

June 25, 2003
ASARCO BLACK PINE MINE
2003 RECLAMATION PLAN FOR THE COMBINATION MINE AREA
DRAFT CHECKLIST ENVIRONMENTAL ASSESSMENT

COMPANY NAME: ASARCO

OPERATING PERMIT NO. 00063

PROJECT: Black Pine Mine

LOCATION: T8N, R14W, Sections 7, 8, 9, 16, 17, 18, 19, and 21

COUNTY: Granite

PROPERTY OWNERSHIP: Federal State Private

TYPE AND PURPOSE OF ACTION: Reclamation of ASARCO's Combination Mine portion of the Black Pine Mine is necessary to reduce on-going water quality impacts caused primarily by snowmelt leaching through the waste rock dump and seeping out through the toe of the dump. The leachate has flowed downhill across the permit boundary and the acid and high copper content have killed the vegetation in the path of these annual short-term flows. In 2001, ASARCO was ordered to construct surface diversions around the toe of the dump and to construct a lined stormwater capture pond and a seepage collection system to capture other springs in the area. This water is pumped into the underground mine workings. The capture and pumpback of stormwater and several ephemeral springs influenced by the leachate through the waste rock dump have reduced the water quality impacts to a large extent. The best means of further reducing the ongoing impact would be to prevent the infiltration of snowmelt and precipitation through the waste rock dump.

ASARCO has submitted a revised reclamation plan for the entire Black Pine Mine complex to the Montana Department of Environmental Quality (DEQ) and the Beaverhead-Deerlodge National Forest, Pintler Ranger District (USFS) (ASARCO 2002). ASARCO has received \$190,000 from its Environmental Protection Agency (EPA)-managed trust fund to begin reclamation of the Combination Mine area in 2003. The portion of the plan for the Combination Mine area that can be accomplished with that funding includes:

- 1) relocation of the USFS access road downhill;
- 2) relocation and improvements to be made to the seepage collection systems below the waste rock dump;
- 3) salvage of uncontaminated soils adjacent to the waste rock dump;
- 4) placement of any contaminated materials on top of the waste rock dump,
- 5) disturbance of a borrow area for road bed construction materials; and
- 6) regrading the waste rock dump from angle of repose to a 3:1 slope.

This environmental assessment (EA) addresses this portion of the reclamation that ASARCO proposes to accomplish during the summer and early fall of 2003. In the fall and winter of 2003-2004 the agencies will prepare another environmental document to address long-term reclamation of the waste rock dump and the other mine facilities and the potential need for long-term water treatment. ASARCO would implement the rest of an approved interim reclamation plan in 2004.

Existing Plan: The existing Combination Mine consists of an access road through the site, scales, several mine and mill buildings, two mine portals, waste rock dump, water tank, stormwater diversions, vent raise, and a seepage collection system below the waste rock dump. The buildings and mine portal are located on the top of the dump, which has a surface area of about 3.5 acres. The dump angle of repose slopes have a surface area of an additional 4.5 acres.

Reclamation of the Combination Mine was approved with a standard 1970's plan which included regrading the waste rock dump slope from angle of repose to 2:1 slopes and covering with salvaged soil materials. Contour trenching of fill slopes would have been implemented if necessary. Reclamation of the portal area included backfilling the portal with waste rock and recontouring the portal pad. No special measures were approved as acid or toxic drainage was not anticipated. The reclamation of the roads was not specified and they would be either left intact to provide access for recreational uses or recontoured and seeded according to USFS and State of Montana specifications and recommendations. The option to be selected would depend upon whether or not the roads would be needed after abandonment of the property.

The following current permitted conditions represent the No-Action Alternative in this draft EA for the entire Black Pine Mine including all components covered by this permit revision:

CURRENT PERMIT CONDITIONS

Permit Boundary:	1,049.00 acres
Permitted Disturbance:	28.67 acres
Current Disturbance (as of the date of the last annual report):	28.67 acres
Current Bonded Acres:	28.67 acres
Current Bond:	\$1,370,000
Obligated Balance:	\$1,370,000
Unobligated Balance:	\$ 0

Proposed Plan: The mill building housing the heavy media separation plant, which runs east-west on the dump top (see Figure 2-1 in Attachment 1), would be removed prior to regrading, but no later than July 15, 2003 by the purchaser of the building (the building was sold at an auction in 2002). The metal building would be hauled off site and the concrete foundation broken up and buried within the waste rock pile. All other buildings would remain in place until ASARCO determined that mining was completed.

ASARCO has obtained \$190,000 from the trust fund administered by EPA for beginning reclamation of the Combination Mine portion of the Black Pine Mine complex during 2003. Additional funding will be sought to complete interim reclamation in 2004. The 2003 part of the plan for the Combination Mine area calls for:

- 1) relocating USFS Road 448 downhill from its current location at the base of the waste rock dump;

In order to accommodate the expanded footprint that would result from the regrading of the waste rock dump, a portion of USFS Road 448 would be relocated (see Attachment 2). The new road segment would be approximately 900 feet long and would have a grade ranging from 1 to 10 percent. Construction specifications would be consistent with existing USFS road specifications. The road would be approximately 20 feet wide to match the existing road width, and would be constructed with local borrow material similar to the current road. Road cut and fill slopes would range from 1H:1V to 1 1/2 H:1V. A runoff diversion ditch would be constructed on the uphill side of the road. The road cut and fill slopes would be seeded according to ASARCO's proposed seed mix.

- 2) relocating some of the components of and improving the seepage collection systems below the waste rock dump (see Figure 6-1 in Attachment 3);

The existing lined stormwater pond located at the toe of the existing dump would be removed prior to regrading the waste rock dump. Water in the pond would be pumped back to the mine workings and the liner removed. The pond excavation would be backfilled with coarse drainage rock, and a

perforated drainpipe would be installed and connected to the existing seepage collection system. Additional measures, beyond those taken during the summer of 2001, would also be implemented to modify and extend the seepage collection system to capture seepage that is now bypassing the system. A new pump station, replacing the upper pump station, would be installed on the downhill side of the relocated USFS Road 448 to allow for gravity drainage of water intercepted by the lower elevation of the new trench just below the existing waste rock dump.

3) salvaging uncontaminated soils adjacent to the waste rock dump;

Soils north and south of the dump would be salvaged and stockpiled prior to regrading the waste rock dump (see Figure 2-1 in Attachment 1).

4) placing any contaminated materials on top of the waste rock dump,

This volume includes any contaminated materials picked up during seepage collection system construction/expansion, stormwater pond construction, soil salvage, and road relocation.

5) disturbing a borrow area for road bed construction materials;

ASARCO has identified a borrow area that would be used to provide reclamation materials for the Combination Mine reclamation. This area could also be used to replace the roadbed materials that have been contaminated by the seepage from the waste rock dump unless ASARCO or the agencies determine the material is not suitable for roadbed construction.

6) regrading the waste rock dump from angle of repose to 3:1 slope.

ASARCO proposed to regrade the waste rock dump to control stormwater runoff, to reduce the slope of the face, and to reduce infiltration into the pile (see Drawing 1 in Attachment 4). The plant site located on the flat dump top would be reduced from 3.5 acres to approximately 2.6 acres and the dump face would increase from 4.5 acres to approximately 6.1 acres. The waste rock dump regrade would result in a total cut and fill quantity of 92,000 cubic yards of material.

The plant site and the rest of the top of the waste rock dump would slope away from the crest of the dump toward the adit at a 1 to 2 percent slope and water would be collected in a ditch that drained to the adit after construction work in the summer/fall of 2003 until interim reclamation is completed in the summer/fall of 2004.

Agency-Mitigated Alternative: Under this alternative ASARCO would also be required to incorporate several mitigations into its reclamation plan for the Combination Mine site. Those mitigations and stipulations are listed in Section 25 below.

