M303466

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PROPOSAL FOR DISPOSITION OF CONTAMINATED SOILS AND DEMOLITION DEBRIS AT ASARCO'S EAST HELENA FACILITY

REQUEST FOR CAMU DESIGNATION

Asarco hereby requests, pursuant to 40 CFR 264.552, that EPA designate the area described below at its East Helena plant as a Corrective Action Management Unit ("CAMU"). The CAMU would contain an on-site landfill and would be used to dispose of approximately 76,000 cubic yards of metal-containing soil and debris. The soil and debris have been generated from CERCLA remediation activities at the plant and from other miscellaneous construction projects, including those related to implementation of lead SIP requirements.

The use of an on-site landfill to dispose of contaminated soil and debris was studied during the Process Pond RI/FS process and was determined to be protective, technically feasible and cost-effective (RI/FS, 6-175 to 6-182). It was not selected as a remedy because smelting of the wastes was believed to be less expensive, relatively more protective and permanent, and administratively easier because it would not require Asarco to obtain a RCRA permit or purchase additional land. However, that is no longer an accurate comparison of the two remedies. In the course of CERCLA remediation activity, Asarco has generated more than twice as much wastes as was originally projected. Due to the amount of wastes, smelting is now considerably more expensive than on-site disposal. Smelting costs approximately $150 per ton, while on-site disposal would cost approximately $80 per ton. In addition, under the CAMU regulations, no RCRA permit is required for the on-site landfill and the land on which it would be built is already owned by Asarco. The landfill would also be more protective than smelting in the short-term. Smelting of the CERCLA wastes could take nine more years. While the wastes are being smelted, they would be stored outdoors in a Subpart L waste pile. On the other hand, disposal of the wastes in an on-site landfill would be completed within eight months of the approval of the CAMU by EPA. The CAMU would also provide a disposal site for a substantial amount of non-CERCLA wastes. Those wastes are currently in outdoor waste piles that do not meet the requirements of Subpart L.

SITING: An examination of plant site soils, geology and hydrology, completed in 1990 for the Comprehensive RI/FS, indicates that the Asarco facility immediately south/southwest of the plant is well suited as the site for an on-site landfill. This site, shown on Figure 1, satisfies the following criteria gleaned from EPA guidance documents. The site is:

- At least 200 feet from adjacent property lines.
- At least 500 feet from public drinking water sources, residences, schools, hospitals, and centers of community activity.

- Not in the 100-year floodplain. Although Prickley Pear Creek flows adjacent to Asarco's East Helena plant property, the proposed site is located outside of the designated 100-year floodplain for this stream.
- Without wetlands.
- Without active fault zones or at least 200 feet from an active fault.
- Without subsidence areas.
- Not in a sole-source aquifer recharge area.
- Without endangered species habitat.
- Not in designated state and federal wilderness, park, and preserves.
- Not zoned for activities other than industrial use.
- Without historic or archaeological significance.
- Vertically separated from the underground aquifer.
- Distant from groundwater discharge to a water supply well or to surface water.
- In simple (homogeneous) hydrogeologic stratigraphy. Of the geologic units found at the site, the proposed landfill is located in the less permeable and simpler stratigraphy of the Old Stream and Lake Deposit Geologic Unit, as shown on the U.S. Geologic Survey's Geologic Map for the East Helena Quadrangle.
- In soils that are nearly impermeable or at least in a location which does not intercept or directly overlie an appreciable thickness of permeable soils. Of the soil units found at the site, the proposed landfill is located in the deeper and less permeable Sappington and Amesha Loam Soil Unit, which is described in the Natural Resource Conservation Service's Soil Survey for Lewis and Clark County.

When combined with proper landfill design and construction, this site will prevent the migration of wastes into the surrounding water and soil.

