Revised Proposed Plan for Neihart Community Soils

Carpenter-Snow Creek
Mining District Site
Cascade County, Montana

U.S. EPA Region VIII - Montana Office ***December 2008***

Introduction

This is a revised Proposed Plan. It presents the U.S. Environmental Protection Agency's (EPA's) Preferred Cleanup Alternative for remaining sources of mining-related contamination of residential soils within the town of Neihart, Montana, and the Belt Creek tailings deposit north of Neihart. The town of Neihart and Belt Creek tailings deposit are part of the Carpenter-Snow Creek Mining District Superfund Site.

This document is issued by EPA, the lead agency for site activities. EPA has consulted extensively with the Montana Department of Environmental Quality (MDEQ), the support agency, as well as with the Cascade County Health Department and Board of County Commissioners and the Neihart Town Council. A public comment period follows the issuance of this plan. After reviewing and considering all information provided during the December 22, 2008 through January 30, 2009 comment period, EPA may go forward with the Preferred Cleanup Alternative, may modify it, or may select another response action presented in this plan. Thus, the public is encouraged to review all the alternatives presented in this Proposed Plan and provide comments.

EPA is issuing this plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. Section 9601 et seq. (CERCLA or Superfund) and Section 300.430(f) (2) of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP). The NCP is the Federal regulation that guides the Superfund program.

The Preferred Cleanup Alternative

Alternative 2B – Removal, Replacement, and Disposal of Contaminated Soil and Belt Creek Tailings Material, with Institutional Controls. This alternative involves the excavation of contaminated residential soil and non-paved road base material from the town of Neihart and disposal of the excavated material in an engineered, safe repository outside of any flood plain. Alternative 2B includes the excavation and disposal of the Belt Creek Tailings pile and reclamation of the stream channel at that location. Institutional controls are measures administered by state or local governments, such as community education, ordinances, etc., that prevent recontamination of areas cleaned up.

Why is EPA Issuing a Revised Proposed Plan?

In October 2006, EPA issued the original Proposed Plan for the Neihart community soils area. Two public hearings were sponsored by EPA and MDEQ. At that time, EPA's Preferred Cleanup Alternative was Alternative 2B with a soil cleanup action level for lead of 1,200 parts per million (ppm). As discussed below, EPA is retaining Alternative 2B but has lowered the soil lead cleanup action level to 400 ppm. This change has increased the number of residential properties to be cleaned up and the associated cost. Since the cost increase is greater than 50 percent of the original cost and could not have been reasonably anticipated by Neihart property owners, town officials, Cascade County or any other stakeholder, EPA is required to issue this revised Proposed Plan. EPA is seeking additional public comment on this revised Proposed Plan before a final decision will be made and before the Record of Decision is issued.[1]

1 OSWER Directive 9200 1-23P, July 1991, Section 4.3, Documenting Pre-Record of Decision Changes; CERCLA § 117(b) and 40 C.F.R. § 300.430(f)(3)(ii).

Prior to issuing the original, October 2006 Proposed Plan, results of EPA's Human Health Risk Assessment for Neihart (June 2005) were considered and the Feasibility Study for the Neihart Operable Unit (April 2006) evaluated several cleanup alternatives. Alternative 2B was presented as the Preferred Cleanup Alternative in the original Proposed Plan of October 2006. Although Alternative 2B is being retained by EPA as the Preferred Cleanup Alternative of this revised Proposed Plan, EPA management has decided to set a lower soil lead cleanup action level for Neihart than was set in 2006. Moreover, this revised Proposed Plan proposes a cleanup action level specific for soil arsenic, which was not included in the original Proposed Plan.

The revised cleanup action level for lead in residential soils of Neihart is 400 ppm. The lower cleanup action level is based on the most conservative of results obtained from multiple iterations of the Integrated Exposure and Uptake Biokinetics mathematical model for young children in a residential setting (the IEUBK model for children). Among the reasons for basing the revised cleanup action level for lead in soils on predicted outcomes of this model is the fact that, within the past decade or more, very few children have resided in Neihart. Currently, only one child under the age of seven years is known to reside there. This and other factors make it difficult to gather site-specific data that might be used in lieu of the model's predictions. Thus, direct application of the IEUBK model for children resulted in a more conservative soil lead cleanup action level of 400 ppm.

This revised Proposed Plan also presents a soil cleanup action level for arsenic (100ppm), which is separate and distinct from any lead cleanup action level. Soil sampling to date has not revealed any instance in Neihart where arsenic, by itself and absent of elevated lead levels, would "drive" a soil cleanup. However, such a condition may be revealed during additional soil sampling required during actual cleanup. If such a condition is revealed, then that property will be included in the cleanup action.