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
<p>1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are soils present which are fragile, erosive, susceptible to compaction, or unstable? Are there unusual or unstable geologic features? Are there special reclamation</p>	<p style="text-align: center;"><u>GEOLOGY</u></p> <p>[Y] Existing Condition: The waste rock dump consists primarily of the quartzites and argillites of the Spokane Formation including ore vein material. Pyrite, iron staining, and copper bearing minerals can be seen on the surface of the dump and copper staining from mobilization of copper minerals can be seen on rocks, bones, and other debris on the surface of the dump. The</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT

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<p>considerations?</p>	<p>material is crushed mine-run waste material (from 1/2" to less than 6 inches) in size. The dump top covers approximately 3.5 acres and the waste rock dump slope covers about 4.5 acres. No vegetation is growing on the dump surface indicating its acid rock characteristics as well as a lack of soil, fine material, or organics.</p> <p><i>Existing Plan:</i> Given that the site has acid rock drainage problems, the lack of detail in the existing plan would result in reclamation of the site that would not adequately address these concerns. The lack of details for final reclamation also makes it difficult to ascertain how successful reclamation and stability of the site would be after closure.</p> <p>The existing plan does not contain a plan for relocating USFS Road 448 in order to regrade the waste rock dump slope. Most likely the dump slope would have to be steepened in all or a portion if the road were to remain in its existing location and that would require retaining walls or oversteepened slopes that would be subject to erosion.</p> <p><i>Proposed Action:</i> Portions of the proposed reclamation plan improvements in 2003 should decrease the potential acid rock drainage from the waste rock dump, but the regrading would also increase the potential for more contaminants to be mobilized in the seepage until interim reclamation of the dump can be completed in 2004. The runoff would be collected and pumped back into the mine workings. This would be a temporary measure until interim reclamation of the dump is completed in 2004.</p> <p>The regrading of the waste rock dump slopes would create a more stable landform.</p> <p><i>Agency Mitigated Plan:</i> No mitigations were identified as necessary, assuming that all the contaminated drainage would be collected and pumped into the mine workings.</p> <p align="center"><u>SOIL</u></p> <p><i>Existing Condition:</i> It is most likely that any soils salvaged from the mine and waste rock dump areas would be fine silty sands with 25 to 50 percent coarse fragments similar to what is at the borrow areas identified by ASARCO. Topsoil in the mine area has about 1 percent organic matter and an average sodium adsorption ratio of 0.25. The soil is relatively low in nitrogen and potassium, but these soils currently support vegetation on undisturbed native sites.</p> <p>Minimal soil appears to have been salvaged by the previous mine operator. Some soil may be located adjacent to the scales. ASARCO has some stockpiled organic material on the</p>

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	<p>Combination Dump for use in reclamation.</p> <p>Downgradient (east) of the Combination Mine waste rock dump is an area of barren soils referred to as the Combination Soils (see Figure 3-1 in Attachment 5). These soils occur as two relatively long, narrow strips of land devoid of vegetation and extending from the toe of the waste rock dump eastward for a distance of at least 1,000 feet. The eastern lateral extent of the affected soils downgradient of spring CPS-1 is not fully determined and additional sampling is needed to identify all affected soils in that area. Soil sampling by ASARCO has shown the Combination Soils to contain elevated concentrations of some metals, including copper, zinc, lead, and manganese, as compared to peripheral soils outside the barren area. The source of the metals is runoff from the waste rock dump as the barren area corresponds to the path of runoff flows. Based on limited data, in most of the barren area the metals concentrations are primarily in the top 6 inches. USFS Road 448 crosses through these materials just below the waste rock dump. The slopes of the road fill materials also have been contaminated.</p> <p><i>Existing Plan:</i> Soil salvaged from the waste rock dump area was to have been placed below the dump area. At least 1 foot was to have been salvaged from the portion of the dump on USFS lands and soil was to have been salvaged and stockpiled where practical, and stored on privately owned lands whenever possible. However, any soil material that may have been placed at the toe of the dump has been contaminated by the acid rock drainage seeping out from the dump and cannot be used for reclamation purposes.</p> <p>Reclamation was proposed to be accomplished in three phases. Cut slopes would have been reclaimed during the first phase but no soil was proposed or approved to be used. No soil was proposed for the fill slopes of the dump, which were to be reseeded during phase 2 as the dump areas were completed. During phase 3 the complete reclamation of the portal area would be accomplished to return the site to its original vegetative cover.</p> <p>Revegetation and soil distribution would have been done as recommended at closure by the State of Montana and the Soil Conservation Service (now Natural Resources Conservation Service). The lack of detail in the approved reclamation plan presents a problem in that the agencies cannot be assured that reclamation and revegetation of the site would result in comparable stability and utility to surrounding lands. It is also unlikely reclamation would be successful given the acid drainage problem and the lack of suitable salvaged soil. The existing approved plan provides no measures to address the soil contamination problem below the dump caused by acid drainage.</p>

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RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
	<p><i>Proposed Action: <u>Soil Salvage and Replacement</u>.</i> The soils along the edges of the Combination waste rock dump that would be disturbed by the proposed regrading would be salvaged and stockpiled for use in the 2004 capping of the waste rock dump.</p> <p>Soil to the north (0.35 acre) and south (0.4 acre) of the dump area would be salvaged before the dump slopes were regraded and would be stockpiled for use in reclamation of the dump. (Note: The agencies have noted that the area south of the dump in Drawing #1 appears to be almost 1.0 acre not 0.4 acre in size.) No plans have been included to show where this material would be stockpiled and how it would be protected from erosion until it could be used. ASARCO would have to identify where the material would be stockpiled on private land and how it would be protected until it could be used during final reclamation.</p> <p>ASARCO has identified one primary soil borrow area for use on the Combination Mine portal area and waste rock dump. Borrow area BPB-4 is located approximately 500 feet north of the mine on the west side of the north access road on private land. The topsoil in BPB-4 ranges in depth from 1 to 3 feet and averages 2 feet thick across the site. The topsoil is generally a brown to dark brown silty fine sand with approximately 25 percent coarse rock fragments (gravel to cobbles). The subsoil ranges from 2.5 to 8 feet thick and averages 5.5 feet. The subsoil is generally light to reddish or orange brown fine silty sand with 50 percent coarse fragments (angular gravels to cobbles); a minor clay component is present in some of the subsoils. The soils at this site are slightly acidic with a soil pH averaging about 5.4 – 5.6. The soil in the borrow area is chemically and physically suitable for reclamation.</p> <p>ASARCO proposes to salvage and use half of the volume of soil from BPB-4 for interim and final reclamation at the mine and waste rock dump and the other half for reclaiming the borrow area¹. However, during the first year of interim reclamation, it is assumed that only material to reclaim the relocated roadbed would be taken from this borrow area. Nevertheless, ASARCO has not specified that BPB-4 would be the source of roadbed construction materials nor has it determined if the borrow area contains material suitable for reconstruction of the roadbed and road surface. The amount of soil needed for this action has not been identified, but according to the surveys of the site sufficient soil material should be available. ASARCO would have to protect</p>

¹ ASARCO has designated interim reclamation to consist of relocating USFS Road 448, expanding the seepage collection system, regrading and revegetating the waste rock dump, salvaging the contaminated Combination Soils and reclaiming the salvage area, and removal of one building on the dump top. Final reclamation would consist of removing all remaining buildings and reclaiming those areas on the dump top, closing and reclaiming the portal areas, and removing and reclaiming the access road across the dump top, and building any water treatment systems needed.

IMPACTS ON THE PHYSICAL ENVIRONMENT

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	<p>the borrow area using Best Management Practices (BMPs) to prevent erosion and loss of soil material until interim reclamation could be completed the second year (2004).</p> <p>The agencies are not satisfied that the soil borrow areas contain the volumes of soil estimated by ASARCO. These soils are typically shallow and rocky with very thin organic horizons or topsoil layers. If the estimates of soil materials are too low, there may not be sufficient soil to complete interim reclamation of the entire Combination Mine dump and soil areas during the second year of interim reclamation.</p> <p>The soils along the edges of the Combination waste rock dump that would be disturbed by the proposed regrading would be salvaged and stockpiled for use in the 2004 capping of the waste rock dump.</p> <p>ASARCO proposed a cutoff of 300 ppm copper as a guideline to direct cleanup of the Combination Soils. No method was suggested by ASARCO on how to evaluate that level in the field. The agencies reviewed background soils information and found levels to be less than 50 ppm. The agencies assume that if copper levels are below 50 ppm then other metals of concern will be reduced as well. Soils left in place at 300 ppm copper would exceed background levels and may also contain elevated levels of other metals.</p> <p>ASARCO did not propose any plans to test and separate contaminated from suitable materials in other construction areas in 2003. Materials removed from the improved seepage collection system, erosion and sediment control pond and old roadbed would need to be tested to identify which materials are contaminated.</p> <p>Removing the roadbed and the Combination Soils between the dump and the outer edge of the new roadbed would remove some of this contaminated material during the first year of interim reclamation work. The contaminated materials would be placed on top of the dump and would be used to provide a portion of the cushion material beneath a proposed polyvinyl chloride (PVC) liner during the second phase of interim reclamation. These materials would not be isolated from future contact with stormwater runoff and infiltration after regrading for at least one year. However, they would be isolated along with the rest of the Combination Soils to be salvaged a year later when interim reclamation was completed in 2004.</p> <p><u>Regrading.</u> ASARCO's proposed 2003 reclamation plan would reslope the top of the dump to a grade of 1 to 2 percent toward a collection ditch along the cut face behind the mine and mill</p>

