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279689

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ADMINISTRATIVE RECORD

Ref: 8EPR-SR

ACTION MEMORANDUM

SUBJECT: ACTION MEMORANDUM/ENFORCEMENT, Request for Removal Action at Smeltertown Smelter Subsite (Operable Unit #1), Salida, Chaffee County, Colorado

FROM: Gwendolyn Hooten, RPM
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Category of Removal: Non-time Critical Removal Action, Proposed NPL, Fund-Lead.

Site ID #: J6

3/10/99

AR
Site
Post-Decision Public Document
Privileged/Claim
FOIA Exempt/Claim
Work Performed Document
Contract #
File Plan # 2.08.01
Keyword #(s) 13.03

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I. PURPOSE

The purpose of this Action Memorandum is to request and document approval and concurrence of the proposed Non-time Critical Removal Action described herein for the Smeltertown Smelter Subsite (Operable Unit #1), Salida, Chaffee County, Colorado (Site).

This Non-time Critical Removal Action will address the hazardous substances from the smelter operations at the Smeltertown site (SMT). The Site meets the criteria for initiating this Non-time Critical Removal Action under 40 CFR Section 300.415(b)(2) and (4) of the National Contingency Plan (NCP).

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal site evaluation

The CERCLIS ID number for SMT is COD983769738. Site conditions are such that this Removal Action is classified as a Non-Time Critical Removal.

SMT was proposed for inclusion on the National Priorities List (NPL) in February 1992. The United States Environmental Protection Agency (EPA) has not taken any final action at this time to include SMT on the NPL. SMT is a conglomeration of several separate historical and operating industrial facilities, and encompasses an area of approximately 125 acres near Salida, Colorado(see Figure 1). SMT has three designated operable units (OUs) consisting of past smelter operations (OU #1), past wood treating operations (OU #2), and current zinc sulfate monohydrate manufacturing operations (OU #3). Figure 2 depicts the areal extents of the OUs. These OUs were established based on historic property ownership.

The primary activities and affected areas of concern addressed by this Action Memorandum are from the former operations of Ohio and Colorado Smelting and Refining Company (Ohio) on the smelter subsite (OU #1), which consists of the property in the immediate vicinity of the historic smelting stack, including the property now owned by E&R Trucking Incorporated (E&R) and portions of the former Koppers Company Incorporated (Koppers) property. Wastes generated on the Site from the smelting operation include soils contaminated with a wide array of metals. Many of the original contamination sources have been removed from the Site. However, contamination from these sources remain on the Site.

The historic smelting operations are fully described in

subparagraph 3 of this section.

A portion of the SMT located to the west of the prior smelter operations, was used by a series of wood treating companies beginning in 1924 and ending in 1953 when the plant was closed. Railroad ties and other lumber products were treated with creosote and possibly pentachlorophenol (PCP). There is some creosote contaminants comingled with the smelter waste. The most recent wood treatment operation at SMT was owned and operated by Koppers. In 1962, Koppers sold the property to the H.E. Lowdermilk Company (Lowdermilk). The former Koppers property, approximately 80 acres, was purchased from Lowdermilk by Butala Construction Company (Butala Construction), a gravel mining and processing company that continues to operate a gravel quarry on SMT. The former Koppers property adjoins other property owned by Butala Construction to the south where active gravel mining activity occurs. SMT has been cleared of most remnants of past activity. The only structures remaining are the plant office building and a water storage tank, both on the upper terrace. Butala Construction uses portions of the former Koppers property for stockpiling of sand, gravel, and other materials.

In 1989, the name of Koppers Company, Inc., was changed to Beazer Materials and Services, Inc., and was subsequently changed again in 1990 to Beazer East, Inc. (Beazer).

In 1986, Butala Construction scraped stained soil from about a seven-acre area where railroad ties, treated with creosote, were stacked and allowed to drip dry. The scraped soil was placed in a soil pile on the west end of the upper terrace on the former Koppers property. Butala Construction trucked hundreds of tons (approximately 200 truck loads, 2 1/2 tons each) of the creosote-contaminated soils to the Chaffee County Subtitle D landfill. In 1992, an additional 250 tractor trailer loads of creosote-stained soils were removed from the SMT Site by Beazer, and deposited in a Subtitle C landfill in Granville, Idaho.

Butala Construction was apparently unaware of the hazardous nature of the contaminated soil when it attempted to expand its gravel sorting and storage facilities in 1986. In March 1986, State and County authorities discovered that the creosote-stained soils were being trucked to the landfill from the former Koppers facility by Butala Construction, and ordered the company to cease this operation. Following this discovery by the State and County authorities, a field sampling investigation was carried out at SMT and at the

landfill by EPA's Technical Assistance Team (TAT).

2. Physical Location

SMT is located in Chaffee County, Colorado, about 1 mile northwest of the City of Salida in Section 25 of Township 50 North, Range 8 East (Figure 1). SMT is bounded on the north by County Road 150, the east by State Highway 291, and the south and west by the Arkansas River. SMT covers about 125 acres. Figure 2 depicts the operable units.

SMT is surrounded by residences and a variety of industries operate on or adjacent to SMT. Colorado-Ute Electric Association operates a substation located approximately midway along the northern border of SMT. Butala Construction is actively quarrying gravel from the valley fill in the west and northwest portion of SMT. E&R, which is currently not active, occupied part of the smelter subsite. E&R was a hauling operation which used the property as a staging area for semi-trailers. A peat moss packaging facility, which uses peat hauled in from elsewhere, is located southwest of the zinc facility operated by CoZinCo Incorporated (CoZinCo). Salida Auto Salvage operates a facility open to the public south of CoZinCo. There are two residential properties, the Kimmett family residence and the Graff rental properties. As of the spring of 1996, occupants of the Graff rental properties have been evicted by Poncha Development Company, the new property owner.

SMT is generally zoned industrial. However, industrial zoning does not appear to be strictly enforced, as evidenced by the continued approval for construction of new homes in the area.

Land use in the general area of SMT consists of the following:

- Residential;
- Industrial operations (CoZinCo);
- Quarrying and rock-crushing related activities (Butala Construction);
- Commercial activities, such as river rafting, a bed and breakfast, an automobile salvage yard, and a peat moss packaging and sales company;
- Public use (fish hatchery);
- Recreational use (fishing);
- Agricultural use, such as fields, livestock, horse farms; and,
- A utility company (Colorado-Ute Electric Association, which operates a substation immediately north of

SMT).

Although SMT is largely industrial in character, there are approximately 50 homes located in the southern and eastern portions of SMT. These include private homes and at least three mobile homes. Much of SMT is readily accessible to the public. The Agency for Toxic Substances and Disease Registry (ATSDR) staff observed that there was little evidence of small children in the immediate area. This observation was supported by community resident statements during the "public availability session" held during an SMT visit. According to a census conducted in 1990, the town of Salida had a population of about 4,700 people. The block group in the census tract encompassing SMT had a 1990 population of 332 people. It should be noted, however, that this block group comprises an area much larger than SMT; it is estimated that about one third of the block group's population resides in the immediate SMT vicinity. Approximately 5,200 people live within four miles of SMT, and about 200 people live within one mile of SMT.

The chief topographic features of the area are two parallel, northwest trending mountain ranges that border the Arkansas River Valley. The Sawatch Range rises to over 14,000 feet in elevation and borders the western margin of the Valley. The Mosquito Range rises to over 10,000 feet in elevation and borders the eastern margin of the Valley.

SMT is located in the broad valley of the Arkansas River, which is deeply incised in the immediate vicinity of the study area. The land surface on both sides of the River is relatively flat. Steep slopes in the immediate vicinity are limited to the area where the first level terrace rises out of the Arkansas River floodplain at an elevation of approximately 7,120 feet above mean sea level (MSL), and where a second level terrace rises above the first level terrace. SMT lies primarily on the first terrace above the Arkansas River, although some of the affected seeps/springs are located on the Arkansas River floodplain. An interesting topographic feature in SMT vicinity is the lack of surficial erosion features (rills and gullies) although the Arkansas River itself is deeply incised.

SMT is located in the Sand Parks portion of the Arkansas River Valley. This is approximately 70 river miles downstream from the headwaters of the Arkansas River near Leadville, Colorado. Salida is located at the southern end of a 200-square-mile topographic basin, which is surrounded by a series of mountain ranges. The topographic basin is structurally controlled and is part

of the Arkansas Valley Graben, generally thought to be a northern extension of the Rio Grande rift system. The graben formed during the late Tertiary extensional block-faulting. The eastern bounding faults of the graben are exposed within 2 miles of SMT to reveal echelon faults, downward into the valley. The western bounding faults are covered by Tertiary and Quaternary valley fill.

