assessment in a letter to the Missouri Department of Natural Resources (MDNR) dated June 23, 2011. The EPA was forwarded a request by the mayor of Iron Mountain Lake on July 6, 2011, to screen areas of the city for lead mine waste. In his letter, the mayor stated that mine waste had historically been used as road base within the community.

Field work for the Removal Site Evaluation (RSE) began on October 19, 2011, and continued through November 7, 2011. During this time, the EPA collected soil, gravel and groundwater samples to identify the presence of and define the extent of metals contamination across the Site. During RSE activities, the EPA collected soil samples from 50 residential properties, gravel samples from 25 roadways and groundwater samples from 14 properties. Of the residential properties sampled, 20 homes (40 percent) were found to have an average lead concentration greater than 400 mg/kg in at least one area of their yards. No significant source water contamination was identified.

2. Physical location

Iron Mountain Lake is a city located in the southwest corner of St. Francois County, Missouri. It is located approximately 12 miles from Farmington, Missouri, and 8 miles from Ironton, Missouri, off Missouri Route NN.

An iron mine preexisted the community of Iron Mountain Lake. The mine is located approximately one mile northwest of the community. In 1847, the company that operated the mine, the Iron Mountain Company, constructed a lake in a valley on their property. The water from the lake was pumped to "reservoir hill" located at the mine site. After filling the reservoir on "reservoir hill," the water was channeled down the hillside to be used by employees of the mine to wash iron ore.

The lake became a popular recreational and social gathering spot after its construction. In 1917, the property was conveyed to a development company. Several entities managed and developed the Site through the years. Today a city exists around the lake. According to the 2010 Census, the Iron Mountain Lake community consists of 730 residents living in 295 homes. There are 72 vacant homes in Iron Mountain Lake for a total of 367 residential homes in the community.

B. Site characteristics

1. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

The primary contaminant of concern at the Site is lead and lead compounds. Lead and lead compounds are hazardous substances as defined by section 101(14) of CERCLA, listed at 40 CFR § 302.4, and have been detected in the soils at the Site. The EPA has documented total lead concentrations at the Site at levels exceeding the residential soil screening level of 400 mg/kg. Lead is

classified by the EPA as a probable human carcinogen and is a cumulative toxicant. A significant amount of lead that enters the body is stored in the bone for many years and can cause irreversible health effects.

2. NPL Status

The Site is part of the residential removal action taking place at the Big River Mine Tailings site, OU1. The Big River Mine Tailings site was listed on the National Priority List (NPL) on October 14, 1992.

3. Maps pictures, and other graphic representations

A map depicting the Site is attached (Attachment A).

C. Other Actions to Date

1. Previous actions

No previous sampling activity has occurred in the Iron Mountain Lake community. Several actions have occurred at the Big River Mine Tailings site including:

- Time-Critical Removal Actions (2010 – Present). The EPA began a time-critical removal action for schools, child day care facilities and residential properties in 2010. The actions are ongoing.

- Non-Time-Critical Removal Actions (1994 – Present). Since 1994, actions have been ongoing in the community to address the presence of large lead mine waste piles. Actions have been taken at the Big River/Desloge, Bonne Terre, Elvins, Leadwood, National and Federal mine waste piles.

- Halo Removal Action (2004 – Present). A sampling and removal action program is being conducted by the Doe Run Company, pursuant to an Administrative Order on Consent, Docket Number CERCLA-7-2004-0167 (referred to as the Halo AOC). This removal action was primarily conducted at residential properties within specified distances from mine waste piles, mine sites and mines (Halo Areas). All properties located within the defined Halo Areas with composite sample results greater than 400 mg/kg were remediated. In addition, all properties with children exhibiting elevated blood lead levels (>10 micrograms per deciliter) are remediated under this program.

- Interim Action (2000 – 2004). This action consisted of a sampling and removal action program conducted by the Doe Run Company pursuant to an Administrative Order on Consent, Docket Number CERCLA-7-2000-0015, which characterized yard soil and blood lead concentrations within St. Francois County, Missouri. The yard soil sampling results collected pursuant to this program are a large part of the basis for soil concentrations used in the Halo Removal Action and in the Big River Mine Tailings site feasibility study.

2. Current actions

There are no current environmental actions being undertaken in the Iron Mountain Lake community.

D. State and Local Authorities' role

1. State and local actions to date

The EPA is coordinating closely with MDNR, Missouri Department of Health and Senior Services, the Agency for Toxic Substances and Disease Registry and local officials. The EPA will continue to coordinate with these agencies and local officials as the removal action progresses.

