United States Department of Agriculture
Forest Service
Northern Region

FINAL

Miller Creek Response Action Engineering Evaluation/Cost Analysis

New World Mining District Response and Restoration Project

MAXIM TECHNOLOGIES INC®

Final

MILLER CREEK RESPONSE ACTION ENGINEERING EVALUATION/COST ANALYSIS NEW WORLD MINING DISTRICT RESPONSE AND RESTORATION PROJECT

Prepared For:

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Northern Region
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INTRODUCTION

This document is the Final Engineering Evaluation and Cost Analysis (EE/CA) for the Miller Creek Response Action, New World Mining District (District) Response and Restoration Project. Maxim Technologies, Inc. (Maxim) prepared a Draft Response Action EE/CA for the United States Department of Agriculture Forest Service (USDA-FS) and released the Draft EE/CA to the public for comment on June 13, 2003. The comment period for the draft was extended to the end of August 2003 to allow sufficient time for the public to review the document and to consider the proposals made in the draft concerning final disposition of roads in the District.

Comments on the public Draft EE/CA were received from the Greater Yellowstone Coalition and the Beartooth Alliance. Comments received from the two environmental organizations supported the selection of the preferred alternative, although there were numerous concerns regarding the proposed actions for natural resource restoration of roads in the District. Appendix A presents a table that reproduces the comments received on the draft, and provides specific responses to each comment.

This executive summary serves as the Final EE/CA for the proposed Response Action. The Draft EE/CA, which contains the detailed analysis of alternatives and supporting documentation, is incorporated by reference in this Final EE/CA. Based on the comments received on the Draft EE/CA, the preferred alternative for addressing mining waste sites in Miller Creek is the same as that presented in the Draft EE/CA, with one minor modification (proposed cleanup work at one dump was dropped because the dump was found to be on non-District Property). However, the proposed restoration actions to roads have been modified from those presented in the Draft EE/CA, so changes made to the proposed restoration actions are highlighted in detail in this Final EE/CA. Pertinent tables and figures are also reproduced here to present the detailed preferred alternative for roads in the District.

FINAL EE/CA EXECUTIVE SUMMARY

The Miller Creek Response Action EE/CA presents a discussion of the site, risks to human health and the environment, and a discussion of response alternatives for response and restoration work proposed for mine waste dumps in the Miller Creek drainage source area. These historic mine sites are located in the New World Mining District (District), which is located in Park County, north of Cooke City, Montana. The principal environmental issues at these sites are associated with impacts from historic mining. Human health and environmental issues are related to elevated levels of base-metal contaminants present in mine wastes, disturbed soils, acidic water discharging from mine openings, and contaminants transported in surface water. In addition, ancillary actions are proposed that address natural resource restoration related to roadways as sediment sources to surface waters, and wetlands restoration near the portal of the Glengarry Adit in Fisher Creek. Discussion of proposed District-wide natural resource restoration actions are included in the Miller Creek EE/CA for several reasons, including: 1) Roads associated with historic mining account for a considerable source of metals and sediment in the Miller Creek drainage; 2) The Miller Creek EE/CA is the final EE/CA prepared for the project that will address solid sources of metal contaminants; and 3) The Miller Creek EE/CA is a forum that allows public input and comment on restoration issues.

The District is located at elevations ranging from 2,400 meters (7,900 feet) to over 3,200 meters (10,400 feet) above sea level and is snow-covered for much of the year. The District covers an area of about 100 square kilometers (40 square miles) with historic mining disturbances affecting about 20 hectares (50 acres). The topography of the District is mountainous, with the dominant topographic features created by glacial erosion. The headwaters of Miller Creek are located at or near tree line.

This EE/CA was developed using the "non-time-critical removal" process that is outlined in the *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*, as amended in 1986, and the updated National Oil and Hazardous Substances Pollution Contingency Plan. The USDA-FS has identified the Miller Creek Response Action to address the immediate threat to human health and the environment posed by metal-rich and acidic mine wastes left behind from historic mining and by the contaminated discharge from the underground workings.

Response activities for Miller Creek represent the fourth response action proposed in the New World District during this multi-year project. Previous response actions include the Selective Source Response Action, McLaren Pit Response Action, and the Como/Glengarry Adit/Fisher Creek Response Action.

Existing data from surface water, groundwater, in-stream sediment, and metal-loading to surface waters were reviewed and summarized to plan response activities and evaluate risks to human health and the aquatic environment. In addition, material samples collected from numerous mine waste dumps in Miller Creek were analyzed for heavy metals and acid-base characteristics. Heavy metals associated with these mine waste sources can affect human health through inhalation or ingestion. Metals may also be toxic to plant growth, preventing reestablishment of plant cover on mine waste. Sediment containing heavy metals can erode from mine waste, impacting surrounding land and potentially enter surface water drainages. Water percolating through mine waste can carry dissolved concentrations of heavy metals into groundwater, which, in some areas, discharges to surface water. Percolation of water through sulfide-rich mine waste lowers pH, which promotes solubility of most metals.