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	<p>buildings and to reduce the slope of the waste rock dump from the existing angle of repose slope to a 3:1 slope. This could allow contaminated runoff to leave the dump top via the ditch and contaminate soils, both disturbed and undisturbed, south of the dump. ASARCO's plan did not specify how any runoff water on the surface would be handled during the first year of interim reclamation when the dump was not capped and stormwater capture ponds had not been constructed. Given the permeability of the dump, it is not likely that much water would run off the dump top, but it might be possible during a rain on snow event when the dump surface was frozen.</p> <p>The long uninterrupted waste rock dump slope could result in erosion of fine materials exposed during regrading. Without a liner or a cap, it would be possible for stormwater to carry those fine sediments down to the base of the dump and perhaps farther onto the reconstructed roadbed and ditches, contaminating those areas.</p> <p>ASARCO has proposed to install two new culverts under the relocated road just above and approximately 250 feet downgradient of the relocated portion of the road as well as reconstruction of the ditch on the uphill side of the road. No details or design specifications were provided and no amount of disturbance was identified. The culverts would be necessary in order to route stormwater from undisturbed areas and the capped dump top and the dump slope under the road to avoid the Combination Soils area once interim reclamation is completed in 2004. Without appropriate measures it would be likely that seepage through and runoff from the waste rock dump would flow across the reconstructed roadbed or down the road ditch to downgradient culverts onto native soils. Either situation would result in mine-related waters contaminating soils or increasing the contamination of the remaining Combination Soils. These soils would then need to be removed and replaced a second time during the completion of interim reclamation in 2004.</p> <p>The reconstructed road would be located in a portion of the Combination Soils salvage area below the dump. The contaminated roadbed material and Combination Soils along the new road alignment would have to be removed and placed on the dump top. Sufficient quantities of clean fill would be required to fill in the trenches in that area to support the relocated road and to construct the new roadbed.</p> <p>The proposed plan does not provide for collection and capture of contaminated runoff from and seepage through the dump during the time between regrading the dump in 2003 and capping the dump in 2004. Without expanding the capture system beyond that proposed to intercept the seepage at bedrock along the edge</p>

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	<p>of the entire dump and lining the area between the dump and the roadbed, including the ditch, it is possible that the contaminated seepage could contaminate the new roadbed as well as the area between the dump and the roadbed. The collection pond would have been removed prior to regrading and the proposed plan does not contain a replacement pond elsewhere (see Section 2 below for more analysis on hydrological impacts).</p> <p>Regrading the dump to 3:1 expands the area of disturbance slightly, but avoids the need to have retaining walls or oversteep slopes on the dump on the uphill side of the road.</p> <p>The road would be reconstructed consistent with existing USFS road specifications and would have a grade ranging between one and ten percent. Road cut and fill slopes would range between 1:1 and 1.5:1. No details or other specifications were provided for the reconstructed road, although the road would have to comply with USFS specifications, and notice would have to be provided to the public about the duration of construction.</p> <p>Drawing #1 submitted with the interim reclamation plan appears to show almost 1.0 acre of additional disturbance to the south and 0.5 acre to the north in plan view. This would add up to more than 4.5 acres for the slope and 7.5 acres for the entire mine waste rock dump site. Nowhere is the acreage provided for the additional disturbance for the runon ditch, runoff ditches, and seepage collection ponds. The relocation of Forest Service Road 448 would disturb approximately 0.83 acres (900 feet long by 40 feet wide—20 feet of roadway plus 10 feet on either side for grading purposes). These acreages need to be verified to ensure that sufficient soil in BPB-4 is available for reclaiming these areas in addition to providing capping material during the second year of interim reclamation.</p> <p><i>Agency Modified Alternative: <u>Soil Salvage and Replacement:</u></i> Any soil disturbed along runon diversion and roadside ditches would be either placed into a stockpile for use during final reclamation or used to reclaim the outer slopes of the ditches. All areas disturbed during construction of these ditches would be seeded with the agencies' modified seed mix. If any of the soils are contaminated with levels of copper above 50 ppm, they would be placed on the top of the waste rock dump.</p> <p>ASARCO would need to identify the location of all soil stockpiles on a map for BPB-4 and for any soil salvaged during reconstruction of the road and associated ditches, expansion of the seepage control system, and regrading of the dump to the north and south. ASARCO would need to recalculate how much soil was left after relocation and reconstruction of USFS Road 448 was completed so that DEQ and the USFS would know how</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT

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	<p>much material was available for interim and final reclamation of the dump top and the Combination Soils area. All soil stockpiles and the disturbed area within BPB-4 would be seeded with the agencies' modified seed mix to reduce the potential for erosion and loss of soil materials. Since no soil would be placed on the dump during the first year of interim reclamation (2003), no seeding would be done on the dump until an approved reclamation cover system was approved and installed during 2004.</p> <p>The agencies' proposed plan would not disturb any additional USFS land other than that identified by ASARCO in its proposed plan. However, the seemingly inconsistent acreages and questionable and/or unknown volumes make it difficult to determine exactly how much soil would need to be salvaged during dump regrading, as well as how much material would be removed from below the dump including the existing roadbed during regrading and relocation of the road. ASARCO must provide engineered calculations estimating soil and contaminated material salvage volumes and acreages for the first year of reclamation. The agencies would review these calculations and all interim and final reclamation designs that could affect soil and contaminated material salvage and replacement.</p> <p>An x-ray fluorescence analyzer (XRF analyzer) would be used in the field before and after contaminated Combination Soils were removed to identify and verify that sufficient contaminated soil had been removed. Non-contaminated materials identified within the roadbed and other areas could be stockpiled for use in reclamation covers the following year and the contaminated materials would be placed on the top of the waste rock dump and covered with an approved reclamation cover system during completion of interim reclamation in 2004.</p> <p>The agencies have specified that soils would be removed based on limits developed from background levels of copper in uncontaminated soils in adjoining areas. ASARCO proposed a cutoff of 300 ppm copper as a guideline to direct cleanup of the site. The agencies reviewed background soils information and found levels to be less than 50 ppm. Agencies assume that if copper levels are below 50 ppm that other metals of concern would be reduced as well.</p> <p>Removal of contaminated soils in the road relocation area will not exceed three feet deep. Three feet of borrow area soil would be replaced in the trench to provide a growth medium for plants.</p> <p>Although it is possible that sufficient suitable material is available in BPB-4, ASARCO must specify where proposed borrow for the roadbed construction would come from and final plans for that</p>

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	<p>borrow area must be reviewed and approved by the agencies.</p> <p><u>Regrading:</u> In order to minimize the risk of stormwater running off the dump top onto uncontaminated soils, the dump top would be temporarily regraded in 2003 to route any runoff into the mine workings.</p> <p>Runoff from the regraded waste rock dump slopes must be controlled to prevent recontamination of clean fill in the relocated roadbed and downgradient roadside ditches. One or two temporary culverts would need to be added to the proposed design to divert contaminated water beneath the new roadbed to an expanded water capture system on the downgradient side of the road to minimize the potential for contamination of the roadbed and the road ditches. The plans for the culvert, water capture pond, and blocked ditches must be submitted to the agencies for review and design.</p> <p>The waste dump slope would be regraded to incorporate a series of slightly inward sloping breaks or benches across the slope every 50 vertical feet to help reduce the potential for erosion. The benches should be at least 12 feet wide to allow access for maintenance and slope into the hill at one to two percent and to the sides at one to two percent to drain the water off the dump into the stormwater collection ditches that would route the runoff into the stormwater collection pond. The dump slope on the uphill bench slope should not exceed 3:1.</p>
<p>2. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or ground water resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?</p>	<p>[Y] Existing Condition: There are no perennial streams near the Combination Mine. The nearest perennial stream is Smart Creek located about 1.25 miles southeast of the toe of the waste rock dump and USFS Road 448. Smart Creek drains into Flint Creek, which flows through the Philipsburg Valley several miles away.</p> <p>Several ephemeral springs and one perennial spring have been located either adjacent to or beneath the waste rock dump and downslope from the dump in or adjacent to the Combination Soils barren areas. Communication with a former Forest Service employee who cruised the timber in the current dump area prior to its construction has indicated that there were in fact springs and spruce trees present on the site. This would indicate the potential for water coming up through the base of the dump and interacting with the waste rock.</p> <p>The local springs drain into ephemeral drainages that flow into Smart Creek. These springs are acidic (pH ranging between 2.6 and 4.7) and are high in sulfates, copper, zinc, iron and cadmium. These seeps and springs tend to flow during and after snowmelt and large precipitation events although some are perennial. Monitoring and sampling done in 2000 generally indicated a</p>

