



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105

MEMORANDUM

JAN 25 2017

DATE:

SUBJECT: Project Ceiling Increase Approval, Funding, and Exemption from the \$2 Million Statutory Limit to Continue the Removal Action at the Iron King Mine-Humboldt Smelter Superfund Site, Dewey-Humboldt, Arizona.

FROM: Martin Powell, On-Scene Coordinator
Emergency Response Section (SFD-9-2)

Jeff Dhont, Remedial Project Manager
Arizona and Federal Facilities Section (SFD-8-1)

A handwritten signature in black ink, appearing to read "M Powell", with the word "for" written below it.

THRU: Harry L. Allen, Chief ^{HA}
Emergency Response Section (SFD-9-2)

TO: Enrique Manzanilla, Director
Superfund Division (SFD-9)

I. PURPOSE

The purpose of this memorandum is to request a ceiling increase of \$2,481,000 direct extramural costs to continue response actions to mitigate threats to human health and the environment posed by the presence of lead and arsenic in soil at the Iron King Mine-Humboldt Smelter Superfund Site (the "Site"), located in Dewey-Humboldt, AZ. Approval of this request will bring the total removal action ceiling to \$4,425,000.¹

The United States Environmental Protection Agency ("EPA") previously approved the response action in the July 26, 2011 Request for a Time-Critical Removal Action at Iron King Mine-Humboldt Smelter Site (the "Action Memorandum") and a subsequent Request for a 12-month Exemption, included as Attachment C of this memorandum. The time-critical removal action is being taken pursuant to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"); 42 U.S.C. §

¹ "Removal Action Ceiling Costs," as defined by EPA's Action Memorandum Guidance (September 2009), includes only direct extramural costs. As discussed in this memorandum, additional costs may be incurred and recoverable as "incurred response costs."

9604(a)(1), to mitigate threats to human health and the environment specifically at residential properties within the Site boundary. The required exemption to spend more than \$2 million is justifiable under the criteria of 40 C.F.R. § 300.415(b)(5)(i), which allows for an exemption from the statutory limitation on response costs when: 1) there is an immediate risk to public health or welfare or the environment; 2) continued response actions are immediately required to prevent, limit, or mitigate an emergency; and 3) such assistance will not otherwise be provided on a timely basis.

As explained below, the additional funding requested in this memorandum is necessary for cleanup costs at residential properties that were not remediated during the initial removal action as they were only assessed later during the Remedial Investigation of the Site.

II. SITE CONDITIONS AND BACKGROUND

Site Status: Non-NPL
Category of Removal: Time-Critical
CERCLIS ID: AZ0000309013
SITE ID: 09MX

The Iron King Mine-Humboldt Smelter Superfund Site (Site) is located in Dewey-Humboldt, Yavapai County, Arizona. The Site description and characteristics are summarized in the previous Action Memorandum. To synopsise, Site features include the Iron King Mine and vicinity, the Humboldt Smelter, impacted surface waterways and residential properties. This Action Memorandum Amendment will address threats to human health and the environment from soils with elevated levels of arsenic and lead on residential properties only.

Previous removal actions took place at the Site in 2006 and again in 2011, each focusing predominantly on residential properties. In 2006, Emergency Response Section (ERS) conducted sampling at 17 residential properties in the vicinity of the Chaparral Gulch and directed excavation of contaminated soils from 4 of these properties under an enforcement agreement with the Ironite Products Company. In 2011, ERS conducted removal actions at 11 additional residential properties in the vicinity of Sweet Pea Lane. These properties were located within the alignment of the smelter and ore cart conveyance rail tracks. Also in 2011, one distinct tailings pile, located on the former Iron King Mine property but adjacent to one residential property, was removed. Excavated soils from each of these actions were placed adjacent to the existing large tailings pile at the Iron King Mine.

At the time of the 2011 Action Memo, EPA had assessed approximately 190 residential yards. Further Remedial Investigation activities at the Site took place in multiple phases between 2012 and 2016. In 2016, EPA completed the Remedial Investigation at the Site, after sampling an additional 190 residential and commercial properties, bringing the total to approximately 380. Most of the additional 190 properties were residential. During

this time, EPA also completed a full Site-specific risk assessment including a Site-specific bioavailability determination in order to refine removal action Site cleanup goals.