The geology of the basin in the Salida area includes a series of nine alpine glacial and glacial outwash deposits and some river alluvium. Glacial and river deposits are likely hydraulically connected with one another. Drilling logs from subsurface investigations around SMT have shown that the surficial geology consists mostly of fine to coarse grained alluvium, and poorly sorted glacial cobbly gravels and sandy gravels with some boulders. Occasional channels of coarse sand to silt were observed during drilling and seen in outcrops within SMT. The Sand Park formation is partly covered by associated eolian sands; however, eolian deposits have not been encountered during drilling within SMT.

Bedrock in the vicinity of SMT is the clay, silt, sand, ash, and gravel of the Tertiary Dry Union Formation. The top of the Dry Union Formation can be up to 1,000 feet deep in some parts of the basin, but is probably 100 to 200 feet deep in the vicinity of SMT. Depth to bedrock estimates are unpredictable because few wells have been drilled to bedrock. No drilling to bedrock has taken place at SMT.

The three primary sources of ground water recharge for the basin are as follows:

- Surface runoff from surrounding mountains that infiltrates into the unconsolidated aquifers as the streams flow from the mountains and across the unconsolidated rocks;

- Flow from consolidated rock aquifers that exist in the surrounding mountains laterally into the unconsolidated aquifers; and,

- Precipitation that infiltrates into the unconsolidated alluvial deposits.

Discharge from the basin occurs as discharge to the surface water system, as evapotranspiration losses, or as underflow into adjoining aquifers. The total storage in the upper 200 feet of saturated material in the basin is estimated to be approximately 3.8 million acre-feet.

Ground water in the Arkansas Valley moves from the sides

of the valley toward the River in a downstream direction. This is consistent with the shallow ground water found at SMT. Data from previous reports indicate ground water flows to the south and southwest from SMT towards the Arkansas River. The ground water flows under SMT and discharge is released to the River and to the surface in a series of seeps/springs near the River. There is evidence to indicate that irrigation of the upland hay meadows also contributes to local recharge of the aquifer during summer months. An irrigation canal that is north of SMT and generally runs east-west is suspected of having significant control on the hydraulic characteristics of SMT. Additionally, a perched zone has been identified beneath the historic wood treating subsite. Well logs from SMT and vicinity indicate that the water level is 15 to 40 feet below ground surface (bgs), but levels have been reported to be as shallow as 10 feet bgs during high water. Previous SMT studies have estimated well yield to be 0.75 to more than 3.0 gallons per minute (gpm).

The principal surface water body in SMT vicinity is the Arkansas River. The River flows southeast to a point just south of the CoZinCo subsite, then turns due east. A State fish hatchery is located across the River from SMT, and a gauging station is located about 300 feet downstream. Based on flow records collected during the period from October 1909, through September 1980, the average annual discharge at the Salida Station is 634 cubic feet per second (cfs).

On the southern edge of the Site along the River, there are a number of seeps/springs that surface just above the River level and flow into the River. Flow rates vary seasonally and several of the larger springs supply water to private residences along the River.

3. Historic and Current Operations

Ohio initiated operations of the smelter in 1902. During its first year of operation, the smelter purchased and processed ore to produce gold, silver, lead, and copper. In 1904, ore processing averaged about 1,000 tons per day versus the smelter capacity of 1,200 tons per day. Production increased over time. Smelter operations from 1902 through 1917 included a number of structures and processes. Most notable included the two stacks in use prior to the existing stack structure, ore storage areas, a slag pile, and a cinder pile.

Prior to construction of the existing stack structure in 1917, the smelter relied on two smaller stacks, 150 and 85 feet tall, respectively. Literature reports indicate

the downwind impacts from smelter emissions included vegetation destruction east of SMT on the Mosquito Mountains. Downwind ranchers and residents also complained of animal mortality and crop destruction. Ohio began purchasing pollution permits from nearby ranchers and residents in 1915, which allowed the smelter to continue releases from SMT, including from the stacks. Construction on the existing stack began in early 1917 and was completed in November of that year. The smelter continued operation until 1919, when financial problems forced the smelter to cease operation. The smelter was sold at an auction in 1920; the buyer stripped the facility of machinery, salvage, and brick. Following the auction, part of the 80-acre facility and the remaining buildings were leased to Trinchera Timber Company in 1924. Trinchera Timber Company later became National Lumber and Creosoting.

During the smelter operation, molten slag was disposed of along the northern bank of the Arkansas River, west of the smelter stack. Cinder material was also disposed of along the northern bank of the Arkansas River directly south of the smelter stack. These features are still evident at SMT. The ore storage areas were reportedly north of the smelter facility. The existing 365-foot smelter stack, constructed in 1917, was placed on the National Register of Historic Places in 1976. The remaining portion of the historic smelting site was purchased by E&R, a tractor-trailer freight company, in 1985.

The CoZinCo facility has been in operation since 1977 at its current location. The CoZinCo facility is presently used to manufacture a zinc sulfate soil amendment. Zinc sulfate monohydrate is produced at the facility by treating galvanized zinc wastes with sulfuric acid. The facility is currently under a Resource Conservation and Recovery Act (RCRA) order issued by the Colorado Department of Public Health and Environment (CDPHE) to monitor and mitigate releases from the operating units at the facility. A number of source areas at the facility have been closed under RCRA orders.

4. Site Characteristics

As mentioned earlier, SMT is generally distinguished by three areas of concern, or subsites: the historic smelting operation, the historic wood treating operation, and the presently operating CoZinCo facility. This non-time critical removal action describes a strategy to address contamination from primarily the historic smelting operation (smelter subsite, OU #1), creosote contaminants that are commingled with the smelter waste,

and the metals contamination in the areal extent of the historic wood treating operation (wood treating subsite,OU #2).

The historic smelting and wood treating operations and current CoZinco operations are discussed in II.A..

Wastes generated on SMT in past operations included smelter slags, soils contaminated with creosote drippings, other contaminated soils, process water holding ponds, and associated sludges, spilled ores, and combined soils and sludges.

5. Release or Threatened Release into Environment of a Hazardous Substance, or Pollutant or Contaminant

This Action Memorandum only discusses the waste from the smelter subsite (OU #1), the creosote waste mixed with the smelter waste in the existing waste pile and the metals in the soils within the areal extent of the historic wood treating subsite that were most likely generated from the smelter subsite (OU #1).

Surface soil metals concentrations are highest at the smelter subsite and decrease downwind of the smelter, as was anticipated based on historic smelter operations.

Surface soil PAH concentrations appear to be related to the roads at the smelter subsite rather than to historic smelter subsite activities.

On-site and downwind surface soil samples for the metals of concern exceed the background concentrations at the smelter subsite.

Subsurface soil metals and PAH concentrations appear to be related to very localized historic activities.

Based on the results collected by the EPA Environmental Response Team (ERT), the slag and cinders do not pose an immediate threat to human health and the environment at SMT as contaminants are not leaching from these materials at concentrations above regulatory levels that would classify the slag as a RCRA hazardous waste. It was noted during recent observations of the slag that weathering has created dust-like particulates that may pose an environmental risk. Additional sampling of the weathered slag will be conducted by EPA during the summer of 1996.

6. NPL Status

SMT was proposed for inclusion to the National Priorities

List (NPL) in February 1992. No final action has been taken by EPA at this time to include SMT on the NPL.

7. Maps, Pictures, and Other Graphic Representations

The following are attached: SMT Location Map Superfund Site (Figure 1), Smeltertown Superfund Site and Subsites (Figure 2), Smeltertown Site - Smelter Subsite RI Surface Soils - Selected Metals Concentrations (Figure 3), Surface Soil Samples (mg/kg) Arsenic and Lead Concentrations in the Historic Wood Treating Subsite (Figure 4), Smeltertown Site - Excavation and Capping Areas (Figure 5) and Smeltertown Site - Cross-Section of Capped Area and Soil Cover Detail (Figure 6).

B. Other Actions

1. Previous Actions

A fund-lead classic emergency removal action (Removal Action #1) was initiated on May 26, 1993, to provide bottled water to five rental units due to zinc in the ground water beneath the CoZinCo subsite. The Action was completed on May 23, 1994.

EPA issued a unilateral administrative order (UAO) (Removal Action #2, CERCLA 94-09) on April 28, 1994, to CoZinCo for the purposes of taking over the actions described in Removal Action #1; however, violations of the UAO led EPA to take back the work. The effective duration of the UAO was May 24, 1994 to November 1, 1995.

Phase I of a time-critical removal action (Removal Action #3) was initiated on September 27, 1993, to remove the creosote-contaminated sludge from four residential driveways; lead-contaminated soil from five residential yards; a slag, cinder, and debris pile from one residential property; and metal-contaminated soil next to the smelter. The contaminated soils were stockpiled on SMT and has previously been referred to as the existing waste pile. Two homes were decontaminated from lead and arsenic dust.

Phase II of a time-critical removal action (Removal Action #3) continued the actions initiated under Phase I. These actions included constructing a fence around the stockpiled waste pile on-site; reapplying a dust suppression polymer to the on-site waste pile; removing creosote-contaminated sludge from one more residential property; decontaminating rails removed and stockpiled by the landowner near a residence; removing the surface lead and creosote contamination on the upper terrace of SMT; and removing the mixture of cinder (high lead content)

and creosote-contaminated material that was located on the banks of the Arkansas River. Phase II was completed on November 1, 1995.