The original Proposed Plan estimated that 14 properties (includes residential, commercial, and vacant lots) and 10 sections of earthen roadway in Neihart would require cleanup at an estimated cost of $ 3.8 million. Based on the revised soil lead cleanup action level, 66 properties and 24 earthen roadway sections would be cleaned up at an estimated present value cost of $11.8 million. This revision affects only the residential, commercial and public properties within Neihart and does not affect the Belt Creek tailings pile, which will be removed regardless of the final selected cleanup strategy for Neihart proper.

EPA will endeavor to complete the cleanup of all properties that qualify and the Belt Creek Tailings deposit in two construction seasons; work is envisioned to begin in 2009 and be completed in the fall of 2010. EPA appreciates the cooperation of Neihart property owners and the Town Council during the October 2008 soil sampling event, and will share with each property owner the results of the analysis of their samples as soon as those results are available.

In addition to providing historical information regarding mining in the Carpenter-Snow Creek Mining District site, this Proposed Plan discusses the environmental investigations conducted to date, the cleanup action taken by EPA in 2004 to clean up very high lead levels in specific areas, the nature and extent of contamination found in soil and water in the area, and environmental and human health risks associated with high levels of mining-related elements. In addition, this Proposed Plan summarizes the other cleanup alternatives that were considered. These include (a) excavating and removing only residential soils and roadbase material (without removing the Belt Creek Tailings) and (b) selective removal of lead-contaminated yard soil only when a dwelling is occupied by a family with a child under age 7 years.

Detailed background information used to prepare this Proposed Plan is contained in the Remedial Investigation (RI) and the Feasibility Study (FS) reports for Neihart. These documents describe the extent of contamination, mainly in soil, and provide the detailed analysis of the cleanup alternatives considered. This information and other documents in the Administrative Record are available at the locations listed in the box at the end of this document. The Administrative Record contains all the information that EPA will use, in consultation with MDEQ, Cascade County and the Town of Neihart, to make its final remedy decision.

Scope and Role of the Operable Unit

Neihart is the first designated operable unit for the Carpenter-Snow Creek Mining District Superfund Site. Neihart was so designated to evaluate current and future risks to human health, especially for young children, from exposure to contaminated soil, mine waste, and mill tailings. A second operable unit and separate studies are being planned to determine how mining-related contamination may be affecting environmental receptors, such as fish, aquatic insects and wildlife, within the site as a whole (i.e., the slopes north and east of Neihart, and the Carpenter and Snow creeks watersheds).

Site Background

Mining History

The Neihart Operable Unit is located within the Neihart Mining District, which was originally known as the Montana Mining District. Records show that the district produced about $16 million in silver between 1882 and 1929.

Neihart was founded as Canyon City, but by April 1882 the boundaries of the town had been agreed upon and the town was renamed after J. L. Neihart, an early inhabitant of the area and one of the prospectors credited with the local discovery of ore. By 1885, the town boasted 2 saloons, 2 restaurants, a boarding house, a post office, a blacksmith's shop, 2 stables, and about 50 houses and numerous tents.

The population of Neihart has fluctuated with the expansion and closure of the various mines in the Neihart district. The remote location of the district affected early development primarily because of the distance to processing facilities and the lack of good transportation. In 1891, the economy was boosted by a spur of the Montana Central railroad (later part of the Great Northern Railroad) that connected Neihart with the Anaconda Company smelter at Great Falls, which had been completed in 1888 and provided a more accessible location for the processing of the district's ore.

High-grade silver ore was mined throughout the Neihart district from the 1880s through 1919, after which the use of the flotation process facilitated the use of lower grade ore. During the 1940s, lead and zinc were produced in large quantities for the war effort. Mining activities tapered off after World War II and through the 1960s, with most mines not being reopened or being operated only intermittently. Reportedly, 96 inactive mines exist in the Carpenter-Snow Creek area; however, some of these "mines" are physically connected to one another and many have multiple openings. The actual number of separate mines is estimated to be less than 35. Stamp and flotation mills operated at some of these sites, and mill tailings along with waste rock can be found at these sites and along the nearby stream courses. Some sites, such as the Queen of the Hills, Evening Star, Molton, and Broadwater group of mines, lie within or very near to Neihart (see Figure 1).

There is evidence that, over many decades in the past and as recently as in 2006, individuals or contractors have excavated soil or waste rock from these locations and transported the material into Neihart to serve as a construction base, backfill, or road material. That practice is believed to be partly responsible for the random distribution of lead-contaminated soils throughout Neihart. The practice should be stopped in order for any cleanup of Neihart to remain effective. Measures taken by state or local governments to stop this practice are examples of institutional controls.