DESIGN & CONSTRUCTION: As shown on Figures 2 and 3, the landfill will be designed and constructed with multiple barriers encapsulating the waste, in accordance with EPA guidance, and that meet all requirements set forth in 40 CRF 264 Subpart N. Landfill components will include:

- Primary Leachate Collection and Removal (PLCR) System - This landfill component is designed to collect any leachate that is produced from the waste material. Options for its design include granular soil drains, perforated pipe collectors, geonet drains, sand filters, and geotextile filters. For planning purposes, a perforated pipe drain system encased within a 1-foot thick granular soil drain is used. The system drains to a sump for leachate removal.

- Primary Flexible Membrane Liner (FML) - The primary FML consists of a geomembrane such as polyvinyl chloride (PVC) or high density polyethylene (HDPE) that is designed to contain any leachate that is produced from the waste material and to withstand the stresses applied to it from the weight of the waste material and cap and from the settlement of underlying soils. For planning purposes, a 60-mil FML is used.

- Leak Detection, Collection, and Removal (LDCR) System - This system is designed to detect and collect any leakage through the Primary FML within 24 hours. The system is similar to the PLCR in design, and for the purposes of this plan, an identical system is used.

- Secondary Composite Liner - The secondary composite liner ensures that any leakage through the primary FML is collected by the LDCR and prevents migration of groundwater into the landfill. It consists of an FML, similar to the primary FML in design, underlain by an impermeable clay layer or a geosynthetic clay liner (GCL). For planning purposes, a 60 mil FML is used over 3 feet of impermeable clay.

- Cap Composite Liner - This component of the landfill cap closes the landfill and prevents infiltration of surface precipitation. It consists of an FML of equal or less permeability than those used under the landfill cell, underlain by an impermeable clay layer or a GCL and earth cover. In addition to acting as a component of the composite liner, the clay or earth layer, covering the waste material, provides a smooth surface for installation of the FML. For planning purposes, a 60 mil FML is used over 2 feet of clay.

- Surface Water Collection and Removal (SWCR) System - This system allows surface precipitation to drain away from the surface of the Cap Composite Liner, and consists of a 1-foot thick layer of drain gravel that connects to a drain or daylights at the toe of the landfill.

- Cover Soil - This component provides frost protection to the Cap Composite Liner and, after seeding, protects the surface of the landfill from erosion. For planning purposes, this component consists of 2-feet of topsoil that has been seeded with grass.

- Groundwater Monitoring System - Finally, the landfill will be designed and constructed with monitoring systems that can detect a failure of the landfill system. As described above, the first line of detection takes place in the LDCR. As a secondary line of monitoring, groundwater monitoring wells will be constructed around the landfill site and monitored on a semi-annual basis. A statistical analysis of the data from this monitoring will detect any impacts to the groundwater quality associated with the landfill.

LANDFILL WASTES: Materials stored at the East Helena facility which would be placed in the landfill are:

MATERIAL	VOLUME-CUBIC YARDS
Lower Lake Dredged Sediments (ROD)	27,000[1]
Acid Plant Swimming Pool (ROD)	2,350[2]
Acid Plant Sediment Drying Area (ROD)	16,300[3]
Area Between Upper and Lower Lakes	15,700[2,4]
Lower Ore Storage Area	13,760[2]
Excavated Soils Generated from Lead SIP	2,000[5]
	76,100 cubic yards

(1) Measured from a September, 1996 survey.
(2) Measured in 1994.
(3) 1994 estimate based upon 52,000 sf x 8.5 ft.
(4) Volume includes only material in piles.
(5) Estimated by S. Blaskovich, Asarco.

CORRECTIVE ACTION MANAGEMENT UNIT (CAMU): The landfill that Asarco is proposing meets EPA's criteria for a CAMU in 40 CFR 264.552(c):

- As demonstrated in the Process Pond RI/FS and throughout this proposal, the use of an on-site landfill for disposal of the CERCLA and non-CERCLA wastes is a reliable, effective, protective and cost-effective remedy. It will substantially accelerate the final disposal of the wastes.