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	<p>possible connection between the Combination Mine pool and CPS-1 but that there were other factors contributing to the poor water quality of the spring than just the mine water (Hydrometrics 2001). Elevated levels of copper also showed possible influence of the acid seepage from the waste rock dump. The water quality of the ephemeral springs and seeps indicated contamination by the acid seepage from the waste rock dump was occurring through either surface flows or shallow ground water flows between the dump and the springs and seeps.</p> <p>The snowmelt and stormwater from the top of the dump do not directly drain off the surface but primarily infiltrate into the dump and exit via these downslope springs and seeps. The water tends to pond in depressions until it either seeps into the dump or evaporates; very little flows off the surface onto the adjoining native lands except from the toe of the dump. The overland flows were generally of short duration and occurred primarily during snowmelt each spring. The bulk of the flows were channeled through the culverts under USFS Road 448, but the pattern of the barren areas shows that some water flowed over the road as well. It is estimated that snowmelt in an average year would result in as much as 11 to 13 inches of precipitation (MWH 2002) or about 2 million gallons of runoff that would leave the site within a 2 week period which is equivalent to about 100 gallons per minute (gpm) or 0.25 cubic feet per second (cfs). A rain-on-snow event or a 24-hour/25-year storm event could result in the movement of as much as 5.46 cfs of water off the site within a couple of days.</p> <p>ASARCO added sodium hydroxide into the mine pool in 2001 to test whether the mine pool was affecting CPS-1 and other springs in the area. The agencies were also concerned that by pumping back the contaminated water from CPS-1 and the contaminated stormwater from the waste rock dump the rising mine pool may be affecting both water quality and quantity in the springs. An analysis of the mine pool water and the spring water revealed that the water in the CPS-1 is the same as that from the waste rock dump seep. The sodium hydroxide has not been detected in local springs, so there is no documented connection between the mine pool and local springs.</p> <p><i>Existing Plan:</i> Under the original 1974 reclamation plan, all drainage from the area would be diverted to existing natural drainage channels, and water from the development and mining activities would be contained underground in the workings. It is not specified if stormwater and snowmelt from the portal area and the dump top would be drained into the mine workings or if the water was to be diverted off site into the natural channels after reclamation. Given that snowmelt and stormwater infiltrate into the dump and that no means had been approved to ensure water would drain off the dump without infiltrating, the original plan is</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
	<p>inadequate to protect stormwater and possibly downgradient streams and wetlands from the effects of acid drainage.</p> <p>The agencies approved and ASARCO constructed a seepage collection system in 2001 to control offsite migration of acidic waters that might be associated with the mine facilities. The seepage collection system includes a network of seepage collection trenches designed to intercept shallow sub-surface water migration. The trenches are of variable depths depending upon the soils and the location of the seepage water in 2001, but are generally 3 to 5 feet deep. The trenches were backfilled with washed gravel (1.5 inches maximum) to approximately 1 foot below the ground surface and then covered with native material to grade. The captured seepage water is collected in 2-inch diameter perforated polyvinyl chloride (PVC) pipe located near the bottom of each trench. The intercepted water gravity drains to one of two pump stations, one above USFS Road 448 and one located approximately 600 feet downhill (east) of the road. The pump stations can pump a maximum of 210 gallons per minute (gpm). The water is pumped back into the Combination Mine underground workings for containment.</p> <p>A shallow trench along the edge of the waste rock dump intercepts stormwater off the face of the dump and shallow seepage, and drains into a temporary stormwater capture pond. The water in this pond is also pumped to the upper pump station for return to the underground mine workings. This system has shown limited effectiveness under high runoff conditions as some water has been found to be bypassing this system under the lined stormwater pond and in the CPS-1 and CPS-10 area. There have also been numerous problems with power outages and plumbing problems limiting pumpback of the contaminated water. ASARCO made improvements to the system in 2002 and most of the plumbing problems seem to be resolved.</p> <p><i>Proposed Action:</i> ASARCO has proposed making two changes to the existing seepage collection system prior to any regrading of the dump slopes. Two additional trenches would be installed to capture water that bypassed the trenches installed beneath seep CPS-1 and a small series of seeps east of monitoring well SMW-4 (see Figure 6-1 in Attachment 3). The upper pump station would be relocated just across the road to ensure gravity drainage into it from the seeps at the base of the dump. This would allow the regrading of the dump to cover up the existing capture system and pond below the toe of the existing dump yet allow seepage to be captured and pumped back to the mine workings. All lines to the existing upper pump station would be relocated to connect with the new pump station. These modifications to the seepage collection system would further help to reduce the impacts from any seepage that was generated by water getting into the dump.</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
	<p>Given that the dump would not be capped during the first year of interim reclamation, it is likely that stormwater and spring snowmelt waters would infiltrate through the dump and be captured by the expanded system. It is possible that some waters could bypass the system and contaminate the materials placed between the regraded dump and the relocated roadbed as the system does not extend all the way to bedrock.</p> <p>Additionally the stormwater capture pond at the toe of the dump would be removed prior to regrading the dump and the proposed plan does not provide for a replacement pond on the downgradient side of the road nor any way for contaminated seepage through and runoff from the dump to get to a temporary storage area to be pumped back to the mine during the year between regrading in 2003 and completion of interim reclamation in 2004. This water would flow down the ditch along the reconstructed relocated roadbed contaminating the ditch, the roadbed, and areas downgradient of the new culvert installed about 250 feet beyond the end of the reconstructed roadway.</p> <p>Water might also flow over the roadbed and continue down slope continuing contamination of the Combination Soils. Since regrading the waste rock dump would expose new surfaces to weathering it is possible that the water quality in the seepage and stormwater runoff may be of worse quality than what currently seeps through the dump. In order to not make the acid drainage situation worse, measures would need to be taken to handle the water after the dump is regraded until interim reclamation could be completed the following year.</p> <p>ASARCO proposed to construct a lined water management pond downhill (east) of the lower seeps. The pond could be used to store water collected by the seepage collection system prior to pumping it back to the mine and/or treating it prior to discharge. Such a pond might also capture stormwater runoff during major storm events if water overtopped one or more of the ditches and flowed across the road toward the pond. If the pond was not sized large enough for such an event, water in the pond could overflow carrying the seepage water along with the stormwater downgradient. This pond, however, should not be used in this location to capture contaminated seepage and runoff in the year between regrading and completion of interim reclamation. This is because it would only capture any contaminated water that flowed over the relocated roadway and water that flowed over the Combination Soils. ASARCO did not propose plans to allow all contaminated water to reach this pond for temporary storage.</p> <p>ASARCO has proposed interim regrading and reclamation of the dump to reduce the potential for snowmelt and stormwater to</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
	<p>infiltrate through the dump and generate acidic water that reaches the seeps and springs. The dump top would be regraded. It currently slopes toward the dump crest and any flow goes down the face of the slope. The regraded dump top would slope down toward the buildings from the crest of the dump to a ditch located between the buildings and the cut face of the slope on the west side of the site. The stormwater retention/infiltration basin south of the plant site on the east side of the access road would not be constructed during 2003 and any contaminated water flowing in the ditch across the waste rock dump top would flow down the roadside ditch and either through a culvert downgradient or over the roadway onto undisturbed native soils. It is unlikely that stormwater would flow in the ditch given the permeability of the waste rock dump, but it would be possible during a rain on snow event or rapid spring thaw when the dump was frozen.</p> <p>The runon diversion ditch located on the hillside above the plant site would be regraded and extended approximately 250 feet to the south and north to completely bypass the plant site.</p> <p>New culverts would be installed at either end of the ditch and runon water would be discharged onto native slopes downgradient of the access roads. Water from the regraded dump top would most likely flow down the roadside ditch to these new culverts. Two new culverts under Forest Service Road 448 would also need to be installed to divert the water under the road.</p> <p>Runon water should not be allowed to contact mining-related disturbances or directly mingle with mine site runoff. There would be some potential for these waters to mix as they flowed over the native ground below the south access road toward USFS Road 448. There would also be some potential for seepage waters collecting in the ditch below the dump to mix with runoff from undisturbed areas up gradient of the dump and then flow downgradient to one of the new culverts and flow through it and contaminate undisturbed native soils. This would allow co-mingling of runon and runoff waters. ASARCO did not provide any conceptual design specifications for the outlet structures necessary to spread out the flow of water across native ground.</p> <p>No backup pumps or electrical power generation system have been proposed. The failure of pumps or loss of electrical power could result in the acid water from the intercepted springs and seeps flowing under or over USFS Road 448 and onto the Combination Soils barren areas east of the road. This would allow the existing impact to these areas to continue.</p> <p>Most water control and capture measures proposed by ASARCO would help to reduce the potential for the infiltration of snowmelt and stormwater through the waste rock dump and generation of</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
	<p>acid rock drainage below the dump if a liner and cap were installed on the dump top during the first year of reclamation work. However, ASARCO's proposed plan does not contain descriptions or adequate measures to handle the continued seepage of possibly worse quality water between the first and second years of interim reclamation.</p> <p>ASARCO has done preliminary testing and planning of various water treatment options in the event water treatment is determined to be necessary. The need for long-term water treatment will be analyzed in another environmental document to be completed in the fall and winter of 2003-2004.</p> <p><i>Agency Modified Alternative:</i> The seepage collection system below the existing dump would be expanded to capture water beneath the dump to bedrock or at least to the depth that an excavator can reach below the existing ground surface beneath the footprint of the regraded dump. This will be done to ensure that any groundwater that used to exit below the regraded dump into the waste rock would be channeled deeper into the collection system below the waste rock. The area between the dump and the relocated road would be lined with an agency approved geomembrane liner to capture seepage and stormwater runoff from the dump and prevent it from seeping into the roadbed.</p> <p>One or two temporary culverts under the roadbed would be installed to route the water into a new lined stormwater capture pond located just below the road. The culverts must be sized to pass a 100-year storm event to comply with INFIS². The stormwater capture pond must be sized large enough to contain the seepage through the dump and a rain on snow event plus any runoff captured by the ditch upgradient from the dump. The road ditch would be blocked to prevent this contaminated water from flowing further down the ditch contaminating the ditch, the roadbed, and native soils at the point where the downgradient culvert would pass the water beneath the road.</p> <p>The top of the dump would be regraded to 1 to 2 percent slopes so that the water from the surface of the dump would be diverted into the mine. This would reduce the potential for contaminated stormwater and runoff from the dump top to flow into the roadside ditch along the south access road mixing with runoff water and contaminating new soils.</p>