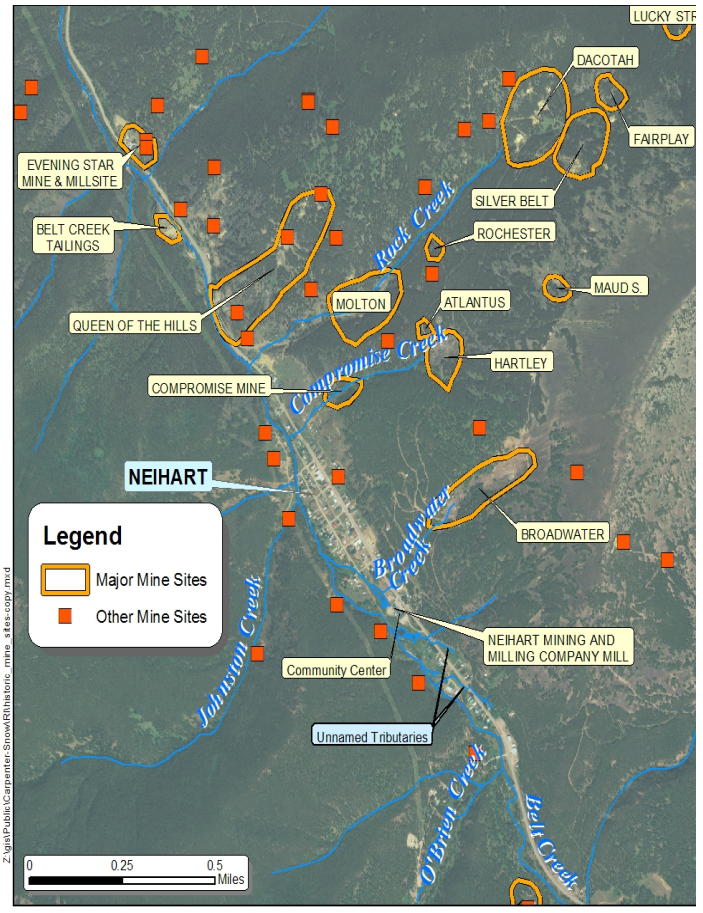

Figure 1: Historic Mine and Mill Sites

Previous Investigations and Cleanup Actions

The Montana Abandoned Mine Reclamation Program inventoried and sampled abandoned mines in the Neihart area in 1990, 1993, and 1994. Results of the data collected from those investigations indicated lead and possibly arsenic concentrations in excess of human health criteria from at least 21 mine sites determined to be potential sources of contamination to surface water and groundwater. For example, a water sample taken from a spring previously used to supplement drinking water for Neihart contained lead levels exceeding the federal maximum contaminant level (MCL). Soil samples taken from waste rock at a mill site near the north end of town showed a lead level of 37,400 ppm.

Based on this information, EPA proposed adding the Carpenter and Snow creeks drainages and the area referred to as the Neihart slope to the National Priority List (NPL) of sites on December 1, 2000; the site was subsequently added to the NPL on September 13, 2001. During the winter of 2001/2002, EPA and MDEQ developed a strategy to characterize the nature and extent of mining-related contamination in the Neihart operable unit, an area that includes the residential portion of Neihart and the immediate surrounding area. Sampling of residential yard soil, roadway material, surface water, stream sediment, and groundwater occurred in the fall of 2002 and during the 2003 and 2004 field seasons.

Based on the high levels of lead found in certain areas of Neihart, EPA conducted a removal action in September and October of 2004, with MDEQ and local government support (Figure 2). This action removed highly contaminated soil from residential areas and placed the material on the Belt Creek Tailings pile as a temporary repository. The surface of the Belt Creek Tailings pile was re-engineered to limit the amount of surface water that could contact the tailings and to limit the volume of surface water that discharges to Belt Creek (Figure 3). Rip-rap added to the sides of the tailings pile further stabilizes the Belt Creek Tailings against flood-level flows in Belt Creek. The capped surface of the tailings pile combined with the difficulty in accessing the site, which is on the west side of Belt Creek, makes it unlikely that people will trespass on the site and unlikely that they will come into contact with tailings material. At the Star Mill waste rock dump at the northern end of Neihart, the 2004 action effectively stabilized a portion of the waste pile and reconfigured the slope to prevent further erosion of this material into the adjacent developed properties (refer to photographs on the last page).