- As explained in the proposal, the wastes will be disposed in a landfill that will isolate them from stormwater runoff, groundwater infiltration or precipitation and thus virtually eliminate the possibility of the formation of leachate that could escape the landfill and seep into groundwater. Thus, on-site disposal of the wastes will not create unacceptable risks to human health or the environment. It will completely eliminate the risks associated with off-site transportation of the non-CERCLA wastes for disposal.

- Given the on-going operations at the plant, there is no contaminated area at the plant that would accommodate a landfill. Moreover, even if there were a contaminated area where a landfill could be built, the uncontaminated area at the plant that has been selected for the landfill has the more favorable geology and hydrology. Management of the wastes in this area will, therefore, be more protective than management of the wastes in a contaminated area.

- As described in detail elsewhere in the proposal, the landfill will be designed and constructed to minimize, if not altogether eliminate, any future releases of contamination from the landfill to the environment.

- The CAMU will accelerate the disposal of the CERCLA wastes by as much as eight years.

- Given the design and location of the landfill, treatment of the lightly contaminated soil and debris is not necessary to insure that there will be no migration of hazardous constituents from the landfill into the environment. Moreover, treatment of the soil and debris prior to disposal in the landfill would be cost-prohibitive.

- No hazardous waste piles will remain in place after the landfill is constructed. All of the piles will be disposed of in the landfill.

Although Asarco is only seeking approval now for disposition in a CAMU of accumulated contaminated excavation materials, it has selected an area of its facility at which additional cells could readily be added for disposal of further materials, if such becomes necessary to carry out any future remedial measures at its East Helena facility.

COSTS: Estimated costs for engineering design and construction of the CAMU and for transportation of the wastes to and placement in the CAMU are:

ACTIVITY	UNIT	QUANTITY	UNIT COST	COST $
Mobilization	ls	1	179,000	$ 179,000
Sampling & Testing	ls	1	150,000	$ 150,000
Remove Top Soil	cy	15,387	3.5	$ 54,000
Excavation	cy	51,452	3.5	$ 180,000
Grading	sf	183,189	0.75	$ 137,000
Clay Liner	cy	23,407	30	$ 702,000
60 mil FML	sf	632,014	4.25	$2,686,000
LCRS Piping	ls	2	37,500	$ 75,000
LCRS Gravel	cy	23,408	15	$ 351,000
Clay Cap	cy	15,606	3.65	$ 57,000
Top Soil Placement	cy	13,570	6.50	$ 88,000
Seed & Fertilizer	acre	6.3	1,300	$ 8,000
CONSTRUCTION TOTAL				$4,668,000
HAUL & PLACE WASTE				$ 381,000
ENGINEERING - DESIGN & CONSTRUCTION OVERSIGHT				$ 467,000
			TOTAL PROJECT COSTS	$5,516,000

IMPLEMENTATION SCHEDULE:

Concept Approval - Begin

Engineering Design - 1.5 months

Agency Review and Approval - 1 month

Advertise and Award Bid - 1 month

Construction - $4^1/_2$ months

Project Close-out - 1 month

Total time from Concept Approval to construction completion is 8 months, not including weather delays. Project close-out, an administrative function, would require an additional month.

Color Photo(s)

The following pages contain color that does not appear in the scanned images.

To view the actual images, contact the Region VIII Records Center at (303) 312-6473.

PROPOSED LANDFILL SITE, SOUTHWEST OF THE EAST HELENA PLANT

PROPOSED LANDFILL SITE, AFTER CONSTRUCTION

PROPOSAL FOR DISPOSITION OF CONTAMINATED SOILS AND DEMOLITION DEBRIS AT ASARCO'S EAST HELENA FACILITY	**PROPOSED LANDFILL SITE**	FIGURE **1**