A comparison of disturbed soils, waste rock, water, and in-stream sediment data with background concentrations and regulatory standards indicates several metals are contaminants of concern within the Miller Creek source area including aluminum, cadmium, copper, iron, lead, and zinc. Each of these contaminants has the potential to pose ecological risks. A human health risk evaluation based on *Risk-Based Cleanup Guidelines for Abandoned Mine Sites* (Tetra Tech, 1996) found that lead produces a risk to human health in the Miller Creek drainage. Lead in soil at the Black Warrior dump produces the entire risk to human health for dumps on District Property by both the soil ingestion and dust inhalation pathways. Based on a recreational use scenario, there are no other unacceptable risks to human health. A comparison of metals levels to literature guidelines and state aquatic water quality standards indicates that aluminum, cadmium, copper, iron, lead, and zinc pose risk to organisms in the aquatic environment. In addition, arsenic, cadmium, copper, lead, and zinc may occur at phytotoxic levels in disturbed and metal-rich soils in the Miller Creek waste dumps.

The Miller Creek Source Area contains mine waste deposits as a principal source of sulfide-bearing material that is oxidized to form an acidic, metal-laden leachate, which in turn is mobilized and impacts the quality of surface water and groundwater. While slopes are stable in the small outlying waste because of the length of time they have been in-place, the largely unvegetated mine waste dumps continue to erode and provide contaminated sediment to Miller Creek. Most of the mine waste dumps are located on stable valley side-slopes and only a few occur proximal to surface water in Miller Creek. In addition, dumps are scattered over a wide geographic area and many have difficult access. The Miller Creek Source Area contains 46 small, scattered mine waste piles, 26 of which are located on District Property, and other areas of metal-rich soils and bedrock that provide a pathway for contaminant migration by erosion. Total volume of mine waste on District Property in the Miller Creek Source Area is estimated to be 3,100 cubic meters (4,050 cubic yards) with a combined area of about 1.1 hectares (2.7 acres).

Cleanup goals were identified for metals posing risk at the site. Groundwater and surface water goals are the State of Montana water quality standards. Solid media goals are based on in-stream sediment

and soil guidelines found in the literature. After screening a variety of response technologies and process options, several alternatives were developed for detailed analysis. The alternatives were evaluated for effectiveness, implementability, and cost. Table ES-1 lists the Miller Creek Source Area Alternatives.

TABLE ES-1
RESPONSE ACTION ALTERNATIVES FOR THE MILLER CREEK SOURCE AREA
New World Mining District Response and Restoration Project
Miller Creek Response Action

Alternative		Response Technology/Process Options
MC-1	No Action	None
MC-2	In-Situ Reclamation of Mine waste Dumps	Grading and compaction of mine waste in-situ, constructing runon and runoff controls, amendment of the upper 30 cm of the regraded surface with lime, revegetation, and erosion protection.
MC-3	Total Removal and Disposal in an On-Site Repository	Total removal and disposal of waste in the Selective Source repository.

The MC-2 alternative, In-Situ Reclamation of waste dumps, is considered appropriate for the small, scattered sites due to site constraints and access limitations (i.e. most of the sites are on steep slopes that limits access with earth-moving and lime mixing equipment). This alternative involves regrading and compaction of wastes, surface water run-on and runoff controls, shallow lime amendment of the wastes, and revegetation. Alternative MC-3, which involves removal of mine waste present on District Property to the Selective Source repository site, is also considered appropriate for the Miller Creek Source Area and was developed as a second alternative.

Overall, *In-situ* Reclamation (Alternative MC-2) would be effective in providing suitable soil conditions for revegetation in the short-term and a corresponding reduction in mobility of metal contaminants. However, because site conditions limit the depth of waste treatment, untreated wastes will remain at the sites. Under certain conditions, generally during moderate to extreme weather, untreated wastes could become saturated and release contaminants to the environment. There is also the potential for the treated surface of the waste to reacidify due to capillary rise of acid from underlying untreated wastes, resulting in a reduction in vegetation cover and vigor. Such a mechanism would likely cause the waste dump to revert to pre-treatment conditions. Surface water run-on and runoff controls would be effective in increasing waste dump stability and reducing impacts that result from surface water run-on encountering and transporting waste as sediment or dissolved contaminants to surface water. Maintenance of surface water diversion structures over time would be required.

Alternative MC-3, total removal, is the most effective and most costly of the alternatives considered. This alternative calls for moving the mine wastes to an on-site repository, part of which has been previously constructed. The No Action Alternative does not address surface water impacts, nor does it provide any controls on contaminant migration.