Figure 2. Ball Mill area reclaimed in 2004


Figure 3. Capped and reinforced Belt Creek Tailings

As mandated by Congress, the Agency for Toxic Substances and Disease Registry (ATSDR) is required to prepare a public health assessment soon after a site is listed, prior to a thorough human health risk assessment. The agency concluded that the site presented potential hazards to small children who are seasonal or full-time residents of Neihart due to exposure to mining-related lead in residential yard soil. In addition, levels of arsenic, cadmium, manganese, iron, and zinc in potential sources of drinking water (water from mine openings, springs, or aquifers) also represent a public health concern, especially for children, according to the ATSDR. Currently, Neihart residents acquire drinking water from the O'Brien Creek community water system. Exposure from this source is not a concern because metals concentrations are low.

Results from the 2002-2004 sampling efforts in the Neihart OU are presented in the March 1, 2005 RI report, which can be reviewed at EPA's Helena office, Cascade County Health Department, or the Belt Creek Ranger Station. The report characterizes the nature and extent of contamination caused by hard rock mining, ore-processing, and waste borrowing activities in and near the town of Neihart. All published environmental data for the area are presented and discussed in the context of human health risk-based criteria and standards. EPA published the Human Health Risk Assessment in June 2005 and the final Feasibility Study in April 2006. EPA also prepared a construction summary report documenting the

waste removal and reclamation work conducted in Neihart in 2004. These documents, along with the original Proposed Plan, can be reviewed at the document repositories (see box at the end of this plan).

Site Characteristics

Soil and Mining-Related Waste

Soil samples have been collected by EPA in the residential area of Neihart in 2002, 2003, and 2004, and in October 2008. Based on initial results (2002-2004), EPA, with concurrence from MDEQ, Town of Neihart and Cascade County, determined that immediate action was appropriate to remove contaminated soil at two locations: 1) the historic ball mill site located near the Neihart Community Center (see Figure 2), and 2) residential yards affected by eroding mine waste at the north end of town (Figure 4). Many of the soil samples collected from these areas had lead concentrations in the 3,000 to 5,000 ppm range, and one sample exceeded 44,000 ppm. For comparison, background soil lead concentrations in the United States average less than 50 ppm and values of 400 to 1,200 ppm have been used by EPA as risk-based cleanup action levels. Based on the high lead levels encountered, EPA removed contaminated soil and then backfilled and reclaimed these two areas in Neihart in September and October 2004.

Figure 4. Before and after photographs of the 2004 residential soil removal action showing the stabilized waste rock dump and the reclaimed residential yard at the north end of town.

Based on site walkovers, interviews with property owners, and sampling, two patterns of mining-related soil contamination are evident in the Neihart community. Except for a very few known incidents where mine waste was used as backfill, contamination is restricted to the old portion of town and is not present in the O'Brien Creek or Johnston Creek drainages. Within the old residential portion of Neihart, contaminant levels are generally higher north of the community center compared to the residential area south of the center. This observation is consistent with the finding that two former mills and the main ore transportation corridor were located north of where the community center now sits.

The soil at 153 properties (residential, commercial, public-owned, and vacant lots) has been sampled in Neihart since the RI was initiated in 2002. This represents approximately 85% of the properties in the Neihart community soils area and 95% of properties north of the community center. The community-wide average soil lead concentration is estimated to be between 450 and 500 ppm, with a range of lead concentrations from 22 to 2,700 ppm. (EPA's main objective for conducting the 2004 soil removal action in Neihart was aimed at removing all soils known to have lead concentrations greater than about 2,700 ppm, and that objective was accomplished.) Analytical results from all soil sampling events will be consolidated in early 2009 to determine which yards require remediation. Some additional soil sampling will be necessary.

Figure 5. Buried mine waste in residential yard.

Mining and ore-processing wastes were observed in the soil profiles at several residential properties. These wastes are likely the result of being transported into the community from the

numerous abandoned mines and waste piles near Neihart (Figure 1). There is much evidence that individuals, or perhaps excavation and landscaping contractors, have removed mine waste material from these locations and transported the material into Neihart and elsewhere, for use as backfill, driveway base, or some other purpose. This practice greatly exacerbates the problems associated with lead in residential soils. If the practice is allowed to continue, areas cleaned up could become re-contaminated and uncontaminated areas could become contaminated. Additionally, several yards, vacant lots, and portions of unpaved streets or alleys were found to have metals-contaminated soils beneath a layer of topsoil or road material (Figure 5). All residential yards found to have buried waste material currently have a rich topsoil layer and support a good cover of vegetation. Although human exposures to contaminants at these locations are limited, these conditions present a potential for recontamination, if disturbed.