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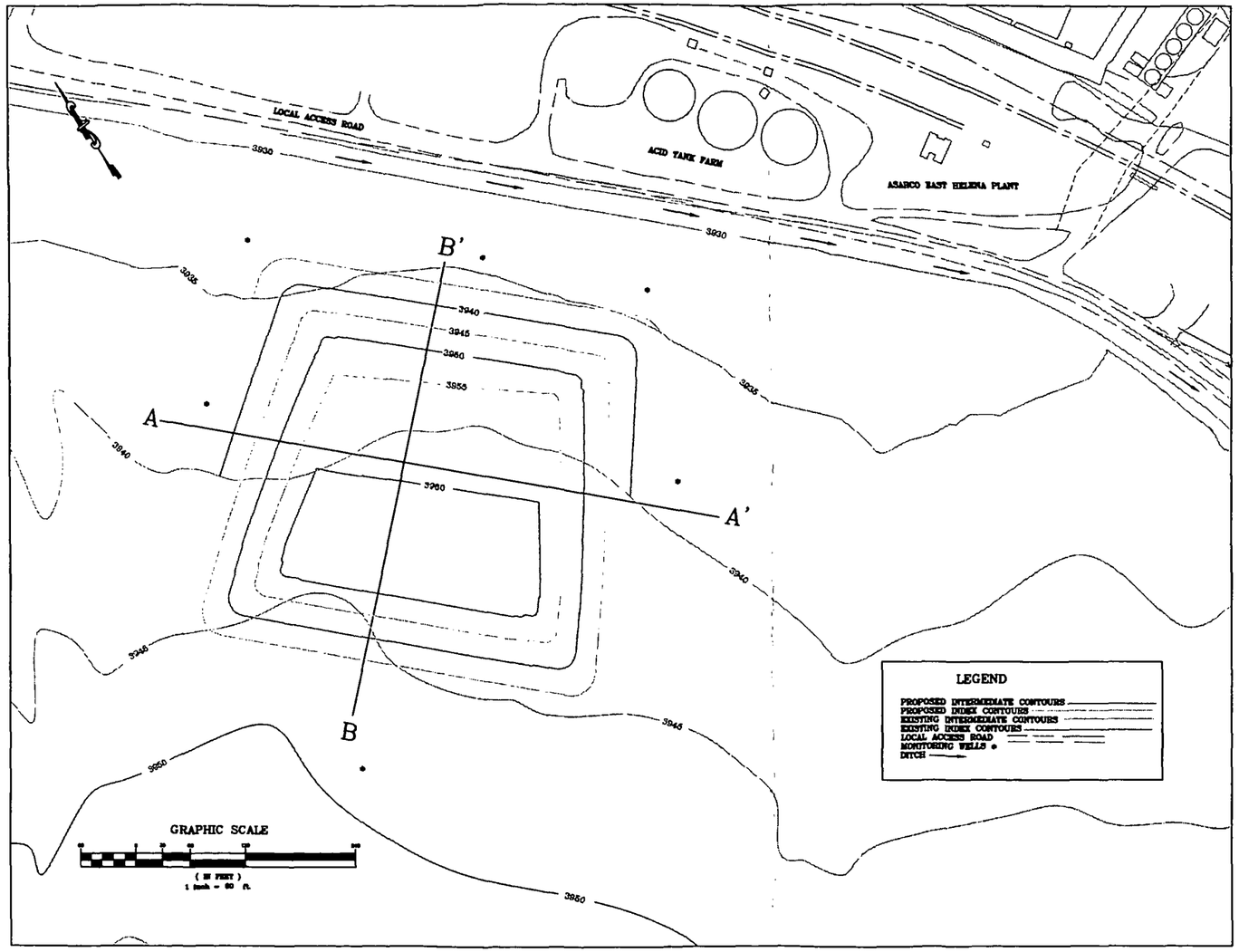
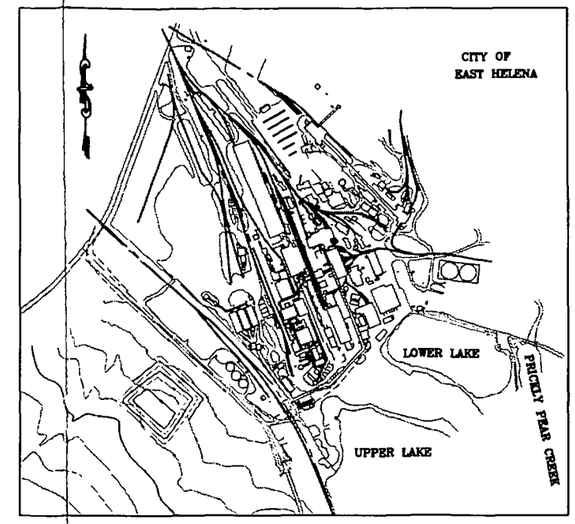
Hydrometrics, Inc.