PREFERRED ALTERNATIVE

The preferred alternative for the Miller Creek response action uses a combination of the alternatives discussed. Except for the Black Warrior Dump, there appears to be little major impact from the remaining mine waste dumps located on District Property in Miller Creek. The Black Warrior is the only human health risk identified, and it also contains about 22% of the total mine waste in the Miller

Creek drainage on District Property. Elsewhere, environmental risks appear to be associated with mine waste that is in contact with surface water and/or groundwater. This is the case at the Miller Creek Dumps One and Two, which are two dumps located proximal to Miller Creek. Only two other very small dumps sites occur in close proximity to Miller Creek: Miller Creek Dump Four (40 cubic meters, MCSI-00-1) and Lower Miller Creek Dump One (30 cubic meters, MCSI-96-4).

At the Little Daisy Mine, waste rock sits at the mouth of the adit, and discharge from the adit flows through the dump. The flow continues in the subsurface beneath shallow colluvial and talus material below the mine site. This water does not obviously come to surface further downslope. Impacts to surface water from the Little Daisy Mine outflow and waste rock are not evident. This dump is comparable in size to the Black Warrior, containing about 24% of the total waste on District Property in Miller Creek.

Other mine waste dumps and their associated mine sites lie topographically well above the valley bottom, in mostly dry locations, and present no risk to human health and little threat to surface or groundwater quality. Because of the nominal nature of recognized impacts from remaining dumps in Miller Creek, the preferred alternative for the Miller Creek Source Area is Alternative MC-2 for three of the four waste dumps located proximal to Miller Creek. These sites include: Miller Creek Dump One (MCSI-99-72), Miller Creek Dump Two (MCSI-96-1), and Lower Miller Creek Dump One (MCSI-96-4). Miller Creek Dump Four (MCSI-00-1) was included in the preferred alternative in the Draft EE/CA, but was verified to be located on non-District Property during the comment period, so no work can be conducted at this site under the Miller Creek Response Action.

Alternative MC-3, total removal to the Selective Source repository, is selected for the Black Warrior and Little Daisy dumps. Removing these two dumps to the repository eliminates 46% of the total volume of waste rock present in Miller Creek. An open inclined shaft at the Bull-of-the-Woods Pass is associated with the Black Warrior Mine and presents a hazard to hikers, snowmobilers, and other recreationists due to its near-vertical construction and depth to bottom. Waste at this shaft (80 cubic yards) is acidic, but is suitable for backfilling the dry shaft. The shaft will be closed as an ancillary item under the Miller Creek Response Action. The No Action Alternative is selected for the remaining dumps on District Property.

NATURAL RESOURCES RESTORATION ACTIONS INCLUDED IN THE PREFERRED ALTERNATIVE

In addition to alternatives related to mine waste dumps in the Miller Creek drainage, this EE/CA examined restoration actions in response to impacts to natural resources related to sediment contamination to surface waters derived from roadways throughout the District. A report by the USDA-FS characterized roads within the District and adjacent areas of the Gallatin National Forest for reclamation purposes. The majority of roads occur in the Daisy Creek, Fisher Creek, Miller Creek, and Upper Soda Butte Creek drainages, with half of all roads occurring in the Fisher Creek and Miller Creek drainages. Table ES-2, which incorporates a slight adjustment in the road lengths and percentages displayed in Table 3-11 of the Draft EE/CA, summarizes the total length of roads in the District.

Areas of known and potential acid production and other areas of anomalous metal concentrations in soil and bedrock represent sources of contamination that are exacerbated by surface disturbances such as roads that expose these materials to ongoing erosion both on roadbeds and cut and fill slopes. Many of these roads were historically developed to access numerous mines and prospects in the District. Sediments derived from roads impact surface water quality as well as aquatic habitat, and reducing sediment derived from roads will improve water quality.

TABLE ES-2
ROAD LENGTH BY ROAD CLASS AND WATERSHED
New World Response and Restoration Project
Miller Creek Response Action

Watershed	Total Length of Roads (meters)	Percent of Total
Clark's Fork	354	0.3
Daisy	12,935	11.7
Fisher	29,385	26.6
Miller	27,220	24.7
Sheep	2,996	2.7
Soda Butte	36,756	33.3
Stillwater	558	0.5
West Rosebud	115	0.1
Total	**110,319**	**100.0**

Note: Table modified from Table 3-11 presented in the Draft Miller Creek EE/CA.

Because sediment loading from roads into streams constitutes a natural resource impact by the release of sediment and contaminants only indirectly related to historic mining on District Property, the USDA-FS has decided to respond with restorative actions that would limit erosion from existing roadway disturbances. On a somewhat parallel track with the New World project, forest-wide travel planning is ongoing for roads in the Forest's road system on the Gallatin and Custer National Forests under the National Environmental Policy Act. Travel planning is considering many issues, including grizzly bear effects, when making decisions on whether to apply restrictions to road use or to close a road.