To assist in the activities of Removal Action #3, EPA signed an Administrative Order on Consent (AOC) (CERCLA 95-08) (Removal Action #4) with Butala Construction signed on January 10, 1995, to provide in-kind services. Butala provided equipment and personnel to assist in the excavation and stockpiling on-site of contaminated soils. Butala Construction's involvement began on February 27, 1995, and ended on June 8, 1995.

EPA initiated a fund-lead time-critical removal action (Removal Action #5) on November 1, 1995, to provide alternative water supplies to residences affected by the spread of zinc in the ground water from the CoZinCo facility. The action was completed February 8, 1996.

EPA conducted community interviews on September 1 -2, 1992. A Community Relations Plan was developed, based, in part, upon the results of the community interviews, and finalized on December 15, 1993. Several fact sheets have been published and distributed to the local area to inform the citizenry of EPA's activities at the Smeltertown Site.

EPA released a Cleanup Proposal, describing the results of the Engineering Evaluation/Cost Analysis (EE/CA) of the smelter subsite and EPA's preferred alternative, to the public in a fact sheet dated September 1995. Public comment period ended on October 5, 1995. This Action Memorandum describes EPA's selection of the response action for the smelter subsite, cresote contaminants within the existing on-site waste pile and soils contaminated with metals within the areal extent of the wood treating subsite. This Action Memorandum also includes a responsiveness summary to all public comments.

2. Current Actions

Beazer is conducting a remedial investigation/focused feasibility study (RI/FFS) of the wood treating subsite under an Administrative Order on Consent (AOC) with EPA (CERCLA-VIII-96-11) which became effective January 16, 1996. The study is expected to be completed by the end of 1996 and result in a proposal for addressing the wood treating contaminants within the soils and ground water.

As mentioned earlier, the CoZinCo facility is currently under a RCRA order issued by CDPHE to monitor and mitigate releases from the operating units at the facility. A number of source areas at the facility have

been closed under RCRA orders. The State is currently reviewing a Corrective Measures Plan to address the CoZinCo contaminants within the soils and ground water.

This Action Memorandum describes the removal activities which are to consolidate and cover currently exposed lead, arsenic, and creosote contaminated soils. This removal action requires institutional controls that protect the integrity of the containment system including limitations upon the use of the land identified with the soil cover and ground water beneath the soil cover. The response action allows for limited future commercial development of SMT.

C. State and Local Authorities' Role

1. State and Local Actions to Date

On September 1 - 2, 1992, representatives from the Colorado Department of Health (CDH) and Chaffee County accompanied representatives from Agency for Toxic Substances and Disease Registry (ATSDR), EPA's Office of Environmental Affairs (OEA) and RCRA, on a Site visit. The purpose of this Site visit was to gather pertinent environmental information concerning SMT, and to obtain citizen information regarding their concerns for health implications which might be related to SMT.

As mentioned earlier in this document, CoZinCo is currently under a State RCRA Compliance Order to investigate soil and water contamination on the property it owns, which is a part of SMT.

2. Potential for Continued State/Local Response

State/local authorities will be kept apprised of all actions, including removal actions at SMT. Their comments and on-site assistance will be welcomed. Neither the State nor the local authorities have the legal capability or resources to conduct a response action at this time.

III. Threats to Public Health or Welfare or the Environment, and Statutory and Regulatory Authorities

A. Threats to Public Health or Welfare

The conditions at SMT present an imminent and substantial endangerment to human health and the environment, and meet the criteria for initiating a removal action under 40 CFR Section 300.415 (b)(2) of the NCP. The following factors from Section 300.415 (b)(2) of the NCP form the basis for EPA's determination of the threats presented,

and the appropriate action to be taken:

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate; and,

(vii) The availability of other appropriate federal or state response mechanisms to respond to the release.

A SMT Human Health Baseline Risk Assessment (HHRA) dated April, 1995, was conducted to identify the potential for current and future risks to receptors based on the no-action scenario.

The HHRA did not evaluate the future worker scenario at the smelter subsite. However, cleanup goals have been developed based upon an industrial and occupational exposure. Soils that exceed the industrial worker scenario cleanup goals described in Section V will be addressed by the removal action detailed in this Action Memorandum.

Public access to the slag and/or cinder piles is restricted. At the present time, the slag and cinder matrix is of a size that is too large (i.e., particle size greater than 250 microns) to readily become ingested or adhere to the skin. Incidential ingestion of particles greater than 250 microns can occur, but is not expected to be significant. Future weathering could result in the release of smaller particles that are readily ingested.

This Action Memorandum describes actions to reduce and prevent exposure to the risks of future residents, industrial workers and trespassors from soils within the smelter subsite and the historic wood treating subsite through the use of institutional controls and engineering containment systems. The actions described in this Action Memorandum rely upon the future use of this property remaining industrial. The cleanup levels described in Section V below are a combination of applicable or relevant and appropriate requirements (ARARs) and health-based numbers for concentrations of contaminants deemed to be protective under an industrial scenario. These levels would not be protective for a resident thus it is imperative to the protectiveness of

this remedy that institutional controls be used to ensure that the land use remains industrial. This action does not address any of the risks posed by smelter subsite downwind soils. The RI/FFS being conducted by Beazer under an AOC with EPA will address actions, if any, regarding the exposure and associated risk from the pentachlorophenol detected in the ground water.

For the smelter subsite, the HHRA findings included the following:

- For the current, downwind resident, the geometric mean blood lead level for children 0 to 6 years of age was estimated at 4.3 ug/dL with 3 percent of the population exhibiting a blood lead level greater than 10 ug/dL. Lead in soil and dust for this area does not result in an unacceptable predicted blood lead concentration for children.

- For the potential future resident, the geometric mean blood lead level for children 0 to 6 years of age was estimated at 17.8 ug/dL with 86 percent of the exposed population exhibiting a blood lead level greater than 10 ug/dL due to lead in soil and dust. EPA recommends, as a goal, no more than 5 percent of the affected population of children should exhibit a blood lead level greater than 10 ug/dL.

- For the current trespass scenario, the estimated excess lifetime cancer risk could be as much as 5×10^{-6} based on incidental ingestion of surface soil and dermal absorption from direct contact with surface soil. The hazard index for this receptor is estimated at 0.19. Where the cumulative carcinogenic site risk to an individual based on reasonable maximum exposure for both current and future land use is less than 10^{-4}, and the non-carcinogenic hazard quotient is less than 1, action generally is not warranted unless there are adverse environmental impacts.

- For the current downwind resident scenario, the estimated excess lifetime cancer risk could be as much as 4×10^{-5} based on incidental ingestion of surface soil and inhalation of particulates from surface soil. The hazard index for this receptor is estimated at 0.46.

- For the potential future residential scenario, the estimated excess lifetime cancer risk could be as much as 6×10^{-4} based on: incidential ingestion of surface soil, inhalation of particulates from surface soil, dermal absorption from direct contact with surface soil, and ingestion of ground water from regional aquifer. The hazard index for this receptor is estimated at 3.2. This

scenario assumes the historic smelter subsite is developed for residential use sometime in the future.

In addition to lead, chemicals of potential concern (COPC) for the smelter subsite included: arsenic, polychlorinated biphenyls, pentachlorophenol, and cadmium. For the smelter subsite, pentachlorophenol was the only COPC for ground water. Pentachlorophenol was detected once out of three samples collected from monitoring wells associated with the smelter subsite.

B. Threats to the Environment

A quantitative evaluation of risk to the terrestrial and aquatic ecology within SMT was conducted in accordance with EPA guidance. The ecological risk assessment (ERA) dated April, 1995, was prepared in order to meet the applicable regulatory requirements and provide the information needed to evaluate whether remedial action is warranted at the Site, based on actual or potential ecological risks.

The ERA addresses and quantifies, where possible, the effects to the biotic environment caused by exposure to contaminants from the Site. The ERA was conducted as part of the SMT RI process to evaluate if the contaminants of concern (COCs) from SMT pose a risk to the environment in the absence of remedial action.

The ERA was conducted for the segment of the Arkansas River that spans the length of the Site or SMT, as well as for the immediately surrounding riparian, wetland and terrestrial environments. The riparian area was emphasized since it provides the most suitable habitat for terrestrial organism occurrence. An evaluation of the smelter subsite, smelter subsite downwind soils area, and the historical wood treating subsite was also conducted as a future exposure area for terrestrial organisms.

A "site-wide" ERA was conducted since the aquatic and terrestrial habitat areas overlap operable unit boundaries, and thereby allow receptors to potentially become exposed to Site-related contamination from all contaminant sources. Each media type (surface soil, surface water, sediment and seep/spring water) was addressed as a potential exposure media. Specifically, the ERA evaluated the potential impact of surface soil (from the riparian area, smelter subsite downwind area, and the historical wood treating subsite), surface water and seep/spring contaminant exposure to terrestrial life. An evaluation of surface water and sediment, as well as confluence areas between seep/springs to the Arkansas

River, was conducted for aquatic organisms.