Institutional Controls

EPA, MDEQ, Cascade County and Town of Neihart officials are working together on an institutional controls program that will educate nearby residents and construction contractors, to develop regulations or ordinances that will prevent disturbances of contaminated material, and maintain the integrity of the remedy over time. EPA and Cascade County entered into a cooperative agreement in 2008. EPA provided $176,000 to Cascade County for a 7-year program to develop and administer an effective, long-term institutional controls program. EPA and DEQ will continue to work together in collaboration with Cascade County in the development and implementation of the institutional controls program during remedial design and remedial action construction. Funding for Cascade County's implementation of the institutional controls will be cooperatively defined during this 7-year period, so that the State may provide assurances under CERCLA to maintain the effectiveness of such measures when the remedial action is complete.

Elevated lead concentrations in unpaved road base material were found in the alley that currently extends from the community center to the northern end of town. According to Neihart residents, this alley follows the old wagon road that was once used to transport ores and ore concentrates from the area's mines and mills to Fort Benton. Later, a rail line was constructed along this corridor, but it has since been abandoned and removed.

Surface Water

Waters discharging from adits and shafts are a major source of contamination to Broadwater Creek, Rock Creek, and Compromise Creek (Figure 1). Water quality down gradient of mines in these drainages exceeds human health and aquatic life criteria. Additionally, water quality in three unnamed tributaries south of the community center also had human health and aquatic criteria exceedances, and some exceedances were observed for the wetland pond near the community center. Stream discharges from Rock Creek and Carpenter Creek appear to be the most significant source of surface water contaminants to Belt Creek. Despite this loading of metals, overall water quality in Belt Creek near Neihart generally meets water quality criteria, with only a few limited exceedances of human health and aquatic criteria. Discharges from the Belt Creek Tailings and Evening Star Mill and Mine Site north of town appear to have minimal, if any, impact on Belt Creek water quality, particularly since EPA covered and armored the Belt Creek tailings pile in 2004.

Groundwater

Seven groundwater samples were collected during the RI: four from residential groundwater wells and three from springs. Two additional wells were sampled outside the OU as a courtesy to the homeowners who wanted to confirm that their well water was not impacted from mining activities. The water quality in the wells met drinking water standards, with the exception of slightly elevated mercury concentrations in one well. The well with elevated mercury is not used as a potable water source and is therefore not a health concern to EPA. MDEQ and Cascade County are aware of the well.

Two springs were sampled that emanate from the hillside on the eastern side of the valley in the 500 block of South Main Street, and the third sampled spring flows from the hill slope on the western side of the valley in the 400 block of Pine Street. Water quality from these sources is generally good; the only primary drinking water standard exceedances occurred for lead in the eastern springs. This was not unexpected as these springs emanate from the mineralized zone, directly down gradient of historic mine sites. The spring on the west side of the Neihart valley had no exceedances of primary drinking water standards.

Based on the sampling conducted and experience at other mining communities, EPA suspects that groundwater beneath the historic mine sites on the Neihart slope is contaminated. This type of situation can be a concern for communities that

utilize groundwater for domestic purposes. However, Neihart obtains its drinking water from O'Brien Creek via the community distribution system. Samples have shown that water quality in O'Brien Creek is not impacted by mining waste. Additionally, no residents are known to utilize groundwater for domestic purposes. Therefore, no hazard is known to exist from exposure to lead or other metals via contaminated groundwater beneath Neihart.

Summary of Health Risks

Risk Assessment

The highly mineralized rock found in and around Neihart and at other mining districts across Montana typically has over 20 naturally-occurring elements that can be harmful to humans. Mining and milling wastes and contaminated soils in these areas often have concentrations of arsenic, cadmium, lead, mercury, and/or zinc that are high enough to cause adverse health effects in people that are exposed to these materials during normal, day-to-day activities.

Typically, the potential for adverse health effects is greatest for children under the age of 7 years who live in these communities. They are particularly susceptible to lead in soil and household dust. Infants and toddlers, especially, ingest soil and dust through their normal "mouthing behaviors," and they readily absorb lead from their digestive system at the most crucial stages of brain, nerve, and bone development. For these reasons, EPA's mitigation of risks in Neihart and at other historic mining communities focuses on this most sensitive group.

The 2004 residential soil removal action in Neihart was conducted to remove those soils that presented an imminent and substantial endangerment. That removal was not intended to mitigate all unacceptable risks because EPA's risk assessment had not yet been completed. The Neihart-specific risk assessment, which was finalized in June 2005, evaluates whether or not metal concentrations that remain after the 2004 cleanup pose a risk for long-term adverse health effects.