Because travel planning is ongoing, decisions on closing roads based on natural resource issues are focused primarily on erosion of metals contaminated soils. Road work proposed in this Final EE/CA has been evaluated with the travel planning team and management as to whether work would be contrary to current travel planning recommendations. Other considerations include whether or not a road is part of the Forest's road system, or if a road crosses or accesses private land. Because of these considerations, for the Natural Resources Restoration actions proposed in this EE/CA, no action is proposed for roads that are located on non-District Property or that access private property.

In the Draft EE/CA, five types of road rehabilitation actions were proposed. Following review of numerous comments on the draft proposal for roads and several meetings with involved governmental and private individuals, the types of road rehabilitation have been reduced to the following three (Figure ES-1):

Type 1 Road closure; including either recontouring or obliteration (ripping in place), followed by seed and fertilizer application, and installation of erosion blankets.

Type 2 These roads would remain open and are a combination of Type 2 and Type 3 roads proposed in the Draft EE/CA. Type 2 roads (Figure ES-1) are defined by the USDA-FS as Maintenance Level 2 according to the Forest Service Handbook 7709 (*Transportation System Maintenance Handbook, Washington Office Amendment 7709.58-95-1, Effective 7/28/95).*

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Scotch Bonnet Mtn.
Sheep Mountain
Como Basin
Stillwater River
Fisher Mtn.
Mclaren Pit
Glengarry Adit
Daisy Creek
Little Daisy Mine
Homestake Adit and Pit
Fisher Creek
Crown Butte
Daisy Pass
Henderson Mtn.
ABSAROKA-BEARTOOTH WILDERNESS BOUNDARY
Custer National Forest
Gallatin National Forest
Miller Mtn.
Black Warrior Mine
Miller
Area of Anomalous Metals Concentration
Alice E Mine
Alice E Mill Site
Mountain Road
Creek
Cumberland Barrel Dump
YELLOWSTONE NATIONAL PARK
Cooke City
U.S. Highway 212
Soda Butte Creek

Source: Acid Rock and Anomalous areas from Gallatin National Forest Interagency Spatial Analysis Center (March 2003)

Topographic data from USGS 7.5 Cooke City Quad
Contour Interval = 40'

Road Type data from Road Rehabilitation and Management Vs. 1.4, November 11, 2003
Interagency Spatial Analysis Center

N

0 Feet 2500
Scale 1:30,000

MAXIM 9902245.435

- Forest Boundary
- Roads Where No Work Is Proposed
- Type 1 - Close Road, Recontour, Seed, Fertilize, Erosion Blankets
- Type 2/3 - Open For High-Clearance Vehicles; Drain, Spot Surfacing, and Turnpike Where Needed (Maintenance Level 2)
- Type 5 - Open Road For Passenger Cars; Improve Drainage; Ditch Relief Culverts, Rock Check Dams, Fill Slope Revegetation (Maintenance Level 3)
- Reclaimed or Naturally Revegetated Roads
- Trail Reconstruction

- Area of Anomalous Metals Concentrations in Soils
- Areas of Potential Acid Generation

Map Showing District Roadways & Proposed Rehabilitation Actions
New World Mining District Response and Restoration Project
Cooke City Area, Montana
FIGURE ES-1

Type 2 is assigned to roads open for use by high clearance vehicles. Passenger car traffic is not a consideration. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses. Log haul may occur at this level. Appropriate traffic management strategies are either to (1) discourage or prohibit passenger cars or (2) accept or discourage high clearance vehicles. Road work consists of drainage and turnpike construction in low-lying road sections with spot surfacing. (Turnpike construction is a descriptive engineering term for roadwork where drainage relief is provided for standing water problems along low-lying areas).

Type 5 These roads would remain open and are assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. Type 5 roads (Figure ES-1) are defined by the USDA-FS as Maintenance Level 3 according to the Forest Service Handbook 7709. User comfort and convenience are not considered priorities. Roads in this maintenance level are typically low speed, single lane with turnouts and spot surfacing. Some roads may be fully surfaced with either native or processed material. Appropriate traffic management strategies are either "encourage" or "accept." "Discourage" or "prohibit" strategies may be employed for certain classes of vehicles or users. Road work would consist of improvements that would include drainage, constructing ditches, installing culverts and/or rock check dams or other sediment control structures. Cut and fill slopes would be revegetated.

As mentioned above, Type 3 roads (restricted width use) from the Draft EE/CA were included in the Type 2 category. The single road segment in Daisy Creek that was designated Type 4 (administrative closure) in the Draft EE/CA was eliminated from the preferred alternative.