The proposed Removal Action Levels (RALs) for this action are 400 mg/kg lead and 144 mg/kg (or 5×10^{-5} cancer risk) for arsenic. The lead RAL is selected based on the National lead policy memorandum which outlines selection of a lead Removal Management Level². The arsenic RAL was determined by a Site-specific bioavailability determination. For the purpose of planning the proposed removal action, we have identified a "Tier 1" property threshold of 800 mg/kg lead or 288 mg/kg (or 1×10^{-4} cancer risk) for arsenic, equivalent to twice the RAL value for these contaminants. We will address these properties first. Depending upon available time and resources, the proposed action will also include all residential yards that fall within Tier 2, or have concentrations less than the Tier 1 threshold but greater than the RALs (i.e., 400 mg/kg lead or 144 mg/kg for arsenic).

Among the additional 190 residential properties sampled, approximately 35 additional residential yards³ have been identified with contamination that poses an unacceptable threat to human health for residents living at those properties, especially children. Lead at concentrations up to 20,500 mg/kg and arsenic at levels up to 1,630 mg/kg are present at some of these properties. These additional properties had not yet been sampled at the time of the previous Action Memorandum. These 35 residential yards represent the basis for the continuation of the response action under the exemption.

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

Conditions at the Site represent a release, or a substantial threat of a release of a CERCLA hazardous substance to public health, welfare, or the environment based on the factors set forth in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR § 300.415(b)(2). Specific factors of the release, including the potential exposure of hazardous substances to populations, animals or the food chain are addressed in the previous Action Memorandum. This Action Memorandum, if approved, will allow EPA to complete response actions at approximately 35 additional residential properties.

IV. ENDANGERMENT DETERMINATION

The 2011 Action Memorandum discusses threats to human health posed by high concentrations of lead and arsenic in residential soils. See Section IV of the 2011 Action Memorandum. EPA has previously determined that these hazardous substances pose a threat

² National memorandum from: Mathy Stanislaus, AA, OLEM, to EPA Regional Administrators, I-IX, Subject: Updated Scientific Considerations to Lead in Soil Cleanups. The document directs the Regions to "continue to use Superfund Removal Authorities to address imminent risks associated with high levels of soil lead contamination" suggesting that an action level of 400 mg/kg is an appropriate "Removal Management Level."

³ Currently we are anticipating cleanup of approximately 35 properties including all Tier 1 and Tier 2 residential yards, but the exact number depends on available time and resources, obtaining access agreements, follow-on sampling and possibly other factors to be determined. Changes to the estimated number of yards will be captured in periodic "sitreps" and in the final report for the removal action.

of release and an imminent and substantial endangerment to the public health or welfare or the environment. This Action Memo documents the need to address approximately 35 additional residential properties identified through investigative activities that have taken place since the time of the previous Action Memo.

V. EXEMPTION FROM STATUTORY LIMITS

EPA anticipates that the proposed removal action will cost in excess of \$2,000,000. Subject to exceptions, 42 U.S.C. § 9604(c)(1) limits the cost of a removal action to \$2,000,000. Pursuant to EPA Delegations 14-2 and R9 1290.03A, the Regional Administrator is authorized to determine whether an exception from this statutory limitation is warranted, so long as the total response costs do not exceed \$6,000,000. The total response costs for response actions proposed in this memorandum would not exceed \$6,000,000.

EPA response staff believe that an exemption from the \$2,000,000 limitation is justifiable under 40 C.F.R. § 300.415(b)(5)(i), which provides that the exemption is appropriate when: 1) there is an immediate risk to public health or welfare or the environment; 2) the response actions are immediately required to prevent, limit, or mitigate an emergency; and, 3) such assistance will not otherwise be provided on a timely basis. As stated in this memorandum, there is an immediate risk posed by the conditions at the Site and an emergency exemption to the \$2 million statutory limit is necessary to abate these threats. Each of these criteria is addressed below.

1. There is an Immediate Risk to Public Health or Welfare or the Environment

Residential soils within the Site boundary contain high levels of arsenic and lead, which are hazardous substances. Persons occupying these residences are at risk of being exposed to high levels of arsenic and lead in surface soils.