Direct ingestion of soil was evaluated for terrestrial organisms. The dermal and inhalation pathways were considered highly uncertain and incomplete, and were not addressed. All routes of exposure to aquatic organisms was considered for the ERA.

Results of the terrestrial evaluation indicated the following:

- Using screening levels, zinc and thallium in the surface soils exceeded the HI of one for birds and lead exceeded the HI of one for small herbivores; zinc within the riparian soils exceeded the HI of one for plants and invertebrates; and lead, arsenic and zinc within the subsite surface soils exceeded the HI of one for plants. EPA believes that most of the zinc exceedances are from the operations of the CoZinco facility and are localized near the CoZinco facility.

- The presence of lead and zinc from within the historic wood treating subsite is of potential concern to small mammals.

- Surface water, sediment, and seep/spring COCs contribute little to no risk.

- PAH compounds in soil do not contribute risk.

In conjunction with the exposure/toxicity assessment, bioassay analysis of surface water and sediment was conducted to support the findings of the assessment. The bioassays were conducted at the confluence points between seeps/springs and the Arkansas River. These seeps/springs were determined to potentially contribute the majority of the Site-related contaminant source to the aquatic ecosystem. Results of the aquatic evaluation indicated that the presence of silver and zinc in surface water are of greatest concern to aquatic life (hazard quotient values exceeded 20).

This Action Memorandum describes actions to prevent exposure and thus remove the risk to small mammals from the metals within the areal extent of the historic wood treating subsite. This action does not address any of the risks posed by smelter subsite downwind soils. The RI/FFS being conducted by Beazer under an AOC with EPA will address actions, if any, regarding the exposure and associated risk from the seeps/springs.

IV. Endangerment Determination

Actual or threatened release of hazardous substances from this Site, if not addressed by implementing the response action selected in this ACTION MEMORANDUM, may present an imminent and substantial endangerment to public health or welfare, or the environment.

V. Proposed Actions and Estimated Costs

A. Proposed Actions

1. Proposed Action Description

The proposed action includes containment measures on-site as well as institutional controls. Soils contaminated with metals within the smelter subsite and historic wood treating subsite would be excavated and consolidated with contaminated soils stockpiled on-site from Removal Action #3 under a 24-inch-thick-soil cover system having an areal extent of approximately 5 - 15.8 acres (see Figure 5). The concentrations of contaminates in the soils to be excavated and consolidated on-site are based upon an industrial exposure and are as follows:

- Lead - 2,235 mg/kg
- Arsenic - 387 mg/kg

Consolidation of soils could reduce the size of the cap to approximately 5.6 acres and should be evaluated during design (see Figure 6). The existing stockpile of contaminated soils originating from the activities under Removal Action #3 include approximately 5,000 to 10,000 cubic yards (cy) of creosote-contaminated soils and approximately 30,000 - 40,000 cy of soils contaminated with arsenic, lead, and copper. The soil cover would be comprised of an 18-inch-thick infiltration reduction layer comprised of soil containing a high percentage of clay/silt material, overlain by a minimum 6-inch-thick topsoil layer capable of sustaining vegetation. The cover surface would be sloped at a grade of between approximately 3 - 5 percent to promote surface water run-off and minimize erosion. The cover design would avoid features which concentrate run-off drainage or allow surface water run-on from offsite areas. The cover would be fertilized and seeded with a fast-growing, perennial grass species suitable for the project site. The surface of the soil cover would be inspected on a periodic basis, and repairs would be made where damage arises due to erosion, death of vegetation, burrowing animals, or activities and events that would compromise the integrity of the cap.

Creosote contains carcinogenic polynuclear aromatic hydrocarbons (CPAHs). CPAHs may create reduced

conditions in soils and ground water, which has the potential to mobilize arsenic, antimony, lead, manganese, and copper. These metals could then be transported with the ground water. To address the potential mobility of the contaminants within the stockpile, two wells will be installed downstream of the stockpile and monitored for all contaminants of concern to include arsenic, antimony, lead, manganese, copper, and creosote constituents.

The purpose of the soil cover is two-fold. To provide a barrier from exposure and to limit the amount of infiltration of precipitation into the contaminated soils. The monitoring wells will provide data as to the effectiveness of the cover with respect to limiting infiltration by measuring contaminants that may be transported by ground water. The soil cover will be considered protective if the water data meets the following protective levels for residential ingestion of ground water at 10^{-6} risk level:

- Arsenic - 0.05 mg/l (MCL)
- Manganese - 840 mg/l (risk-based)
- Antimony - 0.006 mg/l (MCL)
- Pentachlorophenol - 0.001 mg/l (MCL)
- Benzo(a)pyrene - 0.0002 mg/l (MCL)
- Benzo(b)fluoranthene - 0.092 ug/l (risk-based)
- Benzo(k)fluoranthene - 0.92 ug/l (risk-based)
- chyrsene - 9.2 ug/l (risk-based)
- dibenz(a,h)anthracene - 0.0092 ug/l (risk-based)
- indeno(1,2,3-cd)pyrene - 0.092 ug/l (risk-based)
- benz(a)anthracene - 0.092 ug/l (risk-based)
- Lead - 0.05 mg/l (MCL)(0.015 mg/l-action level/SDWA)

Future monitoring would be performed to assess potential or actual risks to the public or environment from exposure to potential stationary or migrating contaminants.

Institutional controls include access and property land-use restrictions. Access restrictions would include maintaining an existing fence around the perimeter of the smelter subsite. The fence is 8-foot high, chain-linked with a barbed-wire top. The fenced area will be posted on regular intervals with no trespassing and other cautionary signage. The fencing and signs will be inspected and maintained on a periodic basis. The

protectiveness of this remedy relies upon the continued use of the property as industrial and maintanence to ensure the integrity of the cap.

It should be noted that the present state of the slag pile does not present a risk to human health or the environment. However, the weathering of the slag or the excavation of the slag may pose a risk (e.g., through the processes used to extract the slag from its present state). That is, the extraction of the slag may result in releases of the contaminants within the slag. A study would have to be completed to determine whether there is a potential risk and whether that risk is within EPA's acceptable risk range. Thus, any plans to excavate the slag should be submitted to EPA and the State for approval before excavation begins.

Prior to implementation of institutional controls, demolition of existing structures and associated site preparation activities would be required at the smelter subsite. Demolition debris resulting from demolition and site preparation activities would be consolidated with the contaminated soils and placed under the soil cover described above.

2. Contribution to Remedial Performance

The proposed action includes the consolidation of soils contaminated with metals within the areal extent of the smelter and historical wood treating subsites. Beazer is currently performing the RI/FFS for the historical wood treating subsite which may lead to a response action to address an unacceptable risk. This removal action described in this Action Memorandum will not impede any future remedial action resulting from the historical wood treating study.

3. Description of Alternative Technologies

Alternative technologies do not apply to the actions described in this ACTION MEMORANDUM.

4. Engineering Evaluation/Cost Analysis (EE/CA)

Whenever a planning period of at least six months exists before on-site activities must be initiated, the lead agency is required to conduct an EE/CA or its equivalent. An EE/CA was published for the smelter subsite (to include soils contaminated with metals in the areal extent of the historical wood treating subsite) on July 14, 1995. The focused EE/CA Feasibility Study (EE/CA-FS) provides a detailed evaluation of the feasibility, effectiveness, and cost of implementing alternative

remedial actions at SMT. The EE/CA evaluates five alternatives: (1) No Action, (2) Institutional Controls, (3) Institutional Controls/Onsite Containment, (4) Institutional Controls/Containment/Treatment, and (5) Excavation/Treatment/Offsite Disposal. A Superfund Program Cleanup Proposal Fact Sheet based on the EE/CA was released for public comment in September 1995. The Fact Sheet describes each of the five alternatives, provides a brief comparative analysis of alternatives, and identifies EPA's preferred alternative. This ACTION MEMORANDUM describes in greater detail the preferred alternative which is the selected response action.

5. Applicable or Relevant and Appropriate Requirements (ARARs)

Fund-financed removal actions under CERCLA Section 104 and removal actions pursuant to CERCLA Section 106 shall, to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws.

The identified ARARs and to-be-considered (TBCs) for the Smelter Operable Unit are a subset of the requirements for SMT. Although there is surface water near SMT, this particular response action does not affect the surface water therefore, requirements dealing with releases to surface water have not been included as part of this response action.

The following tables provide a listing of the chemical-, location-, and action-specific ARARs and TBCs unique to the Woodtreating Operable Unit.