The total length of road assigned to each of the three rehabilitation categories is shown in **Table ES-3.** For the preferred alternative, 41% of road rehabilitation work would occur in the Miller Creek drainage while 20%, 25%, and 14% of the work would be performed in Daisy Creek, Fisher Creek, and Soda Butte Creek drainages, respectively.

TABLE ES-3
ROAD LENGTH BY REHABILITATION TYPE
New World District Response and Restoration Project
Miller Creek Response Action

Road Rehab Type	Road Length (kilometers)						
	Daisy Creek	Fisher Creek	Miller Creek	Soda Butte Creek	Still-Water Creek	Rose Bud Creek	Total
1	0.883	2.130	1.062	0.727	0.0	0.0	4.802
2	2.747	4.788	6.903	3.203	0.0	0.0	17.641
5	2.100	0.083	3.798	0.0	0.0	0.0	5.981
Total	**5.73**	**7.001**	**11.763**	**3.93**	**0.0**	**0.0**	**28.424**

Note: Table modified from Table 3-12 presented in the Draft Miller Creek EE/CA to account for changes in the preferred alternative for road restoration work.

No work would be done in the Stillwater and West Rosebud drainages. Type 1 work, road closure via recontouring or obliteration, accounts for 17% of the work performed. Type 2 work, drain and leave open, accounts for 62% of the total work. Type 5 work, drainage improvement on open roads, will be done on 21% of the roads proposed for restoration actions. Another source of sediment will also be addressed under the road restoration portion of the work – reconstruction of the pack trail that accesses the Lake Abundance Road from Daisy Pass. This restoration work will involve relocating the steep section of this trail that drops from Daisy Pass down to Daisy Creek and reclaiming the existing highly eroded section.

The USDA-FS modeled sediment loads from roadways and mine waste dumps in the District. The R1/R4 sediment model (Cline et. al., 1981) was used to predict the decrease in sediment loading resulting from road and waste dump rehabilitation (Story, 2003). Model predictions indicate that complete implementation of the actions depicted in **Table ES-3** will result in a reduction of 10.6 tons/year decrease of sedimentation from roads in the Daisy Creek, Fisher Creek, Miller Creek, and Upper Soda Butte Creek watersheds combined (**Table ES-4**). Completing the restoration actions on roads and the proposed actions on waste dumps in the District, the reduction in man-caused sediment load will total about 46%, 43%, 19%, and 18% for the Daisy Creek, Fisher Creek, Miller Creek, and Soda Butte Creek drainages, respectively.

In conclusion, Natural Resource Restoration issues that are include in the Miller Creek Response Action are road work, replacement of damaged wetlands in front of the portal of the Glengarry Adit in Fisher Creek, and cleanup of the Cumberland Barrel Dump in Miller Creek.

ESTIMATED COSTS FOR THE PREFERRED ALTERNATIVE

Table ES-5 presents the cost for the preferred alternative. The cost of removal and disposal of the Black Warrior and Little Daisy dumps to the Selective Source repository is estimated to be $265,400, which includes road upgrades and repository construction costs. Cost of reclaiming the four selected sites in-situ is estimated to be $61,600. Adding in the ancillary items, engineering evaluation, design, post-removal site control (PRSC), and oversight, the total estimated cost of the preferred alternative is $983,800.

TABLE ES-4
SEDIMENT MODELING RESULTS BY DRAINAGE BASIN
New World District Response And Restoration Project
Miller Creek Response Action

Sediment	Drainage Basin			
	Daisy	Fisher	Miller	Soda Butte
Existing Sediment Load				
Natural drainage basin derived sediment	22.7	37.8	16.3	59.1
Road derived sediment (tons/yr)	13.3	16.4	8.9	23
Mining waste derived sediment (tons/yr)	7.8	11.3	2.1	1.3
Total road/mining waste sediment (tons/yr)	21.1	27.7	11.0	24.3
Total sediment (tons/yr)	43.8	65.5	27.3	83.4
Increase in sediment over natural conditions	93	73	68	41
Post-Treatment Sediment Load				
Road derived sediment (tons/yr)	8.9	15.1	7.2	19.8
Mining waste derived sediment (tons/yr)	2.4	0.8	1.7	0
Total road/mining waste sediment (tons/yr)	11.3	15.9	8.9	19.8
Road sediment decrease from total load (%)	10.0	2.0	6.2	3.8
Mining waste sediment decrease in total load	12.3	16.0	1.5	1.6
Reduction in man-caused sediment load (%)	46	43	19.1	18.5
Total sediment (tons/yr)	34.0	53.7	25.2	78.9
Total sediment reduction (tons/yr)	9.8	11.8	2.1	4.5
Total sediment reduction (%)	22.4	18.0	7.7	5.4
Increase sediment over natural conditions (%)	50	42	54	33

Note: Table modified from Story (2003); revised and updated on November 14, 2003 for modifications made to proposed road restoration actions presented in the Draft Miller Creek Response Action EE/CA (Table 3-13).