2. Continued Response Actions are Immediately Required to Prevent, Limit or Mitigate an Emergency.

The removal of the lead and arsenic containing soils from the residential properties is necessary to prevent further exposure to the public due to contact with arsenic and lead in residential soils.

3. Assistance will not otherwise be provided on a timely basis.

State and local resources are not able to address the conditions at the Site in a timely manner. Unless EPA conducts the response anticipated in this memorandum, it appears that assistance will not otherwise be provided on a timely basis.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

In the initial Action Memorandum, EPA identified initial Removal Action Levels of 165 ppm arsenic and 512 ppm lead. These initial Removal Action Levels were intended to identify only the most contaminated residential properties requiring immediate cleanup. At that time, EPA identified 11 residential properties that had soil contamination in excess of the initial Removal Action Levels.

As described above the proposed RALs for this action are 400 mg/kg lead and 144 mg/kg (or 5×10^{-5} cancer risk) for arsenic. The Tier 1 residential yard threshold is 800 mg/kg lead or 288 mg/kg (or 1×10^{-4} cancer risk) for arsenic, equivalent to twice the RALs for these contaminants. Approximately 25 yards fall into the Tier 1 category and approximately 10 yards are considered Tier 2 properties. Depending upon available time a resources, the proposed action may include residential yards in both Tier 1 and Tier 2. In sum, it is anticipated that up to 35 properties will require cleanup in the proposed removal action. Lead and arsenic concentrations in soil are identified in Results Summary Table (Attachment 1). It is anticipated that additional properties may also be identified as the work is performed. This may require incremental funding, particularly if the approved contingency will be sufficient to remediate the remaining Tier 2 properties.

The work to be performed at each property will be similar to the work performed during the initial removal action and will include the following:

- Obtain removal access agreements from each property owner.
- Document existing physical conditions of each parcel (initial survey) and develop specific restoration plans.
- Excavate surface soils in the designated areas of each parcel in a one-foot lift. Excavation may be extended to a maximum of two feet below ground surface if arsenic and lead concentrations remain above established background concentrations at the one-foot excavation face. Confirmation sampling and analysis will be performed in stages for each parcel subject to the removal.
- Transport excavated soils to the Iron King Mine property for use as a dust suppressant base in select areas on the main tailings pile and/or consolidate to designated repository.
- After excavation of properties where full excavation to depth has been performed, the excavated area will be backfilled with clean fill and compacted.
- Restore excavation areas such that the impacted areas of each parcel result in surface conditions that are equivalent to, or improved from, the original property characteristics.

All activities will be performed in conformance with prescribed health and safety procedures. All sampling and analysis activities (removal confirmation and backfill soil certification) will conform to EPA approved methodologies and mandatory specifications for quality assurance and quality control and will be documented in an approved SAP. All excavated residential soils will be consolidated and stabilized on-Site within the Iron King Mine property.

B. Estimated Costs with Ceiling Increase

	Original Cost	Additional Costs	Total Costs
<u>Extramural Costs from the Regional Allowance</u>			
Cleanup Contractor	1,450,000	1,968,000	3,418,000
<u>Extramural Costs not from the Regional Allowance</u>			
START/SERAS	170,000	100,000	270,000
Pacific Strike Team	0	0	0
20% Contingency	324,000	413,000	737,000
Total Extramural Removal Ceiling	\$1,944,000	\$2,481,000	\$4,425,000

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

If the ceiling increase requested in this memorandum is not granted, the response action for the cleanup of approximately 35 residential properties would not be completed in a timely manner. Accordingly, the threats of exposure to high concentrations of lead and arsenic in residential soils, documented here and in the previous Action Memorandum, will continue to be unabated.

VIII. OUTSTANDING POLICY ISSUES

At this time, there are no identified outstanding policy issues with the Site.