² INFIS is the acronym for Inland Native Fish Strategy, a program implemented by the USFS in 1995 to protect important fisheries habitat.

IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
	<p>Three stormwater management measures must be implemented in the Combination Soils area:</p> <ul style="list-style-type: none"> • A lined stormwater runoff and seepage collection pond would be constructed just below USFS Road 448 that would be sized to contain all seepage and runoff from the dump generated during a rain on snow event and spring snowmelt as well as any water that would be captured by the upgradient portion of the road ditch. Existing pumps and a pump for this pond would be maintained until monitoring indicated and the agencies concurred that collection and pumpback of seepage water is no longer required. • One or more temporary culverts under the relocated roadbed would be installed below the regraded dump to direct all seepage through and runoff from the waste rock dump into the collection pond on the downslope side of the road. • The road ditch would be blocked to prevent contaminated water from flowing downgradient and reaching culverts under the roadbed which could then contaminate undisturbed native soils. <p>All new or replacement culverts must be sized to carry the 100-year flood event to comply with INFIS requirements.</p> <p>Backup pumps and backup electrical power generation for the seepage collection system would be installed to ensure the system would be operable whenever the pumps need to pump back collected seepage and dump runoff water. This modification in conjunction with the modifications to the seepage collection system proposed by ASARCO would further reduce the impacts from any seepage that was generated by water getting into the dump.</p> <p>Regrading would involve clearing the land of vegetation before soils could be salvaged and the waste rock dump could be regraded. Since the slash material can be used during the reclamation process, slash generated by land clearing activities prior to soil salvage, regrading, etc. would be salvaged and used for slash filter windrows to help minimize erosion.</p> <p>Long-term water treatment studies must continue. This is necessary to ensure that the means for water treatment at the Combination Mine are clearly identified and the preliminary plans for implementing the preferred method would be available for use should water monitoring indicate a need for water treatment. Should monitoring indicate that treatment would be necessary,</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
	<p>the preferred plan would be more fully developed by ASARCO and analyzed in a supplemental environmental document prior to approval and implementation.</p> <p>All existing monitoring reports need to be summarized in one document as the data are found in a variety of different documents at the different agencies. This would facilitate comparison of post-reclamation and post-closure data with baseline and operational data. The data must be submitted in electronic format.</p> <p>The water sampling and monitoring plan needs to be summarized in a single document. The following components would be added to ASARCO's proposed water sampling and monitoring plan:</p> <ul style="list-style-type: none"> • In order to better understand the relationship between the mine pool and the seeps below the waste rock dump, adit water quality would be monitored for all parameters on an annual basis. Representative sampling sites must be identified for this purpose. • A staff gauge(s) must be installed in the mine workings so that mine pool water levels could be measured over a range of elevations. • A plan describing adit water quality sampling and measuring must be prepared and submitted for agency review and approval within 30 days of approval of this permit amendment. <p>Additionally, CPS1 should be monitored quarterly to document how well the capping and reclamation of the waste rock dump works to control acid rock drainage. Full parameter testing must occur annually. Spring and seep monitoring should occur at least annually during peak ground water periods (early July) to determine whether leakage from mine pool waters might be impacting peripheral surface environments on either side of Black Pine Ridge. Field parameters of specific conductivity, pH, and temperature would be collected and flow would be measured. A water quality sample must be collected if flows are significant.</p>
3. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?	[N] It is possible that dust could be increased from the 2003 reclamation activities, but it is not likely that this would be a significant increase. This would be a short-term impact on air quality until interim reclamation is completed the following year.
4. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be	[N] <i>Existing Condition:</i> There is no vegetation growing on the Combination Mine waste rock dump. The undisturbed areas surrounding the dump consist of 10 to 12 year old lodgepole pine

IMPACTS ON THE PHYSICAL ENVIRONMENT

RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
<p>significantly impacted? Are any rare plants or cover types present?</p>	<p>trees with an understory of grasses, low shrubs (huckleberry, kinnikinnik, snowberry) and wild flowers, except for barren areas to the east in the Combination Soils area. There are standing burned snags left from the Combination Fire of 1988. There are also scattered individual trees and clumps of aspen and willows on the hillsides below the mine.</p> <p>No rare plants or cover types have been identified in the project area including the proposed soil borrow area.</p> <p><i>Proposed Plan:</i> Regrading would involve clearing the land of vegetation before soils could be salvaged and the waste rock dump could be regraded. ASARCO claims that regrading of the slopes of the waste rock dump would disturb about 1 acre of undisturbed vegetation to the north and south of the dump. Assuming the drawings submitted by ASARCO are correct, the agencies believe the disturbance would be closer to 2 acres. Minor disturbances would occur along the runon diversion ditch extensions above the mine and the ditches and settling ponds located below USFS Road 448 as well as where the modifications were to be made to the seepage collection system (probably a total of 1-2 acres due in part to disturbances caused by getting equipment to the sites, not actual ground disturbance). No planting of vegetation is proposed during the first year of interim reclamation of the waste rock dump.</p> <p><i>Agency Modified Alternative:</i> Other disturbances would include vegetation removal along the runon diversion ditch extensions, along the roadside ditch along the west side of the south access road if regrading or maintenance is determined necessary by USFS staff, as well as where the modifications would be made to expand the seepage collection system (probably a total of less than 2 acres). Some of these disturbances would include actual ground disturbance to dig the ditches as well as disturbances to vegetation from the equipment accessing the site. A portion of the 5.46 acres of the borrow area might also be disturbed under this alternative if the material in the borrow area is suitable for fill material for the relocated USFS Road 448.</p> <p>ASARCO's plan for capping the dump to complete interim reclamation and the final reclamation plan would be evaluated at a later date, but prior to completion of interim reclamation in 2004, to determine the interim and final reclamation seed mix and planting requirements.</p> <p>Trees would be removed from the proposed disturbances. Since slash can be used during the reclamation process, slash generated by land clearing activities prior to soil salvage, regrading, etc. would be salvaged and used for slash filter windrows to help minimize erosion.</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
<p>5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?</p>	<p>[N] Black bear, moose, elk, and mule deer occur in the area. Game birds include blue grouse and Franklin's grouse. Other small mammals and songbirds also use the surrounding undisturbed landscapes. Regrading at the Combination Mine site under any action alternative would temporarily disturb and possibly displace wildlife during these activities. However, these activities would be short term and use of the surrounding area would return to similar levels of use after regrading and interim reclamation of the waste rock dump was completed.</p> <p>There is no fisheries habitat located within the proposed project area, although Smart Creek and Flint Creek, downstream of the Combination Mine, do support fish populations. There would be no impact to fisheries habitat from implementing the Proposed Plan or the Agency-Modified Alternative.</p>
<p>6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?</p>	<p>[Y] The bald eagle, gray wolf, grizzly bear, and Canada lynx are the only known threatened or endangered species to occur within the project area. The peregrine falcon had previously been listed as a threatened species, but has since been removed from listing as a result of nationwide recovery efforts. Where suitable habitat exists, the peregrine falcon will be considered a sensitive species. However, the project area does not contain any suitable critical habitat for these four currently listed and one previously listed species (USDA Forest Service 2001b), and no impacts are anticipated to these species or their habitats from the implementation of any of the action alternatives. Other animal species of special concern in the area include northern goshawk, black-backed woodpecker, western big-eared bat, boreal toad, and northern leopard frog. Although there may be suitable prey in the area for the raptor and bat species, interim reclamation of the site would not adversely affect prey species or their habitats or any other suitable habitat for the raptors and bats. There is some potential for individual boreal toads and northern leopard frogs to be impacted by the changes being made to the seepage capture system at the springs, but there would be little potential to cause a trend toward listing these species. No federally listed plant species or plant species of special concern have been identified in the project area (USFS 2001a).</p> <p>A population of westslope cutthroat trout, a USFS sensitive species, exists in Smart Creek, and bull trout, an ESA (Endangered Species Act) listed "threatened species," is found in Flint Creek in Section 6. While these species are not found in the immediate vicinity of the Combination Mine, they are located downstream from the site. Neither the Proposed Plan nor the Agency Modified Alternative would have an impact on these downstream fisheries.</p>