Table V.A.5.1
Smeltertown Site
Chemical Specific ARARs and TBCs
Page 1 of 2

Standard, Requirement, Criteria, or Limitation	Description	Evaluation
Solid Waste Disposal Act Subtitle C Requirements 40 CFR Part 264, Subpart F, Releases from Solid Waste Management Units Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Part 264, Subpart F	The owner or operator must satisfy the requirements for all wastes (or constituents thereof) contained in solid waste management units at the facility, regardless of the time at which waste was placed in such units.	These requirements are relevant and appropriate (R&A) to this removal action, because the soils contaminated by the smelter and within the areal extent of the wood treating operations are sufficiently similar to RCRA hazardous waste to be considered R&A RCRA hazardous waste and the containment of these wastes on-site constitute a Solid Waste Management Unit. Any leachate generated from the consolidated contaminated soils would be subject to the chemical concentration limits specified in 40 CFR Part 264.94. The State of Colorado operates an approved delegated program for this portion of RCRA.
40 CFR Part 50, National Primary and Secondary Ambient Air Quality Standards CRS 25-7-101 to 512 Colorado Air Quality Control Regulations, 5 CCR 1001-3, Regulation 3, Section IV.D	Clean Air Act - National Ambient Air Quality Standards Colorado Air Quality Control Act - Requires that a source not exceed NAAQS or State AAQS.	The State of Colorado air pollution regulations are relevant and appropriate to the control of fugitive dust and particulate emissions at the site. The NAAQS standards are not enforceable in and of themselves, rather it is the emissions standards, which are promulgated to attain the NAAQS, that are directly enforceable and are ARARs. Those standards and requirements include, the fugitive dust standard; a requirement that all emissions are subject to particulate emissions; and an analysis is required to assure that any emissions will not cause air quality to degenerate beyond any pertinent level. The excavation of contaminated soils and consolidation of these soils under a constructed cap has the potential to release particulates into the air at the Smeltertown Site.
Solid Waste Disposal Act Subtitle C Requirements 40 CFR Part 264, Subpart S, Corrective Action for Solid Waste Management Units Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Part 264, Subpart S	Describes procedures for designating an area at a facility as a Corrective Action Management Unit (CAMU).	This facility is not identified as a CAMU.
OSWER No. 9355.4-02 OSWER No. 9355.4-02A Soil Lead Cleanup Levels	OSWER 9355.4-02 sets forth an interim soil cleanup level for total lead, at 500 to 1000 ppm, which OERR and OWPE consider protective for direct contact at residential settings. OSWER 9355.4-02A reiterates the importance of 9355.4-02 "Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites and states that it is a guidance and not a regulation. Guidances are not to be used as regulations.	This requirement was considered, but is superseded by the Site-specific baseline risk assessment which provides health based numbers reflective of an industrial RME for soils and a residential RME for ground water.

Table V.A.5.1
Smeltertown Site
Chemical Specific ARARs and TBCs
Page 2 of 2

Standard, Requirement, Criteria, or Limitation	Description	Evaluation
CRS 25-15-101 Colorado Hazardous Waste Act Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Part 264, Subpart F	Establishes groundwater standards.	ARAR if ground water quality is adversely affected by the removal action such that leachate is generated from the consolidated and capped waste and contaminates the ground water beneath the waste pile.
5CCR 1003-1 Colorado Primary Drinking Water Regulations	Establishes health-based standards for public water systems.	Relevant and appropriate if potential drinking water sources will be affected by the removal action. The installation of monitoring wells to monitor the effectiveness of the containment of chemicals of concern within the stockpile shall be instituted as part of this removal action. ◦ Arsenic - 0.05 mg/l ◦ Lead - 0.05 mg/l
National Primary Drinking Water Regulations 40 CFR Part 141, including Subparts B and G	Establishes health-based standards for public drinking water systems (MCLs).	These regulations are relevant and appropriate if contaminants migrate from the soils to the groundwater beneath the consolidated and capped waste. The groundwater beneath the consolidated and capped waste may be used in the future as a source for a public water system or private supply wells. ◦ Arsenic - 0.05 mg/l ◦ Antimony - 0.006 mg/l ◦ Pentachlorophenol - 0.001 mg/l ◦ Benzo(a) pyrene - 0.002 mg/l
Risk Assessment Guidance For Superfund (OS-230, 9285.701A, July 1989) - Human Health Evaluation Manual, Part A	Risk Assessment Guidance based Preliminary Remediation Goals and Assessing the Relationship Between Environmental Lead Concentrations and Adult Blood Lead Levels guidances.	The remediation goals based upon an industrial scenario for soils are: ◦ Lead - 2,235 mg/kg ◦ Arsenic - 387 mg/kg The remediation goals based upon a 10^{-6} residential scenario for ground water are: ◦ Arsenic - 0.06 ug/l ◦ Manganese - 840 mg/l ◦ Antimony - 15 ug/l ◦ Pentachlorophenol - 0.56 ug/l ◦ Benzo(a) pyrene - 0.0092 ug/l ◦ Benzo(b) fluoranthene - 0.092 ug/l ◦ Benzo(k) fluoranthene - 0.92 ug/l ◦ Chyrsene - 9.2 ug/l ◦ Dibenz(a,h) anthracene - 0.0092 ug/l ◦ Indeno (1, 2, 3-cd) pyrene - 0.092 ug/l ◦ Benz(a) anthracene - 0.092 ug/l Many of these standards are more stringent than the associated MCL. A more stringent standard may be needed if multiple contaminants within the groundwater or multiple pathways of exposure present an extraordinary risk. These situations do not reflect the circumstances at the Smeltertown site thus the MCL shall be used when there is a discrepancy between the standards.

Table V.A.5.2
Smeltertown Site
Action Specific ARARs and TBCs
Page 1 of 3

Standard, Requirement, Criteria, or Limitation	Description	Evaluation
Solid Waste Disposal Act RCRA Subtitle C 40 CFR 260, Hazardous Waste Management System: General Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Part 260 CRS 25-15-101 to 313	This regulation is applicable in as much as the definitions and overview provided in this regulation apply to the applicable or relevant and appropriate sections of parts 260 through 265 and 268. See specific information regarding parts 260 through 265 and 268 below.	The State of Colorado has an approved, delegated program under RCRA for these requirements.
40 CFR Part 261, Identification and Listing of Hazardous Waste Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Part 261 CRS 25-15-101 to 313	Identifies those solid wastes which are subject to regulation as hazardous wastes under parts 124, 262, 263, 264, 265, 270, and 271, and which are subject to the notification requirements of section 3010 of RCRA.	At present, the soils at the site have not been determined to be hazardous as defined by subpart C, characteristics of hazardous waste. However, the wastes contain a pollutant, contaminant or hazardous substances that are sufficiently similar such that RCRA regulations are relevant and appropriate.
40 CFR Part 262, Standards Applicable to Generators of Hazardous Waste Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Part 262 CRS 25-15-101 to 313	Establishes standards for RCRA generators to include shipment of hazardous waste from a treatment, storage, or disposal facility; treatment, storage or disposal of hazardous waste onsite; and compliance requirements and penalties for persons who generates a hazardous waste but do not comply with this part.	The remediation activities at SMT will consolidate waste that is sufficiently similar to RCRA hazardous waste such that use of this requirement is well suited to the situation. The requirement is relevant and appropriate to the soils being consolidated on-site.
40 CFR Part 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities Subpart B, General Facility Standards Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Part 264, Subpart B CRS 25-15-101 to 313	Establishes minimum standards that define the acceptable management of hazardous waste for owners and operators of facilities which treat, store, or dispose of hazardous waste.	This removal action consolidates contaminated soils on-site. Because these remediation activities constitute treatment, storage, and/or disposal activities, the requirements of this part are relevant and appropriate to the various components of the selected remedy. Thus, site activities must meet these standards, which include waste analysis, site security, emergency control and response equipment, personnel training, contingency planning, and implementation.

Table V.A.5.2
Smeltertown Site
Action Specific ARARs and TBCs
Page 2 of 3

Standard, Requirement, Criteria, or Limitation	Description	Evaluation
40 CFR Part 264, Subpart F, Releases from Solid Waste Management Units Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Part 264, Subpart F CRS 25-15-101 to 313	Establishes requirements to detect, characterize, and respond to releases to the aquifer from a facility that treats, stores, or disposes of hazardous waste.	This removal action consolidates the waste on-site under a soil cover thereby creating waste management unit(s). The design of the ground water compliance monitoring program for the detection of releases from the solid waste management unit cited in this removal action is relevant and appropriate, as well as any corrective action that may be necessary should the hazardous constituents exceed the established concentration limits specified in the compliance monitoring program.
40 CFR Part 264, Subpart G, Closure and Post-Closure Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Part 264, Subpart G CRS 25-15-101 to 313	Establishes requirements for the closure and post-closure of facilities that treat, store or dispose of hazardous waste.	Because consolidation via cover of contaminated materials constitute disposal of a waste that is sufficiently similar to RCRA hazardous waste such that use of the requirement is well suited to the situation, the requirement is relevant and appropriate to the activities described in the removal action. Closure and post-closure care for the disposal areas must meet these standards; or closure with wastes and/or contamination in place with containment systems and post-closure care to include ground water monitoring and inspection and maintenance on containment and monitoring systems.
40 CFR Part 264, Subpart L, Waste Piles Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Part 264, Subpart L CRS 25-15-101 to 313	Establishes operating and performance standards for waste piles to include closure and post-closure requirements. This regulation applies to owners and operators of facilities that store or treat hazardous waste in piles.	This removal action consolidates soils and may store soil onsite in preparation for consolidation. The manner in which the soils are stored constitutes a waste pile. Because the waste is sufficiently similar to RCRA hazardous waste, this regulation is relevant and appropriate to the selected remedy as well as to the closure and post-closure of waste piles.
Solid Waste Disposal Act - RCRA Subtitle C 40 CFR Part 268	Prohibits land disposal without treatment. Establishes treatment levels for land disposal of restricted wastes.	This regulation is not applicable or relevant and appropriate to this removal action because the soil and debris is not contaminated with RCRA restricted wastes, and treatment technologies are not well suited to these wastes.