PROPOSED ON-SITE LANDFILL (CONCEPTUAL)

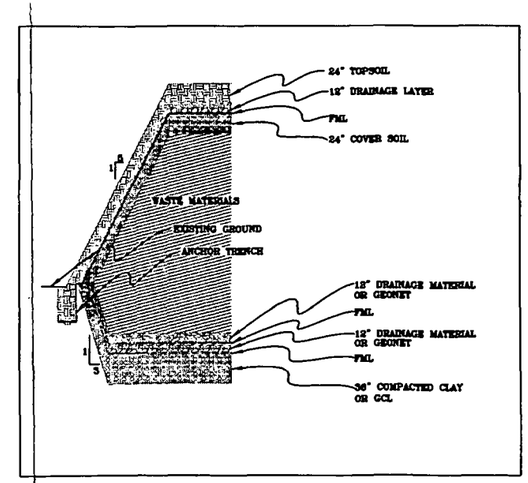
SCALE 1 INCH = 60 FEET

NOTES:
1. SEE EPA SEMINAR PUBLICATION "REQUIREMENTS FOR HAZARDOUS WASTE LANDFILL DESIGN, CONSTRUCTION AND CLOSURE" FOR COMPONENT DESIGN
2. LANDFILL CAPACITY = 79,000 CY OF SOLID WASTE
3. LANDFILL DIMENSIONS:
   FOOTPRINT AREA = 4.2 ACRES (425'X425')
   CELL DEPTH = 10 FEET, SIDE SLOPES = 3:1
   CAP HEIGHT = 20 FEET, SIDE SLOPES = 5:1



LOCATION PLAN

SCALE 1 INCH = 400 FEET



LANDFILL COMPONENTS

NTS

REVISIONS NO	BY	DATE	DESCRIPTION	REVISIONS NO	BY	DATE	DESCRIPTION

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Project No.: 7649701		DATE
DRAWN BY	JK	5-1-97
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SCALE: 1" = 60'		

Hydrometrics, Inc.
Consulting Scientists, Engineers, and Contractors
HELENA, MONTANA
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ASARCO INCORPORATED
EAST HELENA, MONTANA
PROPOSED ON-SITE LANDFILL (CONCEPTUAL)