IX. ENFORCEMENT

Please see the Enforcement Confidential Addendum attached to the Action Memorandum and an updated Enforcement Confidential Addendum attached to this document as Attachment A for a discussion regarding potentially responsible parties and anticipated enforcement. In addition to the extramural costs estimated for the proposed action, a cost recovery enforcement action also may recover the following intramural costs:

<u>Intramural Costs</u>	<u>Original Cost</u>	<u>Additional Costs</u>	<u>Total Costs</u>
U.S. EPA Direct Costs ⁴	60,000	90,000	150,000
U.S. EPA Indirect Costs (53.51% of \$2,481,000 + 90,000 Add'l cost)	956,108	1,375,742	2,331,850
Total Intramural Cost	<u>\$1,016,108</u>	<u>\$1,465,742</u>	<u>\$2,481,850</u>

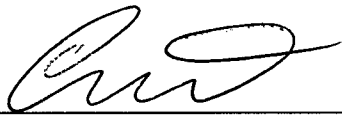
The total EPA extramural and intramural costs for this removal action that will be eligible for cost recovery, based on full-cost accounting practices, are estimated to be \$6,906,850. Of this, an additional \$2,481,000 comes from the Regional removal allowance.

[Recommendation and signature on following page.]

⁴ Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of Site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

X. RECOMMENDATION

This decision document would commit additional funding to complete at additional properties the response determined necessary in the 2011 Action Memorandum for the Iron King Mine Site. The Administrative Record for the Site includes information supporting this decision. If you approve of this action, please indicate your decision by signing below. This document requests authorization for an additional \$2,481,000 in extramural funding. The total removal project ceiling, if approved, will be \$4,425,000 which comes from the Regional removal allowance.

Approve:  1/24/17
Enrique Manzanilla, Director Date
Superfund Division

Disapprove: _____
Enrique Manzanilla, Director Date
Superfund Division

Attachment A:
Enforcement Confidential Addendum

Attachment B:
Index to the Administrative Record

Attachment C:
Request for a Time Critical Removal Action and Request for a 12-Month Exemption for the Iron King Mine-Humboldt Smelter Superfund Site

cc: Jean Schumann, U.S. EPA, OEM, HQ

bcc: Site File
Sarah Mueller, ORC-3
Martin Powell, SFD-9-2
Craig Benson, SFD-9-2
Celeste Temple, SFD-9-4
Barbara Lee, SFD-9-4

ATTACHMENT 1
Residential Soil Data from Selected Properties

Yard ID	Parcel Number	Property Address	Grp	Arsenic EPC (mg/kg)	Arsenic Maximum Detection (mg/kg)	Incremental Excess Cancer Risk	Lead EPC (mg/kg)	Lead Maximum Detection (mg/kg)	Non-cancer Hazard Index	Observations
116	402-07-017H	2840 S DANA ST	1A	393	677	2E-04	135	201	1	--
120	402-07-017G	2832 S DANA ST	1A	27	47	---	13,331	18,100	2	Localized hot spot in southwest corner is likely due to placement during a historical operation
157	402-08-017B 402-08-018U	2560 S COLINA LN S PARKER ST	1A	538	538	3E-04	138	208	2	
162	402-06-070	13029 E PHOENIX ST	1A	102	176	3E-05	1,350	1,350	---	
222	402-10-005A	2820 S HECLA ST	1A	83	216	2E-05	2,849	9,150	----	Elevated lead observed along western boundary of the property, closest to the historic Smelter Spur rail alignment and loading area.
229 and 36W	402-07-041	13336 E WELLS ST	1A	217	905	9E-05	915	3,330	----	Small pile (approximately 8 inches high) of fine-grained grayish soil (or powder) on southern boundary of property high in arsenic and lead.
232	402-10-008A	12908 E MAIN ST	1A	28	28	---	2,833	7,310	----	Adjacent to historic Smelter Spur rail alignment and loading and unloading area.

247	402-06-074E	13032 E PRESCOTT ST	1A	435	785	2E-04	544	1,170	----	Maximum concentrations of lead and arsenic are associated with an estimated 5 ft diameter area of yellow-orange tailings near Prescott Street.
246 and 30W	402-07-042 402-07-042A	13318 E WELLS ST 13330 E WELLS ST	1A	229	1,630	1E-04	426	2,120	----	Elevated levels of lead and arsenic were detected along the northern boundary of the property, adjacent to Yard 229/36W.
2328	402-09-023F	2535 S HURON ST	1A	303	571	1E-04	215	412	----	One hot spot is located near the front door that is approximately 3 feet by 2 feet in size and resembles silt or fine sands from storm water runoff.
2393	402-08-032C	2555 S STATE ROUTE 69	1A	519	1,470	2E-04	4,714	13,600	----	Property has an automotive repair shop, bar, and small apartment. Some residents also indicated it was the location of a former gas station. Elevated concentrations and sampling indicate high arsenic and lead in mining-related fill on the north side of the property.
2406	402-10-074C	E PRESCOTT ST	1A	263	593	1E-04	7,126	8,990	----	Within the historic Smelter Spur rail alignment and loading and unloading area. Yard 2406 appears to be the northernmost property impacted by rail operations.