TABLE ES-5
PREFERRED ALTERNATIVE ESTIMATED COST
New World Mining District Response and Restoration Project
Miller Creek Response Action

ITEM	ESTIMATED COST
In-situ reclamation (three sites)	$61,590
Removal of the Black Warrior and Little Daisy Dumps	$265,400
Natural Resource Restoration(1)	$349,800
Mobilization/Contingency	$72,300
Engineering Evaluation/Design/Oversight/PRSC	$125,800
TOTAL ESTIMATED COST	$983,800

Note: (1) Costs have been modified from the Draft EE/CA to reflect changes to the types and length of road treatments included in the preferred alternative. A detailed cost estimate is provided in Appendix B.

APPENDIX A
RESPONSE TO COMMENTS ON DRAFT EE/CA (June 2003)

FINAL MILLER CREEK RESPONSE ACTION
ENGINEERING EVALUATION/COST ANALYSIS
New World Mining District Response and Restoration Project

Response to Significant Comments
Miller Creek Response Action
Engineering Evaluation/Cost Analysis

Introduction

The following table presents the USDA Forest Service's response to comments received on the Miller Creek Response Action Engineering Evaluation/Cost Analysis (EE/CA). Comments were received on two drafts of the EE/CA. The first draft, an internal review draft, was released on April 23, 2003 to the New World Mining District Response and Restoration Project agency cooperators: the Department of Interior, represented by the National Park Service; the Environmental Protection Agency (EPA), represented by Region 8; and the Montana Department of Environmental Quality. Comments on the internal review draft were received in May 2003. These comments were considered, and the comments directly addressed in the subsequent public release of the Draft EE/CA that was issued in June 2003. Two organizations provided comments on the public draft document, the Greater Yellowstone Coalition and the Beartooth Alliance.

The following table presents the entire comment received from each organization and individual, with the comment presented in the left-hand side of the table, and the associated response presented in the right hand side of the table. The letters to the left of each comment/response are only used to index and track the comment and associated response. Comments received from the EPA on the internal review draft fully supported the document and do not have need of an associated response.

	Department of Environmental Quality Comments	***Response***
	May 23, 2003 **Mary Beth Marks** **Gallatin National Forest** **P.O. Box 130** **Bozeman, MT 59771** **RE: Miller Creek EE/CA –Agency Draft – DEQ Comments** **Dear Mary Beth:**	
A	**Data collected on Miller Creek suggests that the drainage is in much worse condition that previously suggested. Given the degraded condition of Miller Creek and the sources of contamination that include mine waste, mineralized soil that has been repeatedly disturbed by mining activities, and roads that access mine sites and exploration targets, it is apparent that USDA-Forest Service should submit a Petition for Temporary Water Quality Standards for Miller Creek.** **While the water sampling information suggests that high-water flow derived sediment is causing much of the degradation to Miller Creek. Another model that should be considered is the flushing of metal salts that build up on exchange site and in the soil solutions that accumulate during the dry months and that are then flushed off during soil saturation that occurs at spring melt.**	A **Comment acknowledged.**
B	**Roads or otherwise, the proper control mechanism appears to be limiting and controlling access to Miller Creek soils and eliminating roads and off-road use so as to promote vegetative cover to the maximum extent possible. Miller Creek may be one area where extensive use of institutional controls such as fencing to restrict site access may be appropriate.**	B **The issue of eliminating roads and off-road use was analyzed in this EE/CA. Closure of roads is a travel planning issue unless it is clearly related to response and restoration actions considered for the project. In the Draft EE/CA, this issue was addressed by proposing to close certain roads and to perform improvements on remaining roads. In the Final EE/CA, actions related to roads were modified based on comments received from the public, by reviewing road**