The Neihart human health risk assessment evaluated health risks for people who reside, work, or recreate there. The assessment indicated that lead and arsenic are the elements of concern and that soil is the primary pathway by which people, especially young children, may be exposed to mining-related contaminants. It was also determined that a soil cleanup based on lead would mitigate most potential health problems associated with exposure to soil arsenic. A goal of the Neihart risk assessment was to determine the concentration of lead and arsenic in soil below which children will be fully protected.

The 2005 Neihart risk assessment concluded that mining-related lead and arsenic are high enough in some residential soil to possibly cause adverse health effects. Specifically, average lead concentrations in some yards may be high enough to present unacceptable risks for young children living there year-around. The risk assessment also showed that the potential for either workers or recreationists to experience adverse health effects is low.

Risk Management

In consideration of all factors evaluated, EPA risk managers determined that results obtained from the IEUBK model for children in a residential setting should be used to determine a cleanup action level for residual lead in the soils of Neihart. Application of this model, irrespective of all other factors considered previously, has resulted in a soil lead cleanup action level of 400 ppm, which is now EPA's and MDEQ's recommended remediation goal for the Neihart community soils area. Although lead is the element of primary concern here, EPA managers have decided to also set a cleanup action level for arsenic in soil, independent of the cleanup action level for lead. Thus, any property found to have soil with a lead concentration greater than 400 ppm or an arsenic concentration greater than 100 ppm will be cleaned up as part of EPA's remedial action for Neihart.

As mentioned above, lead and arsenic in soil constitute the principal threat to human health in Neihart. Health concerns related to contaminated interior dust, a concern for some communities, are generally limited to sites with large smelters that operated for many years. Since smelters did not operate in Neihart, the health threats via this pathway are predicted to be low or insignificant. Nonetheless, interior dust will be sampled during the remedial design phase and mitigated if necessary.

Remedial Action Objectives and Goals

EPA's remedial action objectives, designed to protect human health in the residential portions of Neihart, are:

- Prevent direct exposure of residents, recreationists, and workers to elevated contaminant concentrations in soil and road base material.
- Control the spread of contaminated soil, road base, and mining wastes (e.g. tailings and waste rock) by wind and water erosion.
- Prevent the contamination of clean areas by the indiscriminate use of mine wastes as construction fill.
- Remove the Belt Creek Tailings pile from the flood plain and place that material in an engineered repository.

To achieve these objectives, EPA's remediation goals of 400 ppm lead and 100 ppm arsenic will be attained by implementation of Alternative 2B. Institutional controls, once they are defined and administered, will provide long-term protection of the engineered aspects of the remedy.

Summary of Alternatives Evaluated

The remedial alternatives developed in the Feasibility Study are summarized in this section. EPA's Preferred Alternative is Alternative 2B – Removal of Contaminated Soil and Belt Creek Tailings material plus Institutional Controls.

Every alternative except the no action alternative requires excavation of contaminated soil from residential yards and roadways in Neihart, and disposal of this material at an engineered repository. Under Alternative 2, Scenario A is for the removal of contaminated residential yard and roadway material, while Scenario B is for the removal of contaminated yards, lots and roadways, plus removal of the Belt Creek Tailings.

Capital costs presented below include expenses related to the labor, equipment, and material costs of construction. Operation and maintenance (O&M) costs refer to the cost of operating labor, maintenance, materials, energy, disposal, and administrative activities. Periodic costs are costs that occur occasionally throughout the life of the project. Present value, also known as net present worth, provides an analysis of the current value of all costs. Present value cost is calculated based on a predetermined interest rate and the time period over which the remedy will be completed. Please refer to the Feasibility Study located in the document repositories (EPA Office at Helena, Cascade County Health Department at Great Falls, or the Belt Creek Ranger Station near Neihart) for more details regarding costs estimates.

Alternative 1 - No Action

Estimated Capital Cost*:*	$0.175M
Annual O&M Cost (1 - 30 years):	$0
Periodic Cost:	$0
Estimated Present Value*:*	$0.240M

Regulations governing the Superfund program require that a no action alternative be evaluated to establish a baseline for comparison to other alternatives. Under Alternative 1, no remedial action would be taken to reduce the toxicity, mobility, or volume of contaminated mine waste or residential soil that remains within the community. There would be no added protection of human health or the environment, beyond the level of protection afforded by the 2004 removal action. Preparation of five-year site reviews is included in the periodic costs.