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
7. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	[N] No historical or archeological sites have been identified in the permit area. If any sites are located during regrading of the waste dump or salvage of soil, including the Combination Soils, ASARCO would be required under the Agency Modified Alternative to notify DEQ, the State Historic Preservation Office, and the USFS. What actions would be required would depend upon the nature of the sites and whether or not the sites were on private or USFS lands, and cannot be determined at this time.
8. AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?	[Y] The mine and waste dump are highly visible from USFS Road 448 and from across the valley. Regrading of the dump under either the Proposed or the Agency Modified Alternative would not greatly increase or decrease the visibility of the site. Disturbances resulting from installing or reconstructing ditches and salvaging soil material may be somewhat visible until the slopes were revegetated. Since these areas would be not be revegetated until the following year, they would remain somewhat visible during that time. The regrading would be primarily done during daylight hours so lighting is not an issue. The only impacts from noise would be to wildlife and cattle in the area and persons driving through on USFS roads in the area. This would be a short-term but unavoidable impact and would have no lasting effects.
9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?	[N]
10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES: Are there other activities nearby that will affect the project?	[N]

IMPACTS ON THE HUMAN POPULATION	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
11. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?	[N] The use of heavy equipment to regrade the site has some inherent safety risks to personnel but equipment should be operated properly. Access by ASARCO and agency staff would be maintained during interim reclamation but the road would not be open to the public. Completion of the project would help to enhance public health and safety.
12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:	[N] There are cattle grazing on USFS lands surrounding the project area. There may be short-term and temporary disturbances to grazing animals.

IMPACTS ON THE HUMAN POPULATION	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
Will the project add to or alter these activities?	
13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.	[N] There would be a short-term increase in employment to work the equipment to regrade the site, install the ditches and culverts, and remove and reconstruct USFS Road 448. There would be no permanent positions created during interim reclamation of the site.
14. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?	[N]
15. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?	[N] DEQ and the USFS would continue to inspect the site to ensure compliance with permit conditions and stipulations.
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[Y] A portion of the waste rock dump and lands east of USFS Road 448 and south of the waste rock dump and mine area are USFS lands subject to requirements of the 1987 Deerlodge National Forest Management Plan. The Agency Modified Alternative would comply with the USFS Plan. ASARCO's interim plan cannot be approved at this time because of the significant amount of potential disturbance it would produce on Forest Service lands. The USFS land below the Combination Dump is in the process of being sold to ASARCO. This would remove major USFS involvement in the plan except for relocation of the access road.
17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	[Y] USFS Road 448 provides access to USFS lands and private inholdings in the vicinity of the permit area. Interim reclamation of this site under any action alternative would not affect that access. There is some recreational potential for hunting on the mine site and within the permit area for people authorized by ASARCO to enter these private lands. ASARCO would leave the public access road open while the new road was built.
18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	[N]
19. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N]

IMPACTS ON THE HUMAN POPULATION	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
20. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N]
21. PRIVATE PROPERTY IMPACTS: Are we regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category.) If not, no further analysis is required.	[Y] DEQ regulates the use of private property used for mining under the Metal Mine Reclamation Act (MMRA). The MMRA requires compliance with the state's air and water quality acts. The required modifications are necessary to comply with the MMRA and the state's air and water quality acts
22. PRIVATE PROPERTY IMPACTS: Does the proposed regulatory action restrict the use of the regulated person's private property? If not, no further analysis is required.	[Y] DEQ's modifications to ASARCO's proposed interim reclamation plan would restrict the amount and to some extent the method of implementing interim reclamation measures at the Combination Mine waste rock dump site. However, the goal of interim reclamation would be achieved under both action alternatives.
23. PRIVATE PROPERTY IMPACTS: Does the agency have legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required. If so, the agency must determine if there are alternatives that would reduce, minimize or eliminate the restriction on the use of private property, and analyze such alternatives.	[Y] DEQ has the authority to require the modifications in order to protect the ground and surface water resources being adversely affected by acid rock drainage at the project site. The expansion of the seepage capture system beyond what ASARCO proposed and the change in stormwater control measures are necessary to minimize the risk for continued harm to the lands and waters down slope and downgradient from the mine and the waste rock dump.
24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:	[N]

25. Alternatives Considered:

No Action Alternative: The existing reclamation plan for the Black Pine Mine Combination waste rock dump is very basic and typical of plans approved in the 1970's. Currently, ASARCO pumps back seepage water from CPS-1 into the mine pool and collects stormwater and seepage runoff from the waste rock dump in a pond at the base of the dump. This would continue until a final reclamation plan is analyzed and approved. The system has had limited success because of overtopping and pump and power failures in 2001. The plumbing problems were largely resolved by ASARCO in 2002. No plan is approved for the removal and relocation of USFS Road 448 nor the salvage of the Combination Soils.

Proposed Action: ASARCO's proposed interim reclamation plan for the Combination waste rock dump would regrade the top of the dump and cover it with a PVC liner and a complex soil cap that would be accomplished over a 2-year period. This would be considered in another environmental document in the fall and winter of 2003-2004. In 2003, the dump slope would be reduced to 3:1 and the dump top regraded to a one to two percent slope toward the mine opening. All mine buildings, except the heavy media separator building, would remain in place. Stormwater on the dump top would be captured by a single drainage ditch and routed to the south edge of the dump during the first year of construction. Some interim modifications would be made to the seepage collection system to improve the capture of water bypassing the existing system. USFS Road 448 would be relocated to allow for regrading the waste rock dump but very few details were provided.

Agency-Modified Alternative: The agencies have analyzed the activities necessary to implement the first year of the interim reclamation plan proposed for the Combination waste rock dump. The interim reclamation plan proposed by ASARCO must be modified to address several agency concerns caused by implementing interim reclamation over a two-year period. The agencies have identified 15 modifications to the permit amendment request.

Modification 1: The primary goal of this revision is to provide a temporary measure to eliminate or greatly reduce the potential for stormwater and snowmelt runoff to leave the waste rock dump top and mix with uncontaminated runoff water in the ditch along the south access road. ASARCO's proposal involves regrading the entire dump and may result in the new disturbance of less than 10 acres of private and USFS lands. The dump top would be regraded to a 1 to 2 percent slope such that the site drains into the mine portal and the mine pool.

Stipulation 1: ASARCO must develop a grading plan so that the dump top would be regraded to a 1 to 2 percent slope toward the mine portal. The gate at the portal may need to be modified to allow the flow of water into the mine while still controlling unauthorized human or wildlife access. This plan must be submitted to the agencies for review and approval before construction begins.

Modification 2: The removal of the existing stormwater capture system below the dump would require the construction of a larger stormwater collection pond below the relocated USFS road. The pond would be sized to contain the predicted snowmelt runoff and seepage from the dump as well as water intercepted by the USFS Road 448 ditch upgradient of the dump and would be lined. Water collected in the pond would be pumped back to the underground workings.

Stipulation 2: ASARCO must construct a large lined sediment and erosion control pond below the USFS access road and submit the pond design for agency review and approval before construction begins.

Modification 3: Completing interim reclamation over a two-year period requires that contaminated seepage and runoff from the waste rock dump not be allowed to contaminate the clean fill in the relocated roadbed nor the road ditch downgradient from the dump. That water must be captured and moved under the road to the pond required in Stipulation 2 above.