	Department of Environmental Quality Comments		*Response*
			condition in the field, and by discussing potential road actions with travel planning staff and the public.
C	**On the subject of roads, Crown Butte put many exploration roads into the Miller Creek area. Have these so-called "reclaimed" roads been investigated to determine how much sediment and metals are coming off them?**	C	**Reclaimed roads in Miller Creek were monitored in 1999, 2000, and 2002. Reclamation on these roads was determined to be acceptable, and further monitoring was discontinued following the 2002 monitoring event. In terms of sediment production, a sediment model that takes into account the impact of roads was run on District roads, including the Miller Creek roads, and this information was presented in the Agency Review Draft and Draft Miller Creek EE/CA. These particular roads were analyzed as reclaimed and therefore contributed no sediment. Review of these roads in the field during 2003 indicates that these roads are stable and not eroding.**
D	**<u>Little Daisy Mine</u>** **Note is made that little or no work is proposed at Little Daisy Mine. Given that there is not evidence to the contrary, DEQ assumes that adit discharges from Little Daisy are driving groundwater contamination in Miller Creek drainage. USFS may want to put in a monitoring well above and below the Little Daisy Dump to prove otherwise.** **DEQ is concerned that little or no work is proposed for Little Daisy. Given that only 56% of the mine waste sources in Miller Creek are on District Property, USFS will need to take aggressive actions to get enough results from these limited work areas to achieve water quality standards. DEQ suggests that USFS may want to take aggressive action on as many waste sources eligible under funding constraints to make up for sites where no action is possible at this time.**	D	**In response to this comment, actions at the Little Daisy Mine were reevaluated, and the preferred alternative was modified for the Draft EE/CA to include removal of the Little Daisy waste rock dump.**
E	**On the subject of adit discharges such as the Little Daisy, DEQ notes that USFS is proposing to abate all acid mine discharges in one year following completion of other**	E	**The USDA Forest Service is planning to evaluate all adit discharges in the District with an Adit Discharge Engineering Evaluation/Cost Analysis in 2004/2005. Water Quality data**

	Department of Environmental Quality Comments	*Response*
	projects. This is likely an unrealistic scenario. Given that the program being implemented at the Glengarry has taken many years to get off the ground USFS may want to consider reopening mines such as the Little Daisy so that proper source control investigations can be conducted inside the mine prior to the one year period set aside to implement solutions to adit drainage problems. This comment applies to other adit drainage sources in the New World Mining District including McLaren adit, and Gold Dust Adit, all of which are assumed to be driving groundwater contamination in a large area downgradient.	**has been collected from all adit discharges in the District. Based on metals loading analyses, detailed source control investigations were undertaken at the McLaren Adit, Glengarry Adit, and Gold Dust Adits, including reopening the Glengarry Adit and McLaren Adits. The Gold Dust Adit is currently open. As for the remaining adit discharges, most flow less than one gallon per minute, and metals loading to tributary drainages from these low flow discharges does not warrant reopening and subsurface exploration.**
F	**<u>Cumberland/lower Miller Creek Dump Site</u>** **I recall speaking with Sherm Sollid some years back and he referred to an early lead smelter site on Miller Creek, I believe in the vicinity of this site. Crown Butte documented a smelter site on Miller Creek as part of the Cultural Survey performed for the land application area. Crown Butte's Cultural Report refers to a smelter site in Section 24 with Smithsonian Number 24PA941. Is this the same site where USFS is proposing response actions? If so, then the investigation preformed to date is not adequate to determine extent of contamination for an early lead smelter. If the lead smelter on Miller Creek is in another location, then that location should be investigated and adequate response actions proposed.**	F **The historic smelter site is a different site than the Cumberland dump site. As a result of this comment, the USDA Forest Service and MDEQ investigated this site in August 2003. This cursory investigation showed that less than one cubic yard of mine waste was present on the site, and that the site primarily consisted of evidence of several log buildings, bottle and can dumps, and a few iron vessels. It was determined that no response action would be warranted for this site.**
G	**<u>TABLE 3-10</u>** **Groundwater data for lead and arsenic show contamination in monitoring wells that needs to be evaluated from a risk perspective. Data from groundwater needs to be evaluated in risk assessment. If may be that groundwater will drive the cleanup for Miller Creek. COC table 41 does not address contaminants in groundwater. There is a need to evaluate consumption of groundwater against human health standards.**	G **While groundwater data is limited in Miller Creek, a synoptic flow sampling of Miller Creek conducted by the USGS indicated that groundwater does not contribute to surface water loading of metals. The single well shown in Table 3-10 is completed in slightly mineralized quartz sandstone on private land on the Alice E patent, and does not necessarily represent groundwater quality in Miller Creek. The USGS study measures a broader spectrum of groundwater quality in the Miller Creek drainage.**

	Department of Environmental Quality Comments		*Response*
H	**Page 51. DEQ appreciates the attempt to link measured contamination and predictive results from response actions. DEQ has previously suggested that all actions proposed for New World Mining District be linked to some prediction of results so that the need and intensity of actions implemented for various source areas can be tuned to achieve the necessary reductions in contamination loading to surface and groundwater.**	H	**Comment acknowledged.**
I	**Section 4.1.4 Page 62. The statement is made that "Iron only affects the aesthetics of water…" This is not a true statement. Iron affects the "beneficial use of water". Because the presence of iron eliminates the beneficial use of water for drinking and culinary purposes it is a contaminant of concern and is subject to cleanup. The iron standard of 0.3 mg/l is considered the "limitation" for iron contamination with levels higher than that subject to cleanup.**	I	**Iron does not eliminate the beneficial use of water for drinking and culinary purposes, but it does affect the taste and odor of water, and above 0.3 milligrams per liter, as stated in MDEQ's Circular WQB-7 Numeric Water Quality Standards, "may be considered as guidance to determine the levels that will interfere with the specified uses." As stated in the Draft EE/CA, iron data collected since 1999 in Miller Creek have been considerably below this value, so iron is not considered a contaminant of concern for this response action.**
J	**DEQ appreciates the opportunity to comment on this project and reserves the right to submit additional comments on the public draft of the Miller Creek EE/CA.** **Sincerely,** **John Koerth** **DEQ Coordinator**	J	**Comment Acknowledged.**