Alternative 2A - Removal/Replacement/Disposal of Contaminated Soil, with Institutional Controls

Estimated Capital Cost:	$8.8M
Annual O&M Cost (1- 3 years):	$0.040M
Annual O&M Cost (1- 5 years):	$0.016M
Estimated Present Value:	$9.1M

Under Alternative 2A, contaminated solid material from properties and roadways will be excavated and removed to a repository. The Belt Creek Tailings will be left in place. The removal areas will be excavated using conventional earthmoving equipment, with hand excavation occurring near each residence as required to protect building foundations, septic systems, and other infrastructure. Road base material in hot spot areas or entire sections of roadways would be excavated using conventional earthmoving equipment.

Excavation activities would continue until confirmation samples show that lead (and arsenic) concentrations are less than the cleanup action levels selected, or to a predetermined depth determined by the risk manager and based on site conditions. Excavated areas would be backfilled to the surrounding ground level with clean fill and graded to drain. Depending on previous conditions, the backfilled areas would be covered with topsoil and revegetated in areas where vegetation was present prior to excavation. The excavated areas in the roadway would be covered with an appropriate material (e.g., roadmix and asphalt).

Institutional controls are non-engineering controls that would legally limit or regulate future land use practices. These could include covenants, ordinances, easement restrictions, and information and educational programs. The most likely application of institutional controls - and the most needed - would restrict the indiscriminate excavation and transport of mine wastes and contaminated soils into or out of Neihart. Following EPA's remedial action to clean up residential property having greater than 400 ppm lead in soil, there will be some residual contamination within Neihart. This could be in obscure areas that EPA is unaware of or located deep in the soil. It will be the responsibility of the Cascade County Health Department and county commissioners to determine what institutional controls are needed to prevent future exposure of people to this material. Construction permits and inspections by county staff may accomplish this goal. MDEQ will assist in defining, administering, and possibly funding institutional controls in the future.

Alternative 2B – Preferred Alternative
Removal/Replacement/Disposal of Contaminated Soil and Belt Creek Tailings, with Institutional Controls

Estimated Capital Cost:	$11.6M
Annual O&M Cost (1 - 3 years):	$0.040M
Annual O&M Cost: (1- 5 years):	$0.016M
Estimated Present Value:	$11.8M

Under Alternative 2B, contaminated solid material from properties and roadways, and all the Belt Creek Tailings material, will be excavated and removed to a repository. Based on a cleanup level of 400 ppm, approximately 33,829 cubic yards (cy) of soil and roadway material, and 27,850 cy of Belt Creek Tailings waste would be removed. The removal areas will be excavated using conventional earthmoving equipment, with hand excavation occurring near each residence as required to protect building foundations, septic systems, and other infrastructure. Road base material in hot spot areas or entire sections of roadways would be excavated using conventional earthmoving equipment.

As described in Alternative 2A, above, institutional controls could limit or regulate future land uses; however, the most likely and most needed application of institutional controls would restrict and educate against the indiscriminate excavation and transport of mine wastes and contaminated soils into or out of Neihart.

Alternative 3 - Removal/Replacement/Disposal of Contaminated Soil, with Institutional Controls

Estimated Capital Cost:	$1.0M
Annual O&M Cost (1- 3 years):	$0.011M
Annual O&M Cost (1- 5 years):	$0.007M
Estimated Present Value:	$1.1M

Under Alternative 3, EPA will confer with Cascade County annually to determine changes in the population of Neihart. If the census reveals new residents having young children, soil samples will be collected in these yards (and adjacent yards in the exposure area) and analyzed to determine levels of lead and arsenic. Should these analyses show either lead or

arsenic contamination levels greater than the selected action levels, the soils in the exposure area would undergo excavation, removal, and replacement, as well as application of institutional controls, as outlined in Alternative 2.

Evaluation of Alternatives

EPA is required to use nine criteria to evaluate the remedial action alternatives individually and against each other in order to select the Preferred Alternative. The nine criteria fall into three groups: threshold criteria, primary balancing criteria, and modifying criteria. Each group and its applicable criteria are presented below:

Threshold criteria are requirements that each alternative must meet in order to be eligible for selection as the Preferred Alternative. The threshold criteria are:

- Overall Protection of Human Health and the Environment
- Compliance with state and federal regulatory standards (Applicable or Relevant and Appropriate Requirements), unless a waiver is justified

Primary Balancing Criteria are criteria used to illustrate major differences or "trade offs" between alternatives. The primary balancing criteria are:

- Long-term Effectiveness and Permanence
- Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment
- Short-term Effectiveness
- Implementability
- Cost

Modifying Criteria are requirements that can only be fully considered after public comment is received on the Proposed Plan. These criteria are of equal importance with the balancing criteria in the final selection of a remedy. The modifying criteria are:

- State Acceptance
- Community Acceptance

Descriptions for each of these criteria are summarized in the following table.