Stipulation 3: ASARCO must install temporary culverts beneath the road to route stormwater runoff from the waste rock dump collecting in the roadside ditch and any seepage reaching the surface to the new stormwater pond below the relocated USFS road. These culverts must be sized to handle a 100-year storm event to comply with INFIS. An associated measure would also include blocking the roadside ditch to prevent the water from flowing beyond the site and passing beneath new culverts to the north and flowing across native ground. ASARCO must submit the final designs for the culverts and blocked ditch to the agencies for review and approval along with the pond plan in Stipulation 2 above before construction begins.

This measure would remain in place until the waste rock dump is capped and interim reclamation completed in 2004. Once reclamation is completed, the interim culvert(s) could be removed and the ditch unblocked.

Modification 4: The agencies have some concern over the volume of soil materials available at BPB-4. Information in the application does not indicate whether or not the material there would be suitable for road fill and surfacing material. Additional information is needed to verify the volumes and suitability of soils from this borrow site.

Stipulation 4: ASARCO must provide additional soil analysis information and engineering evaluation with the final designs for the road relocation for agency review and approval before construction begins.

Modification 5: All soil salvaged during construction of ditches would either be placed into a stockpile for use during interim or final reclamation or used to reclaim the outer slopes of ditches that would not come in contact with any contaminated water during the time between regrading of the dump in 2003 and completion of interim reclamation in 2004. All soil stockpiles and the disturbed portions of BPB-4 would be seeded with the agencies' modified seed mix to reduce the potential for erosion and loss of soil materials. Any contaminated soils removed during the 2003 reclamation activities including relocating the USFS Road 448 must be placed on the dump top.

Stipulation 5: ASARCO must salvage all soil materials when constructing any runoff or roadside ditches in uncontaminated areas. ASARCO must seed all soil stockpiles and disturbed areas in BPB-4 to minimize erosion potential. Any contaminated soils removed during the 2003 reclamation activities including relocating the USFS Road 448 must be placed on the dump top.

Modification 6: All soil stockpiles for BPB-4 and the dump regrade area are to be indicated on a map. Soil calculations would be provided to the agencies so that the agencies could ascertain that sufficient material was available for interim and final reclamation.

Stipulation 6: ASARCO must provide updated maps showing the proposed location of soil stockpiles at BPB-4 and the dump area. ASARCO must provide initial engineered soil volume calculations and updated calculations after the first year's interim reclamation work is completed for agency review and approval before construction begins.

Modification 7: Much of the material in the existing roadbed below the dump as well as the area between the dump and the road and the soils below the road have been contaminated with acid seepage from the dump. However, there may be portions of that material that may be suitable as fill or reclamation material. Testing of the excavated material with a XRF analyzer would be required to ascertain whether the material was unsuitable and should be placed on the waste rock dump top to be used as cushion material beneath a liner or could be salvaged and stockpiled for use as some form of reclamation material. Testing with the XRF analyzer is also necessary to determine if sufficient material has been removed to meet the agencies' limit of 50 ppm copper in the soil.

All contaminated material should be removed during the relocation of Forest Service Road 448 between the base of the dump and the outer slope of the relocated roadbed. However, it would not be practicable to require excavation to excessive depths. A limit of 3 feet of material below the existing ground surface should be sufficient. Three feet of clean growth medium would be replaced in the trench.

Stipulation 7: ASARCO must use a XRF analyzer in the field before and after excavating the Combination Soils material above, below and within the roadbed to determine if they are to be handled as contaminated or uncontaminated material. The limit of suitability would be 50 ppm copper. If contaminated soils in the road relocation area reach deeper than 3 feet, then ASARCO would place three feet of replacement material from the borrow area in the excavation.

Modification 8: During regrading of the waste rock dump slope, benches need to be incorporated so that runoff would be directed off the slope after the cap has been installed. Installing the benches during the dump regrading the first year would facilitate the completion of interim reclamation the following year.

Stipulation 8: ASARCO must provide detailed plans showing the placement of benches every 50 vertical feet across the face of the regraded dump slope for agency review and approval before construction begins. The benches would be about 12 feet wide and slope into the dump at one to two percent. The ditches would be sloped to the sides at one to two percent to move water off the reclaimed dump into the stormwater collection ditches and then into the lined stormwater collection pond.

Modification 9: The seepage collection system just below the existing dump must be expanded to capture all seepage beneath the regraded dump to minimize the potential for contaminated water to seep upward and recontaminate the regraded dump, the slope below the dump, and the relocated roadbed. This would need to be implemented prior to regrading the waste rock dump.

Stipulation 9: ASARCO must design the expansion of the seepage collection system to capture water at bedrock or at least to the depth that the excavator can reach below the existing ground surface beneath the footprint of the regraded dump. The area between the dump and the relocated road must be lined with an agency approved geomembrane liner to capture seepage through and stormwater runoff from the dump and prevent it from seeping into the ground and the relocated roadbed. The final design must be submitted to the agencies for review and approval before construction begins.

Modification 10: The seepage collection system is an important component in controlling the spread of the acid drainage from the waste rock dump. Backup pumps would provide necessary redundancy to ensure the collection system would be operational. The remoteness of the site also makes it important to have a backup power source on site should the electrical supply to the site be disconnected.

Stipulation 10: Backup pumps and backup electrical power generation for the seepage collection system must be installed by October 1, 2003.

Modification 11: Land clearing activities generate slash when trees and shrubs are removed from a site prior to salvaging soil and regrading materials. This material can be useful in creating filter windrows for erosion control.

Stipulation 11: ASARCO must salvage and use slash generated by land clearing activities prior to soil salvage and regrading. The slash must be used in filter windrows to help minimize erosion.

Modification 12: Long-term water treatment may be a requirement under interim and final reclamation. Therefore it is important that long-term water treatment studies continue so that the most suitable method can be selected during evaluation of ASARCO's plans for remainder of interim and final reclamation of the site.

Stipulation 12: ASARCO must continue with its study of various long-term water treatment methods and submit the results of that study to the agencies for consideration prior to review and approval of the second year's interim reclamation work and the final reclamation plan.

Modification 13: All existing monitoring reports must be summarized in one document to facilitate comparison of post-reclamation and post-closure data with baseline and operational data. Additionally the water sampling and monitoring plan must be summarized in a single document and expanded to define the parameters sampled, the sampling sites and frequency of sampling.

Stipulation 13: ASARCO must summarize the existing monitoring reports into a single document and submit it in electronic format with the annual report.

ASARCO must also summarize the water sampling and monitoring plan into a single document. The plan must address annual sampling of mine adit/pool water quality for all parameters, identify sampling sites, provide for installation of one or more staff gauges in the mine pool, and describe adit water quality and quantity sampling and measuring. This plan must be submitted for agency review and approval within 30 days of approval of this permit revision.

Modification 14: CPS-1 is an important monitoring site that will be useful in determining how successful is the reclamation of the dump. It must be sampled on a more regular basis and for a wider range of parameters than is currently being done. Monitoring of other springs and seeps is also needed to help determine whether or not water from the mine pool has any influence on peripheral surface waters.

Stipulation 14: ASARCO must monitor CPS-1 on an annual basis as well as other springs and seeps during peak ground water periods (about July 15). Field parameters of specific conductivity, pH, and temperature must be collected and flow must be measured. A water quality sample of the other springs and seeps must be collected if flows are significant. Since CPS-1 is a perennial spring, water quality samples must be taken each year and tested for a full range of parameters.

Modification 15: There are few details regarding the relocation and reconstruction of USFS Road 448. Additionally, the public must be informed about the construction activities and that the road may be blocked for a period of time during reconstruction.

Stipulation 15: ASARCO must submit a detailed construction plan for the relocation of USFS Road 448 below the waste rock dump for agency review and approval before construction begins. That plan must identify the anticipated quantities of fill to be removed and replaced and the source of that fill (also see Stipulation 4 above). The plan must also detail how the public will be informed about the construction and how long ASARCO anticipates the road would be closed and what efforts would be made, if possible, to maintain access across the area during construction.

Modification 16: If the Agency Modified Plan is selected by the agencies, the operating permit amendment document would not reflect the changes imposed by the agencies in the modifications to the Proposed Plan.

Stipulation 16: ASARCO must submit replacement pages for the operating permit document by the due date of the next annual report, that reflect the changes imposed by the agencies if the Agency Modified Plan is selected.

26. **Public Involvement:** The notice of application of the revised reclamation plan was published in the Philipsburg Mail on February 16, 2001. One comment was received. This EA will be sent to 27 parties on the mailing list.
27. **Other Governmental Agencies with Jurisdiction:** USDA Forest Service, Beaverhead-Deerlodge National Forest.
28. **Magnitude and Significance of Potential Impacts:** If interim reclamation of the waste rock dump is not accomplished, the potential impact is to allow snowmelt and stormwater to continue to infiltrate into the Combination Mine waste rock dump and generate acid seepage that drains out through the bottom and toe of the dump. There is potential for the seepage to overwhelm the seepage collection system and flow across USFS Road 448 and continue to impact the downslope soils and vegetation and downgradient springs and seeps.