2. Potential for continued state/local response

There are no current plans for a State or local response at the Site.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENTAL AND STATUTORY AND REGULATORY AUTHORITIES

When the lead agency makes the determination, based on factors listed in 40 CFR § 300.415(b)(2), that there is a threat to public health, welfare or the environment, the lead agency may take any appropriate removal action to abate, prevent, minimize, stabilize, mitigate or eliminate the release or threat of release. The factors in 40 CFR § 300.415(b)(2) that apply to the Site are:

- ***Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants.*** Lead has been detected in surface soils above the time-critical removal action level of 400 mg/kg for areas where sensitive populations exist and 800 mg/kg for residential properties. Lead-contaminated soils may migrate via airborne dusts, surface runoff and construction activity, or by children, adults and pets transporting soil or dust into residential properties.

- ***High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.*** Elevated concentrations of lead have been found throughout various parts of the Site. Children and other sensitive populations playing in and around the contaminated areas have the highest potential to be negatively impacted by exposure.

- ***Weather conditions that may cause hazardous substances or pollutants to migrate or to be released.*** Exposed soil and mine waste may migrate off the site. Dust and mud could enter structures via environmental or mechanical transportation and create a higher exposure risk for children and other sensitive populations.

- ***The availability of other appropriate federal or state response mechanisms to respond to the release.*** No other state or federal authorities are available to respond to the release of hazardous substances at the Site.

IV. ENDANGERMENT DETERMINATION

The actual or threat of release of a hazardous substance at the Site, if not addressed by implementing the response action selected in this Action Memorandum, presents an imminent and substantial endangerment to the health of individuals who come in contact with the Site and to public welfare and the environment.

V. EXEMPTION FROM STATUTORY LIMITS

Continued response actions are otherwise appropriate and consistent with the remedial action to be taken. Similar NPL lead mining sites are ongoing throughout the region and excavation of contaminated soil has been the preferred alternative. Excavation of contaminated soils above 800 mg/kg is consistent with other lead mining remedial actions and will not interfere with likely remedial alternatives for addressing lead-contaminated soil.

Continued response actions are also necessary to avoid a foreseeable threat to the residents of Iron Mountain Lake. Although excavation and replacement of soils can occur quickly, restoration activities at similar NPL lead mining sites have taken longer than 12-months to complete. Without continued response activities by EPA, residents in the Iron Mountain Lake area would risk exposure to high lead concentrations that could lead to the adverse health effects described in this Action Memorandum.

Assistance will not otherwise be provided on a timely basis. Neither the state of Missouri, the county, nor local governments have the response authority and/or resources to implement the described actions. The high lead levels found in soils at residential properties and areas accessible to children less than 84 months of age and sensitive populations at the Site require immediate response to address the health risks poses to the public.

The above conditions satisfy the consistency exemption criteria for a 12-month exemption from statutory limits and should be granted to immediately provide emergency response actions.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

a. Soil/waste excavation, removal

The EPA will not intentionally address naturally occurring lead ores in their undisturbed state as part of this action. Section 104(a)(3)(A) of CERCLA states that removal or remedial actions shall not be provided in response to a release or threat of release of a naturally occurring substance in its unaltered form or altered solely through natural processes in a location where naturally found.

Response criteria for residential properties with children less than 84 months of age who have elevated blood lead levels (>10 micrograms per deciliter) or where other sensitive populations exist: The EPA will excavate and remove all soils and/or waste where a representative composite sample

exceeds a concentration of 400 mg/kg lead from sample areas within 100 feet of the residential structure or in areas determined to be high use areas greater than 100 feet from the primary structure.

Response criteria for residential properties with children greater than 84 months of age and no sensitive population: The EPA will respond to residential properties in this category when a representative composite sample exceeds a concentration of 800 mg/kg lead and the area the sample represents exists within 100 feet of the residential structure. Any sample area at an individual residence exceeding 400 mg/kg lead will be addressed if one sample area exists greater than 800 mg/kg lead.

Response criteria for child high use areas: The EPA will respond to child high-use areas across the Site in which children may be exposed to an average lead concentration in soil greater than 800 mg/kg. The EPA expects the child high use area criteria will only be used in highly localized situations where children are being exposed to lead contaminated soil. Examples where this criteria might apply would include bare soil under a swing set or a sand volleyball court at a city park. The EPA also intends to evaluate each of these high use areas on a case-by-case basis. The areal extent to be excavated will be established based on population and use.

Any sample area with soils and or waste exceeding the response criteria described above will be excavated to a maximum depth of 24 inches. Excavation will stop if lead levels are less than 400 mg/kg in the top 12 inches. Excavation will stop if lead levels are less than 1,200 mg/kg at an excavation depth of 12 inches or deeper. Should it be determined that lead levels below 1,200 mg/kg cannot be reached at an excavation depth of 24 inches, excavation will cease and a warning barrier will be placed to alert the property owner of the existence of high levels of lead.