Table V.A.5.2
Smeltertown Site
Action Specific ARARs and TBCs
Page 3 of 3

Standard, Requirement, Criteria, or Limitation	Description	Evaluation
Solid Waste Disposal Act RCRA Subtitle D 40 CFR Part 257 and 258 Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Parts 257 and 258	Establishes criteria for the classification of solid waste disposal facilities and municipal solid waste landfills and practices.	This removal action consolidates waste on-site which is sufficiently similar to a landfill.
40 CFR Part 60 Clean Air Act - National Emission Standards for Hazardous Air Pollutants Colorado Air Quality Control Regulations, 5 CCR 1001-10	Establishes emission control requirements.	With respect to Part 60, these requirements are relevant and appropriate if pollutant and technology are sufficiently similar to regulated categories.
Colorado Solid Waste Disposal Sites and Facilities Act CRS 30-20-101 to 118	Establishes requirements for solid waste disposal facilities (landfills).	The consolidation of contaminated soils on-site constitutes a solid waste unit thus these requirements are relevant and appropriate to this removal action.
Colorado Noise Abatement Statute CRS 25-12-101 to 108		This requirement is applicable to the construction activities of this removal action.
Colorado Air Quality Control Regulations, 5 CCR 1001-5, Regulation 3, Section II	Requires the filing of an APEN which estimates emission rates.	This regulation is relevant and appropriate to this removal action in that construction activities have the potential of releasing contaminants into the air. The Air Pollution Emission Notice (APEN) is required to track statewide emission levels. Criteria pollutants contain a subset of the contaminants or particulates which may be released from the site during construction activities (e.g., PM-10, total suspended particulates, volatile organic compounds, lead, etc.).
Colorado Air Quality Control Regulations, 5 CCR 1001-9, Regulation No. 7	Established to control VOCs. Applies to sources within an ozone nonattainment area and regulates the disposal or spillage of VOCs.	This removal action includes the capping of volatile and seim-volatile organic contaminants within the existing on-site waste pile.
Water Well Pump Installation Contractors Act CRS 37-91-101 to 112	This act and the associated regulations establish minimum standards for location, construction, modification, and abandonment of water wells and pumping equipment.	This requirement is applicable to the construction of the monitoring wells included in this removal action.

Table V.A.5.3
Smeltertown Site
Location Specific ARARs
Page 1 of 2

Standard, Requirement, Criteria, or Limitation	Description	Evaluation
Endangered Species Act 50 CFR Part 200 50 CFR Part 482 Wildlife, Nongame Endangered, and Threatened Species Act and Wildlife Act CRS 33-2-101 to 108 CRS 33-1-101 to 120	The Endangered Species Act (ESA) requires protection for any threatened or endangered species and their habitats that may be impacted by onsite activities.	Threatened and endangered species were not observed during the field investigations. Observations of the bald eagle, golden eagle and osprey have been noted in the area. This removal action does not affect the habitat any of the noted threatened and endangered species.
Executive Order on Floodplain Management, EO 11988 40 CFR Part 6.302(a)	Executive Order 11988 requires all federal agencies and associates to avoid long- and short-term adverse impacts associated with occupancy and modification of floodplains.	This removal action is not being conducted in a floodplain.
Executive Order on Protection of Wetlands, EO 11990 40 CFR Part 6.302(b)	Executive Order 11990 requires all federal agencies and associates to minimize the destruction, loss, or degradation of wetlands, to preserve and enhance the natural and beneficial values of wetlands, and to consider factors relevant to the survival and quality of the wetlands.	This removal action does not affect any of the delineated areas of wetlands, potential historical wetlands or constructed ponds.
National Historic Preservation Act 16 USC Section 470	This Act requires preservation of any historic properties included in or eligible for inclusion in the National Register of Historic Places.	This removal action does not affect the smelter stack constructed in 1917 which was placed on the National Register of Historic Places in 1976. No other historic structures, items or features have been identified at SMT.
Archaeological and Historic Preservation Act 40 CFR Section 6.301(c) Colorado Historical, Prehistorical, and Archaeological Resources Act; Historic Places Register; and State Historical Society CRS 24-80-401 to 410 CRS 24-80.1-101 to 108	The Archaeological and Historic Preservation Act establishes procedures for perservation of historical and archaeological data that might be destroyed through alternation of terrain.	This removal action does not affect the smelter stack constructed in 1917 which was placed on the National Register of Historic Places in 1976. No other historic or archeologic structures, items or features have been identified at SMT.
Historic Site, Buildings, and Antiquities Act 16 USC Section 461-467	The Historic Sites, Buildings, and Antiquities Act states that the existence and location of landmarks of the National Registry of Natural Landmarks be considered to avoid adverse impacts on such landmarks.	This removal action does not affect the smelter stack constructed in 1917 which was placed on the National Register of Historic Places in 1976. No other historic landmarks or properties exist on or near SMT.

Table V.A.5.2
Smeltertown Site
Location Specific ARARs
Page 2 of 2

Standard, Requirement, Criteria, or Limitation	Description	Evaluation
Colorado Hazardous Waste Act CRS-25-15-101 to 313 6 CCR 1007-2	This Act requires that the geologic and hydrologic conditions of a hazardous waste site ensure that waste is isolated from exposure pathways for 1,000 years.	Applicable if a new hazardous waste disposal facility is planned as part of a remedial action. The waste addressed by this removal action does not exhibit characteristics of a RCRA hazardous waste thus this act is not applicable to this removal action. The waste is sufficiently similar to hazardous waste such that this Act is relevant and appropriate because this waste will be disposed in an on-site containment system. The design and operation of the containment system shall meet the performance requirements of this regulation.
Colorado Mined Land Reclamation Act CRS 34-32-116		Applicable for reclaiming waste piles
Colorado Ground water Management Act CRS 37-90-101 to 141		TBC

6. Project Schedule

The projected order of work and tentative schedule of activities is as follows:

October, 1996	Issue Special Notice to Cyprus/Amax to begin Administrative Order on Consent (AOC) negotiations
November, 1996	Good-faith offer
January, 1997	Sign AOC with Cyprus/Amax
February, 1997	Initiate design of removal action
May, 1997	Initiate response action at Site

B. Estimated Costs

A table containing the cost estimate for the removal action is shown below. This estimate combines the cost for alternative 3 and the cost of monitoring of creosote-contaminated soils. The EE/CA contains two tables for these costs.

Removal Action Costs Institutional Controls/ On-Site Containment				
Remedial Action Item	Quantity	Unit	Unit Price	Item Cost
Total Direct Capital Costs				$310,100
Institutional Controls:				
Fencing and Signs	3,000	LF	$15	$45,000
Source Control Measures:				
Demolition and Site Preparation	1	LS	$100,000	$100,000
Debris Disposal (on-site)	1	LS	$5,000	$5,000
Soil Excavation	2,900	CY	$3	$8,700
Soil Relocation and Placement	2,900	CY	$5	$14,500
Soil Cover System	3,770	CY	$15	$56,550
Topsoil Disturbances	3,915	CY	$10	$39,150
Revegetation	15.8	AC	$1,500	$23,700
Monitoring Stockpile Soils:				
Monitoring Wells (2" diameter, 40 ft deep, and mobilization)	2	EA	$1,250	$2,500
Quarterly Sampling (semivolatiles, metals)	1	LS	$15,000	$15,000
Total Indirect Capital Costs				$186,060
Engineering		8% of total direct cost		$24,808
Administrative and Legal		12% of total direct cost		$37,212
Contractor Indirects		15% of total direct cost		$46,515
Contingency		25% of total direct cost		$77,525
TOTAL CAPITAL COST				$496,160
Total Annual Operations and Maintenance				$58,000
Administrative and Legal	1	YR	$14,000	$14,000
Environmental Monitoring	1	YR	$32,000	$32,000
Site Maintenance	1	YR	$12,000	$12,000
O&M 30-YEAR PRESENT WORTH AT DISCOUNT RATE OF 5%				$891,576
30-YEAR PRESENT WORTH				$1,387,736

VI. Expected Change in the Situation Should Action be Delayed or Not Taken

Delayed action will increase public health risks to the nearby population through prolonged exposure to airborne contaminated soil migrating from SMT, as well as direct dermal contact with contaminated soil. Consequently, delayed action will increase the chance for possible direct exposure to a variety of heavy metals and other contaminants by the populations who live on, may pass through, work, or play on SMT.