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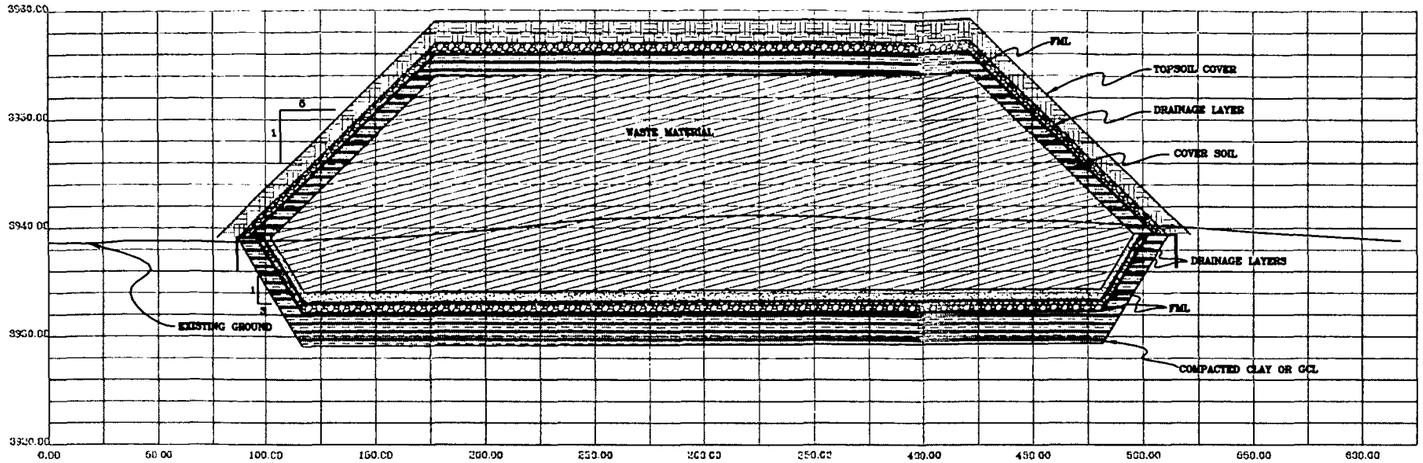
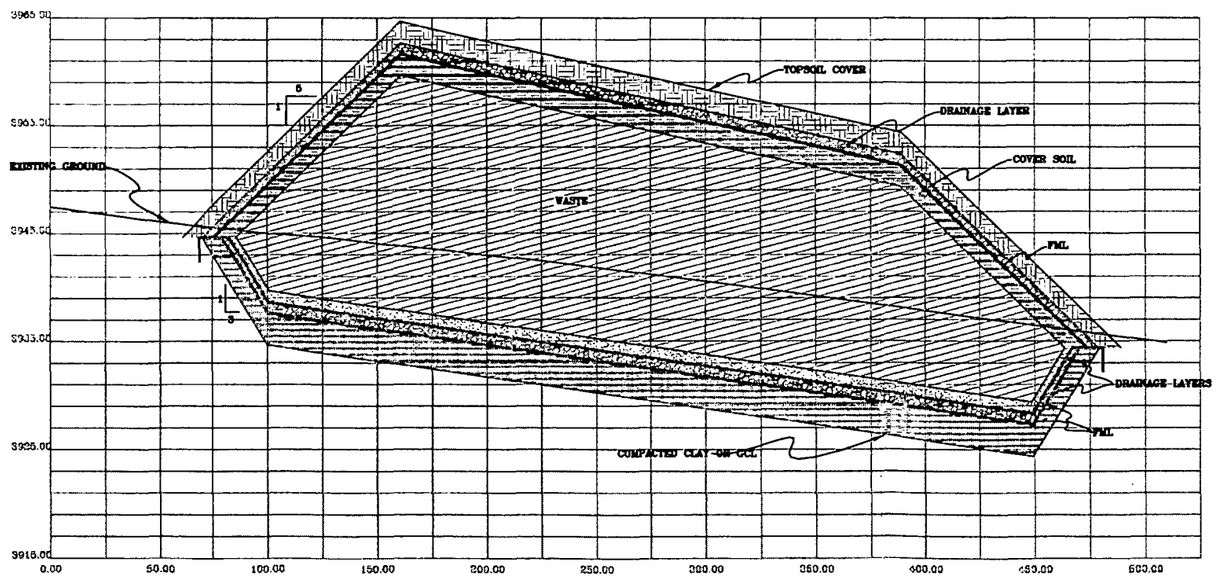
FIGURE 2 △



CROSS SECTION A–A'

SCALE: 1 INCH = 30 FEET (H) 1 INCH = 3 FEET (V)



CROSS SECTION B–B'

SCALE: 1 INCH = 30 FEET (H) 1 INCH = 3 FEET (V)

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Hydrometrics, Inc.
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HELENA, MONTANA
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ASARCO INCORPORATED
EAST HELENA, MONTANA
TYPICAL CROSS-SECTIONS (CONCEPTUAL)

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7649702
AUTOCAD REL. 13 DRAWING (DWG)
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FIGURE 3 △