Garden Areas: Garden areas determined to have lead concentrations of 400 mg/kg lead or greater will be excavated in one 24-inch lift. The base of the excavation will be evaluated in the same way as described above.

b. Restoration

After removing the soils from the affected areas and placing the warning barriers where required, the excavated soils will be replaced with clean soils. Clean soils are soils that have been analyzed for lead and other heavy metals, and results indicate that the lead concentrations are consistent with background levels and are below 100 mg/kg for lead, and all other hazardous substances, pollutants or contaminants are below residential soil screening levels.

Typically, affected areas will be revegetated by hydroseeding (spraying a mixture of seed, mulch and fertilizers). Under special circumstances, sod may be required.

c. Soil treatment and disposal

Transportation, storage and disposal of the excavated material shall be in accordance with all applicable local, state or federal requirements. Excavated soils will be placed in an on-site repository. Therefore, Toxicity Characteristic Leaching Procedure analysis will not be required and treatment of soils will not be required.

2. Contribution to remedial performance

The fund-lead actions proposed in this Action Memorandum should not impede any future remedial plans or other response. This is consistent with the long-term remedy in that it fully addresses the direct-contact threat posed by lead contamination at this Site.

3. Applicable or Relevant and Appropriate Requirements (ARARs)

Section 300.415(j) of the NCP provides that fund-financed removal actions under section 104 and removal actions pursuant to CERCLA section 106 shall, to the extent practicable considering the exigencies of the situation, attain ARARs under federal environmental or state environmental facility siting laws. The following ARARs have been identified for this action:

Federal

- 42 U.S.C. 9601, et seq., CERCLA
- 42 U.S.C. 6901, et seq., Resource Conservation and Recovery Act including:
  - 40 CFR 258, et seq., Subtitle D
  - 40 CFR 260, et seq., Subtitle C
  - 40 CFR 261, et seq., identification and listing of hazardous waste
  - 42 U.S.C. 6941, et seq., state or regional solid waste plans
- 29 CFR part 1910, Occupational Safety and Health Act, will be applicable to all actions
- 42 U.S.C. 7401 et seq., Clean Air Act, including 40 CFR part 50, the National Ambient Air Quality Standards
- 33.U.S.C. 26, Clean Water Act, including 40 CFR 122.49, the National Pollution Discharge Elimination System
- 16 U.S.C. 1531, et seq., Endangered Species Act
- 16 U.S.C. 470, et seq., National Historic Preservation Act

State

The EPA has requested that MDNR identify requirements that the State would like considered as potential ARARs for this removal action. To qualify as ARARs, these requirements must be (1) promulgated, (2) identified by the state within the time period specified in the letter and (3) more stringent than federal requirements. ARARS provided by MDNR for a similar action are listed below:

- Air Conservation Commission, 10 CSR 10
  - 6.010 – Ambient Air Quality for particulates and lead
  - 6.170 – Particulate matter beyond a point source

- Clean Water Commission, 10 CSR 20
  - 6.200 – Storm water discharge
  - 7.015 – (1-7) and (9) – Point source discharges
  - 7.031 (2-5) including Tables (A) and (B) – Water Quality Standards

- Hazardous Substances Emergencies Response, 10 CSR 24
  - 4.261(A)(1-2, 4) – Identification of hazardous waste
  - 5.262 – Generators
  - 6.263 – Transportation of hazardous waste
  - 7.264(2)(A-G, K-N, and/or S) – Facility and location standards
  - 7.268 – Land disposal restrictions

- Soil Waste Management, 10 CSR 80
  - 5:010(2) – Landfill's acceptance of waste for which designed
  - 5010 (5)(A, B)(1-4) – Landfill design and operation relative to discharge water quality/water treatment requirement

4. Project Schedule

Response activities are anticipated to begin following the authorization provided by this Action Memorandum.

B. Estimated Costs

The estimated costs associated with this removal action are as follows:

Extramural Costs:

Removal Costs	$739,546
Contingency (20 percent)	147,909
Removal Project Ceiling	$887,455

The EPA direct and indirect costs, although cost recoverable, do not count toward the total removal project ceiling for this removal action. Refer to the enforcement section for a breakout of these costs.

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

Delayed action will result in unnecessary exposure of children and adults living in residential properties to lead-contaminated soils found to exist at the Site. In addition, delayed action could result in the spread of contamination.

VIII. OUTSTANDING POLICY ISSUES

None.

IX. ENFORCEMENT

See attached Confidential Enforcement Addendum for this Site (Attachment B). For NCP consistency purposes, the Confidential Enforcement Addendum is not placed in the Administrative Record File and is not part of this Action Memorandum.