						12					
2408	402-10-074D	E PRESCOTT ST	1A	117	254	4E-05	953	2,460	----	Within the historic Smelter Spur rail alignment and loading and unloading area.	
2410	402-06-102U	2852 S HECLA ST	1A	203	419	8E-05	1,543	3,030	----	Within the historic Smelter Spur rail alignment and loading and unloading area.	
2426	402-10-017	12913 E MAIN ST	1A	312	397	1E-04	123	304	--		
2530	402-06-063 402-06-062	13023 E SWENSONS ALLEY 2671 S HECLA ST	1A	65	130	1E-05	2,816	7,420		Adjacent to Yard 2529.	
2602	402-07-083A	13095 E PRESCOTT ST	1A	442	863	2E-04	18,699	20,500	----	Stockpile of scrap metal, solder, wires, and other metal materials. Evidence of a fire was observed.	
2615	402-07-023B	S BUTTE ST	1A	778	1,110	4E-04	57	128	2	Elevated arsenic is added to by fill material from local quarry	
2719	402-07-055A	2724 S JONES ST	1A	299	601	1E-04	8,527	10,500		Piles of fill material present at the property.	
Grp D Hotspot			1A			2E-05	3,048			Hotspot due to tailings berm in yard	
108	402-06-028S	2877 S AZURITE ST	1B	116	346	4E-05	419	1,430	---	Adjacent to and downwind of former Pyrometallurgical Operations area.	
138B	402-07-028D	2827 S CALUMET ST	1B	81	241	2E-05	408	1,880	---	Adjacent to historic Smelter Spur rail alignment and loading and unloading area.	
153	402-10-023	12838 E CHAPARRAL ST	1B	34	58	---	594	1,020	---		

182	402-07-081A	13065 E PRESCOTT ST	1B	47	84	---	660	1,250	---	Property is the location of a commercial automotive repair shop.
2409	402-06-102R	E PRESCOTT ST	1B	135	256	5E-05	725	1,790	----	Within the historic Smelter Spur rail alignment and loading and unloading area.
2529	402-06-064A	13030 E PHOENIX ST	1B	52	106	5E-06	676	2,240	----	Field observations indicated a previous house fire occurred at this property.
105B	402-06-028J	2875 S AZURITE ST	2A	74	93	2E-05	698		---	Adjacent to and downwind of former Pyrometallurgical Operations area.
141	402-07-031A	2790 S CALUMET ST	2A	64	115	1E-05	414	746	---	
164	402-08-043	2699 S HILL ST	2A	92	191	3E-05	547	1,120	---	
176	402-10-028A	12972 E MAIN ST	2A	60	106	9E-06	503	760	---	Adjacent to historic Smelter Spur rail alignment and loading and unloading area.
181	402-07-084A	2770 S BUTTE ST	2B	113	300	---	367	1,140	---	
227 and 70J	402-07-052M 402-07-061B	2660 S JONES ST 2670 S JONES ST	2B	138	667	---	300	1,270	---	
107B	402-06-028R	13325 E PRESCOTT ST	3	127	377	---	335	785	---	Adjacent to and downwind of former Pyrometallurgical Operations area.
109	402-06-028U	E PRESCOTT ST	3	174	236	---	393	996	---	Adjacent to and downwind of former Pyrometallurgical Operations area.

143	402-07-001 402-10-039	2893 S THIRD ST 2913 S THIRD ST	3	77	146	---	372	777	---	Adjacent to historic Smelter Spur rail alignment and loading and unloading area.
233	402-10-040	2931 S THIRD ST	3	58	152	---	385	949	---	West side of Third Street at corner with Main, close to former rail loading area
203B	402-06-028M	13425 E PRESCOTT ST	3	119	191	---	323	678	---	Adjacent to and downwind of former Pyrometallurgical Operations area.