Under the Proposed Plan, the regrading of the waste rock dump would increase the area of disturbance and could potentially increase the level of contaminants in the seepage water during the first year after regrading before interim reclamation was completed. Since no cap would be installed during the first year, regrading the dump would allow the generation of acid seepage to continue until interim reclamation was completed the following year. The proposed plan does not contain measures to capture the continued seepage and prevent contamination of clean fill in the relocated roadway or prevent contaminated water from leaving the site without containment during the year after regrading. Without backup systems and electrical power there is some potential for the failure of the seepage collection system, which would result in the downslope and downgradient flow of acidic seepage waters.

Under the Agency Modified Alternative, the top of the dump would be regraded to temporarily route any water flowing across the dump top into the mine workings, reducing the potential for erosion and mixing of contaminated mine runoff with uncontaminated runoff and possible contamination of undisturbed and/or uncontaminated soils. Additional measures would be required to minimize the potential for seepage through the dump to contaminate the relocated roadbed and downgradient portions of the road ditch and soils. Expansion of the seepage collection system at the base of the existing dump would help minimize the potential for ground water to seep upward into the dump and generate more acid drainage. Backup pump and electrical power generation systems would help ensure the functioning of the seepage collection system and minimize the potential for the acid seepage to reach the barren area and downgradient springs and seeps. Several measures pertain to the identification of suitable borrow materials, identification of contaminated and uncontaminated soil material in the road

relocation areas, and upgrading of maps and reports. These requirements would help ensure that sufficient reclamation materials would be available and that all contaminated materials were placed on the dump top to be isolated when a cap was installed the following year. Water monitoring requirements have been expanded and long-term water treatment studies would continue so that protection of water quality is maintained over the short and long term. While the regrading efforts to be accomplished during the summer/fall of 2003 would not preclude alternatives to be considered during review and analysis of the rest of ASARCO's proposed interim and final reclamation, it might require additional redisturbance should some alternatives be selected at that time.

- 29. Cumulative Effects:** The land exchange of lot 7, which includes the lower portion of the waste rock dump and a majority of the Combination Soils east of USFS Road 448, from the USFS to ASARCO is nearing completion. The acquisition of this land by ASARCO would remove the USFS from involvement in the majority of the disturbed areas except the relocated USFS Road 448 area. No cumulative effects with the interim reclamation plan have been identified.

30. References:

Hydrometrics, Inc. 2001. Draft of the Preliminary Groundwater Monitoring Report for the Black Pine Mine, Granite County, Montana, Prepared for ASARCO Incorporated. January.

_____. 2002. Revised Reclamation Plan and Water Management Plan for the Black Pine Mine, Granite County, Montana, Operating Permit #00063. Prepared for ASARCO Incorporated. January.

Montgomery, Watson, and Harza. 2002. Black Pine Mine Soil Cover Modeling Technical Memorandum. June.

USDA Forest Service. 2001a. Biological Evaluation for Plants, Black Pine Mine Reclamation, by John W. Joy, Forest Ecologist, Beaverhead-Deerlodge National Forest. May 11.

_____. 2001b. Biological Evaluation [for Animals], Black Pine Mine Reclamation, by Joel S. Harper, Wildlife Biologist, Beaverhead-Deerlodge National Forest. May 29.

31. Recommendation for Further Environmental Analysis:

EIS More Detailed EA No Further Analysis

32. EA Checklist Prepared By:

Kathleen Johnson, Environmental Impact Specialist, DEQ
Patrick Plantenberg, DEQ Operating Permit Section Supervisor
George Furniss, Hydrogeologist, DEQ
Charles D. Freshman, Mining Engineer, DEQ
Steve Kelley, USFS, Pintler Ranger District

EA Reviewed by:

Warren McCullough, Chief, Environmental Management Bureau, DEQ

33. Approved By:

Signature

October 23, 2008

Date

Warren McCullough, Chief
Environmental Management Bureau
Montana Department of Environmental Quality

ATTACHMENT 1

Figure 2-1

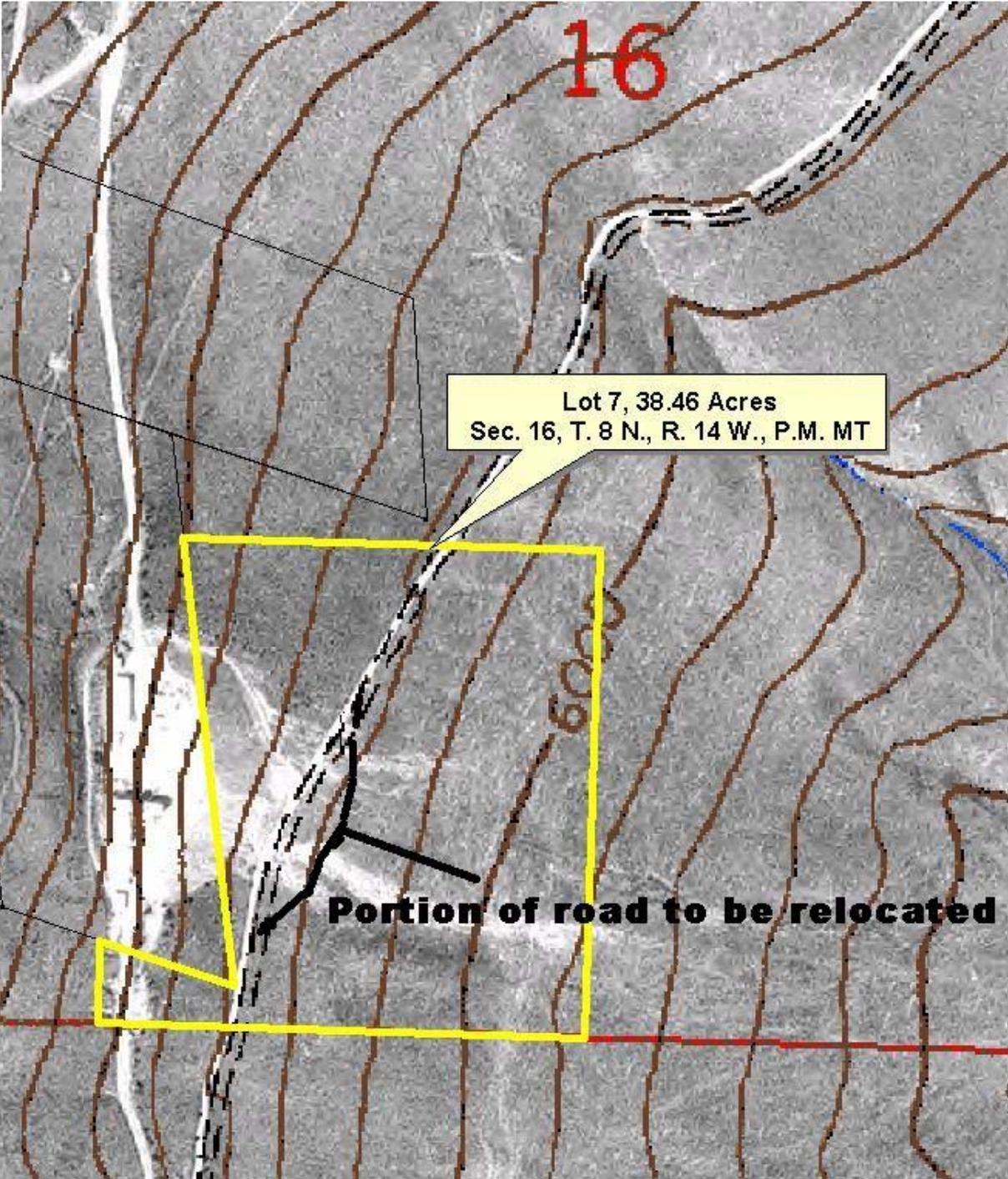
**Existing Combination Mine Waste Rock Pile Configuration
and
Associated Soil Salvage Areas**

ATTACHMENT 2

**Forest Service Road 448 Relocation
and
ASARCO Land Purchase from USFS
Black Pine/Combination Mine, Lot 7**

Black Pine Mine STA Purchase
Beaverhead-Deerlodge National Forest
Granite County, MT

300 0 300 600 Feet



ATTACHMENT 3

Figure 6-1

Combination Mine Seepage Collection System

ATTACHMENT 4

Drawing 1

Combination Mine Site [Interim] Reclamation Plan

ATTACHMENT 5

Figure 3-1

2001 Combination Soils Test Pit Locations