The total EPA costs for this removal action, based on full cost-accounting practices are estimated to be:

Direct Extramural Costs	$ 887,455
Direct Intramural Costs	150,000
EPA Indirect (27.52 percent of all costs)	285,508
Total Project Costs	$1,322,963

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

X. RECOMMENDATION

This decision document represents the removal action for the contaminated soils at the Site. The removal action was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the Site. If approved, the removal project ceiling of $887,455 will be funded from the Big River Mine Tailings Special Account and/or the Regional Removal Allowance.

Conditions at the Site meet the NCP section 300.415(b) criteria for a removal and the CERCLA section 104(c) consistency exemption from the 12-month limitation, and I recommend your approval of the proposed removal action and 12-month exemption.

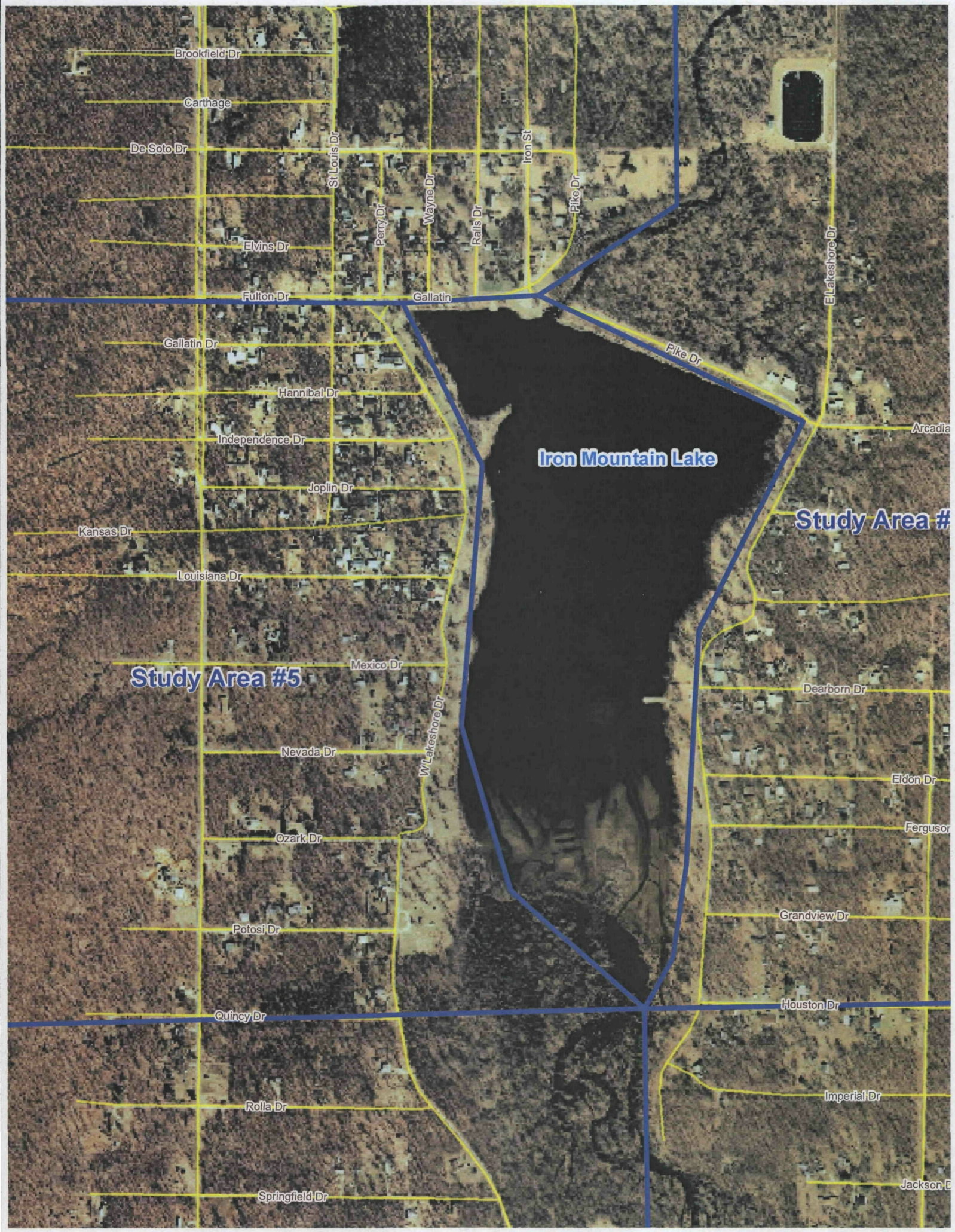
Approved:

Cecilia Tapia, Director
Superfund Division

Date 4/23/12

Attachments:

Attachment A - Site Map
Attachment B - Confidential Enforcement Addendum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