VII. Outstanding Policy Issues

None.

VIII. Enforcement

Attachment B is a confidential summary of the enforcement status.

IX. Recommendation

This decision document represents the selected removal action for the smelter subsite (to include soils contaminated with metals within the areal extent of the historic wood treating subsite) at the SMT, developed in accordance with CERCLA as amended, and not inconsistent with the NCP. This decision is based on the administrative record for SMT.

Conditions at SMT meet the NCP section 300.415 (b)(2) criteria for a removal and I recommend your approval of the proposed removal action. The proposed cost of this removal action is $1,387,736.

Approve: _____ Date: 9/27/96
Max H. Dodson
Assistant Regional Administrator
U.S. Environmental Protection Agency, Region VIII

Disapprove: _____ Date: _____
Max H. Dodson
Assistant Regional Administrator
U.S. Environmental Protection Agency, Region VIII

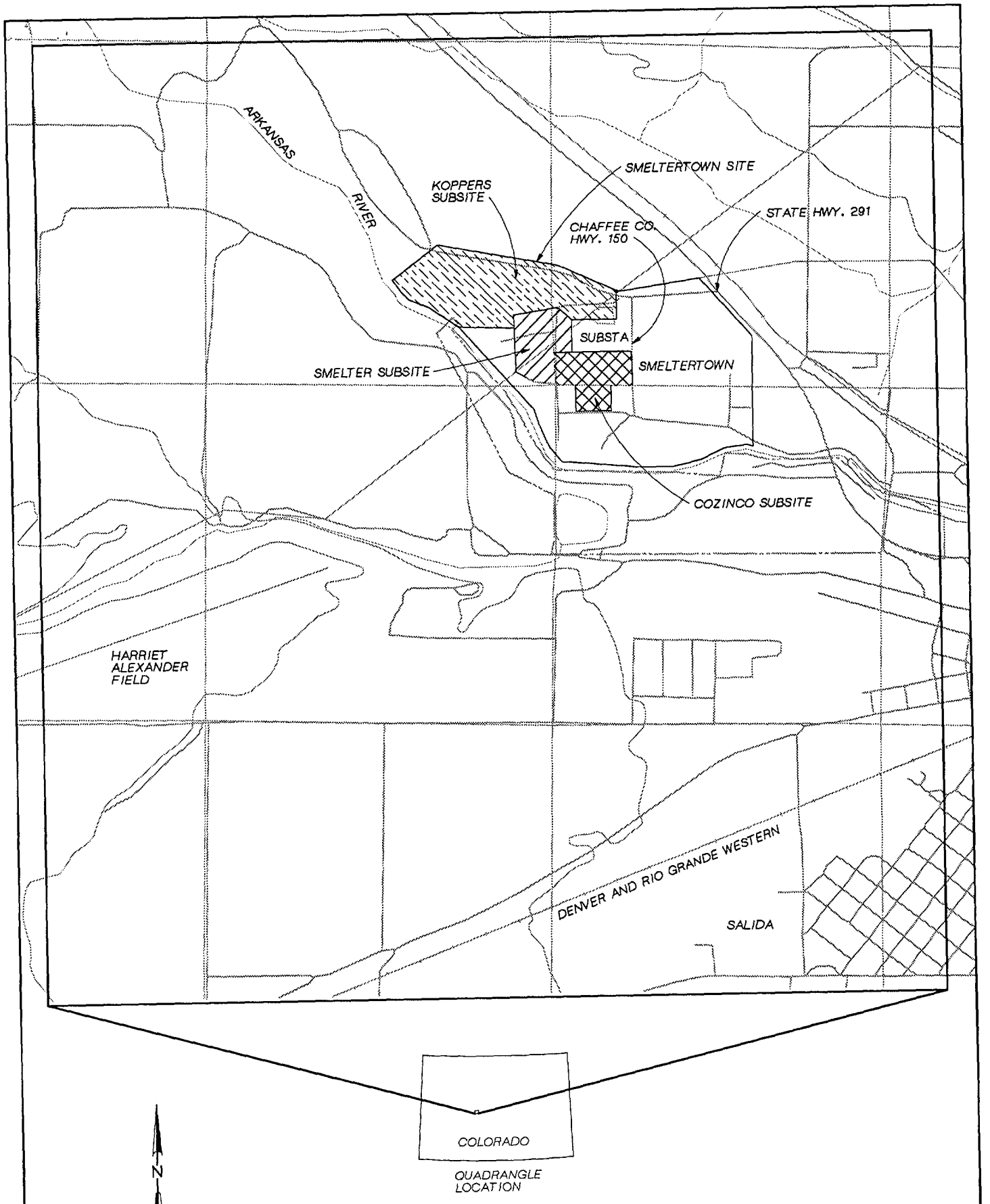


FIGURE 1
SMELTERTOWN
LOCATION MAP
SUPERFUND SITE

CH2MHILL

8572c001.dlv 21-AUG-1996 14:21:31

21-AUG-1:76 681F12.DWG

SLAG SPRING

SMELTER SLAG PILE

DAM

CHAFFEE CO. HWY. 150

STATE HIGHWAY 291

ORE STORAGE BINS

SAND AND GRAVEL OPERATIONS

STACK FOUNDATIONS

HISTORIC STACK

SUBSTATION

SAND AND GRAVEL OPERATIONS

CHAFFEE CO. HWY. 152

CINDER SLAG PILE

CoZinCo PROPERTY

CHAFFEE CO. HWY. 150

ARKANSAS RIVER

PEAT FACILITY

KIMMETT IRRIGATION SPRING

KORTZ TRAIL

AUTOMOBILE JUNKYARD

GRAFF SPRING

JUNK YARD SPRING

FLOW

N

0 200 400 600 800

SCALE: 1"=400'