Evaluation Criteria
The following criteria are used by EPA to evaluate all cleanup alternatives: 1. Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled. 2. Compliance with state or federal regulatory standards addresses whether or not a remedy will meet all federal and state environmental laws or provide justification for a waiver. 3. Long-term effectiveness and permanence refers to the ability of a remedy to provide reliable protection of human health and the environment over time. 4. Reduction of toxicity, mobility, or volume through treatment refers to the preference for a remedy that reduces health hazards, the movement of contaminants, or the quantity of contaminants at the site through treatment. 5. Short-term effectiveness addresses the period of time needed to complete the remedy and any adverse effects to human health and the environment that may be caused during the construction and implementation of the remedy. 6. Implementability refers to the technical and administrative feasibility of the remedy, including the availability of materials and services needed to carry out the remedy and coordination of federal, state, and local governments to work together to clean up the site. 7. Cost evaluates the estimated capital and operation and maintenance costs of each alternative in comparison to other, equally protective measures. 8. State acceptance indicates whether the State of Montana agrees with, opposes, or has no comment on the Preferred Alternative. 9. Community acceptance indicates whether the town of Neihart and Cascade County governments agree with, oppose, or have no comment on the preferred remedy.

Evaluation of Preferred Alternative

The Preferred Alternative (2B) was evaluated against the nine criteria and the other Neihart alternatives. Alternative 2B, Removal/Replacement/Disposal of Contaminated Soil and Belt Creek Tailings with Institutional Controls, was selected as the Preferred Alternative because it will achieve substantial risk reduction by removing the source materials from yards

and roadways of Neihart, and the Belt Creek Tailings material. This alternative reduces risks immediately upon implementation in the most cost effective manner.

Based on this comparative analysis, and using information available, EPA believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing criteria. EPA expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA 121 (b):

- be protective of human health and the environment;
- comply with state and federal regulatory standards;
- be cost effective;
- utilize permanent solutions to the maximum extent practicable, and;
- explain why EPA's preference for treatment is not relevant to this site.

Community Involvement

One of EPA's goals in evaluating mining-related impacts in Neihart has been to spend considerable time in the community to understand residents' concerns so they may be taken into account in making cleanup decisions. During the soils investigation, EPA and its representatives spent much time talking to residents; informal discussion during twice-weekly dinners at the community center were especially helpful. EPA also facilitated several public meetings in Great Falls and Neihart, and will continue to seek input from the affected residents of Neihart, Cascade County, MDEQ, and all other interested individuals.

EPA believes that implementation of the preferred remedy, which would occur over two construction seasons (i.e., 2009-2010), can be designed to cause minimal impact in Neihart. Based on comments received, EPA can proceed with the preferred remedy, or it can modify the preferred alternative before proceeding. In either case, the remedy selected by EPA will be written and published in a record of decision, complete with responses to all comments received, before plans are made for final implementation.

Therefore, Neihart residents and all other concerned citizens are strongly encouraged to consider all the alternatives discussed in this Proposed Plan and provide input to EPA. EPA will thoroughly consider all comments received before rendering a final decision. The public meeting, location of information repositories, and contact information is provided in the call-out box.

OPPORTUNITIES FOR PUBLIC INVOLVEMENT

Public Comment Period:
December 22, 2008 through January 30, 2009

Public Meetings:
January 6, 2009, 7:00 p.m.
Neihart Community Center (in conjunction with the town council meeting)

January 13, 2009, 9:30 a.m. (in conjunction with the commissioner's meeting)
Cascade County Commissioner's Chambers, 325 2nd St. North, Great Falls, MT

Send Written Comments to:
Scott Brown, EPA Project Manager
U.S. EPA, Montana Office, Federal Office Building
10 West 15th Street, Suite 3200
Helena, MT 59626
Telephone: 1-406-457-5035 (toll-free: 1-866-457-5000)
e-mail: Brown.Scott@epa.gov

Information Repositories:
The Proposed Plan and other documents in the Administrative Record are available at the following locations:

U.S. EPA MT Office
10 West 15th Street
Suite 3200
Helena, MT 59626
(406) 457-5000

Cascade County Health Department
115 4th Street South
Great Falls, MT 59401
(406) 454-6950

Belt Creek Ranger Station
Neihart, Montana, 59465
(406) 236-5511