LEGEND

SMELTER SUBSITE

CoZinCo SUBSITE

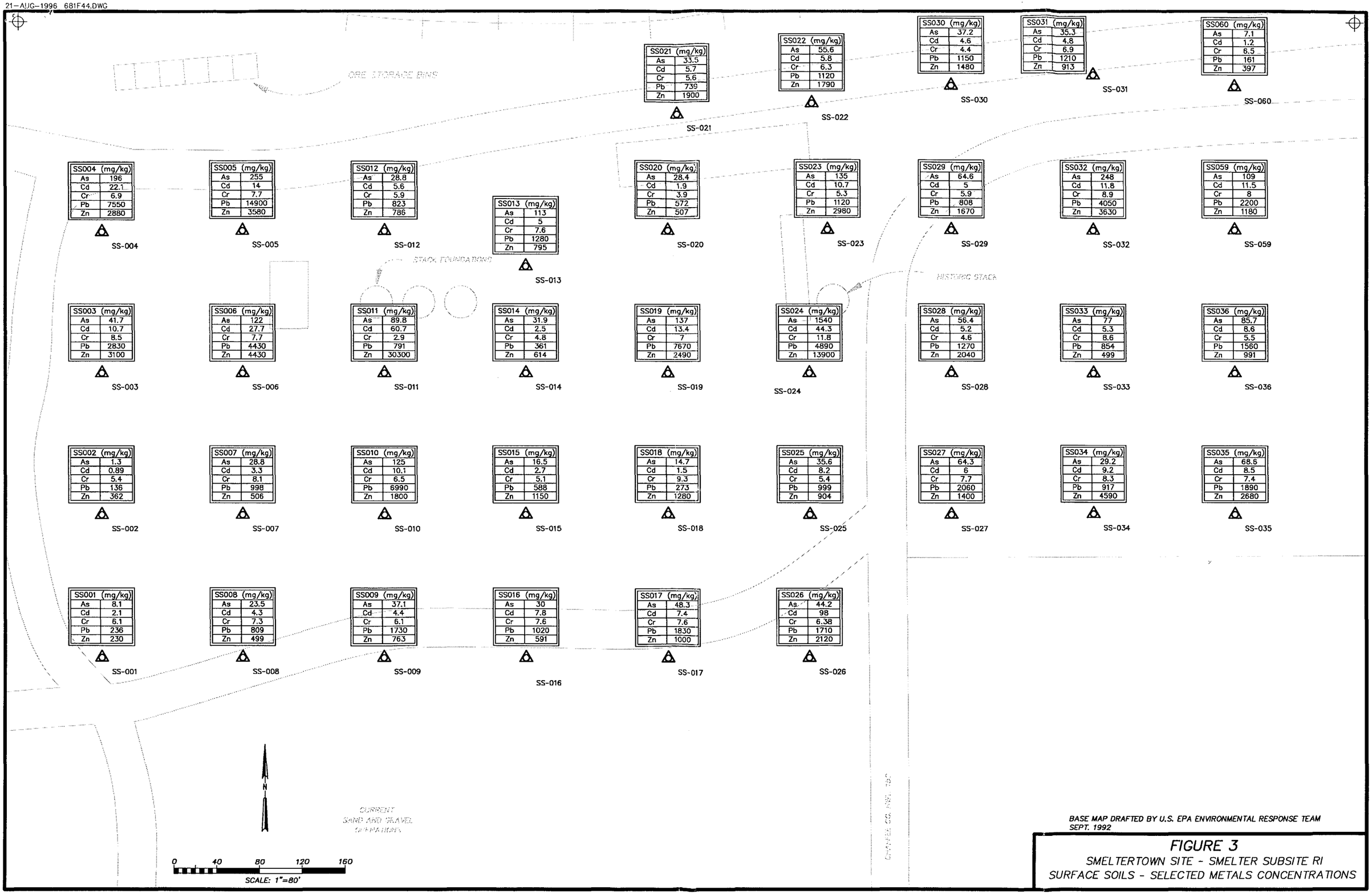
KOPPERS SUBSITE

BASE MAP DRAFTED BY U.S. EPA ENVIRONMENTAL RESPONSE TEAM SEPT. 1992

FIGURE 2

SMELTERTOWN SUPERFUND SITE AND SUBSITES

21-AUG-1996 681F44.DWG



BASE MAP DRAFTED BY U.S. EPA ENVIRONMENTAL RESPONSE TEAM SEPT. 1992

FIGURE 3

SMELTERTOWN SITE - SMELTER SUBSITE RI
SURFACE SOILS - SELECTED METALS CONCENTRATIONS

21-AUG-1996 681F32.DWG

KS 011
As 13.9
Pb 230

KS 301
As 12.4
Pb 375

KS 041
As 14.7
Pb 457

KS 311
As 19.2
Pb 427

KS 321
As 18.8
Pb 426

KS 331
As 19.5
Pb 368

KS 341
As 23.4
Pb 409

KS 351
As 26.5
Pb 426

KS 031
As 10.5
Pb 152

KS 051
As 17.9
Pb 633

KS 071
As 18.3
Pb 470

KS 101
As 26.1
Pb 503

KS 141
As 25
Pb 447

KS 081
As 11.4
Pb 216

KS 111
As 11.1
Pb 186

KS 151
As 69.7
Pb 1220

KS 061
As 3.3
Pb 86.3

KS 161
As 147
Pb 3010

KS 091
As 3.6
Pb 50.8

KS 121
As 3.2
Pb 98.7

KS 181
As 41.2
Pb 317

KS 211
As 62
Pb 2040

KS 131
As 14
Pb 385

KS 191
As 9.5
Pb 231

KS 241
As 17.1
Pb 472

KS 171
As 14.5
Pb 311

KS 221
As 28.4
Pb 849

KS 251
As 127
Pb 4200

KS 291
As 7.0
Pb 120

KS 201
As 1.2
Pb 17.8

KS 231
As 21.9
Pb 729

KS 271
As 322
Pb 14,500

KS 281
As 27.5
Pb 1280

KS 261
As 752
Pb 40,300

SLAG SPRING

SMELTER SLAG PILE

DAM

CHAFFEE CO. HWY 150

ROUTE 291

SUBSTATION

CURRENT SAND AND GRAVEL OPERATIONS

CHAFFEE CO. HWY. 152

CoZinCo PROPERTY

CHAFFEE CO. HWY. 150

KORTZ TRAIL

ARKANSAS RIVER

PEAT FACILITY

KIMMETT IRRIGATION SPRING

SALIDA AUTO SALVAGE

GRAFF SPRING

JUNK YARD SPRING

FLOW

N

LEGEND

SURFACE AND NEAR SURFACE SAMPLING LOCATION

KS = 0 - 2"

0 200 400 600 800

SCALE: 1"=400'

BASE MAP DRAFTED BY U.S. EPA ENVIRONMENTAL RESPONSE TEAM
SEPT. 1992

FIGURE 4

SURFACE SOIL SAMPLES (mg/kg)
ARSENIC AND LEAD CONCENTRATIONS
IN THE HISTORIC WOOD TREATING SUBSITE

21-AUG-1996 8572X001.DWG

CHAFFEE CO. HWY 150

KRMW-7D

KRMW-7S

SMELTER SLAG PILE

KS 161
Pb 3010

EXCAVATION
VOLUME ≈85 cy
(REMOVAL OF TOP 2")

NOTES:

1) AREA ENCLOSED BY CHAIN LINK FENCE IS E&R TRUCKING PROPERTY.
2) STRUCTURES AND MISCELLANEOUS DEBRIS WILL BE COVERED BY THE PROPOSED CAP. CONCRETE AND PIPES WILL BE CRUSHED OR FILLED AROUND. WOOD AND OTHER DEBRIS WILL BE SCATTERED.
3) THE STOCKPILE, WHICH IS 20-25' IN HEIGHT, WILL BE SPREAD UNIFORMALLY IN THE PROPOSED CAP LOCATION.

KS 251
Pb 4200

EXCAVATION
VOLUME ≈ 1530 cy
(REMOVAL OF TOP 2")

KS 271
Pb 14,500

ORE STORAGE BINS

KS 261
Pb 40,300
As 752

KRMW-4

SS-004
Pb 7550

SS-005
Pb 14,900

STACK FOUNDATIONS

SS-032
Pb 4050

EXCAVATION
VOLUME ≈ 85 cy
(REMOVAL OF TOP 2")

HISTORIC STACK

SAND AND GRAVEL OPERATIONS

A
FIG. 2

SS-003
Pb 2830

SS-006
Pb 4430

TP-4
Pb 5950

CONCRETE FOUNDATIONS

SS-019
Pb 7670

SS-024
As 1540
Pb 4890

A
FIG. 2

SUBSTATION

CAPPED AREA FOR PLACEMENT OF EXCAVATED MATERIALS

SS-010
Pb 6990

APPROXIMATE STOCKPILE LOCATION (≈1 AC)

FOR SOIL COVER DETAIL SEE 1
FIG. 2

POWER LINE

DAM

N

0 100 200 300 400
SCALE: 1"=200'

CHAFFEE CO. HWY. 152

SAND AND GRAVEL OPERATIONS

CoZinCo PROPERTY

CINDER SLAG PILE

LEGEND

- CAPPING
- REMOVAL (EXCAVATE AND TRANSPORT TO CAPPED AREA)
- STOCKPILE BOUNDARY
- STRUCTURES - BUILDINGS, FOUNDATIONS
- MISCELLANEOUS DEBRIS - WASTE PILES, TRANSFORMERS, EMPTY DRUMS
- X—X—X 6' CHAIN LINK FENCE WITH BARBED WIRE
- ---- POWER LINE

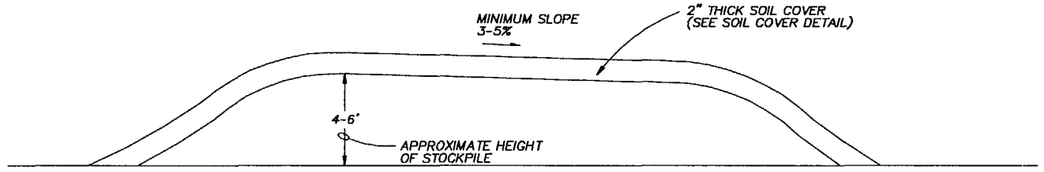
BASE MAP DRAFTED BY U.S. EPA ENVIRONMENTAL RESPONSE TEAM
SEPT. 1992

FIGURE 5

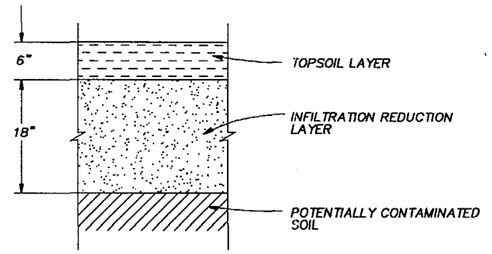
SMELTERTOWN SITE -
EXCAVATION AND CAPPING AREAS

NOTE:

THE 4-6' HIGH SECTION OF THE CAP REPRESENTS STOCKPILED SOIL CURRENTLY IN PLACE, AND EXCAVATED SOIL FROM THE KOPPERS AND SMELTER SUBSITES. THE TOP 2" OF SOIL WILL BE EXCAVATED FROM THESE AREAS.



SECTION A
N.T.S. FIG. 1



SOIL COVER DETAIL 1
SCALE: 1/2"=1'-0" FIG. 1

FIGURE 6
SMELTERTOWN SITE - CROSS-SECTION
OF CAPPED AREA AND SOIL COVER DETAIL