	National Park Service Comments		*Response*
A	**L3023 (YELL)** **Ms. Mary Beth Marks**	A	**Comment Acknowledged.**

	National Park Service Comments		***Response***
	U.S. Forest Service **Gallatin National Forest** **P.O. Box 130** **Bozeman, Montana 59771** **Dear Ms Marks:** **The Department of Interior (National Park Service and U.S. Fish and Wildlife Service) has reviewed the *Agency Review Draft for the Miller Creek Response Action Engineering Evaluation/Cost Analysis (EE/CA), New World Mining District Response and Restoration Project.*** **We offer the following comments:**		
B	**Page E-4: On this page, and throughout the document, the phrase 'natural resource damage' is used to describe restoration projects or issues. This is incorrect terminology. Natural resources damage(s) refers to the dollar cost to restore replace or acquire the equivalent of the 'injured' resource. 'Natural resource damage' should be replaced with 'natural resource restoration' or 'restoration projects'. Perhaps the rationale for addressing road erosion as restoration should also be clarified: The basis for addressing erosion control as restoration is that the surface water has been injured due to releases from mining-related activities and reducing erosion with improve surface water quality.**	**B**	**This suggested change was made to the public review draft of the EE/CA.**
C	**Page 25, Sec. 3.1, Paragraph 4: The report identifies twenty mine waste source areas located on private property or non-District Property within the Miller Creek area. Some sites rank as high as 4th (e.g. Alice E. Pit and Dump Complex) overall on the Miller Creek source Area Ranking in Table 3-1. We recognize that these cannot be addressed with Consent Decree funding until all in-District work is completed and the repository is closed. If funding were to become available.**	**C**	**Under the current schedule for the project, the repository will be permanently closed in 2005. A certificate of completion for District property could not be received until after this date, thus it is highly unlikely that sites such as the Alice E could be disposed in the District repository.**

	National Park Service Comments		*Response*
	either before closure or at a later date, is there any potential that such non-district waste could be placed in the repository? Would this option further our ability to meet the Applicable or Relevant and Appropriate Requirements (ARARs) for water quality?		
D	**Page 28, Table 3-2: The average background concentrations are listed, but no explanation of how those concentrations were determined is given. A note should be added with such an explanation.**	**D**	**Comment noted. The suggested change was made to the table in the public review draft of the EE/CA.**
E	**Page 35, Table 3-4: Note a possible error in table entry for SW-2 on 5/27/1992. Entry for dissolved copper (0.15 mg/l) for this sample is higher than entry for total recoverable copper (0.029 mg/l).**	**E**	**The original laboratory reports for this data are not available, but the original source of the data was checked and the concentrations for both total and dissolved copper were verified. The concentrations quoted in the Table are correct.**
F	**Page 43, Table 3-8: Knowing now what we do about diel variation in trace metals in mountain streams of this nature, and the likelihood that higher trace metal concentration values occur under night time conditions (when pH is lower due to plant photosynthesis and respiration effects raising pH during the day), it would seem that there is a greater possibility of acute aquatic life standards being exceeded than are represented here based on day time sampling. Continuous monitoring of field parameters over a 24 hour period during a high flow and productivity period (June) coupled with bi-hourly sampling of water for trace metals could establish the range of trace metals during one of these diurnal cycles. If the pH variation is pronounced, remobilization of metals from scrapeable substrate could elevate trace metal concentrations during the times of day that largely go un-sampled. This would result in an under representation of the metal concentration levels and particularly acute aquatic risks.**	**F**	**The USGS is continuing to study the effects of diel variations in Fisher Creek to better understand this phenomenon. There is no proposed change in monitoring for this project at this time.**
G	**Page 51, Table 3-12: Road length units, e.g., kilometers or**	**G**	**Comment noted. The suggested change was made to the**

	National Park Service Comments		*Response*
	miles, should be specified.		**table in the public review draft of the EE/CA.**
H	**Page 52, Table 3-13: This table should be expanded to show the reduction in mine+road derived sediment loads (above baseline) from implementation of the road restoration projects.**	**H**	**Comment noted. The suggested change was made to the table in the public review draft of the EE/CA.**
I	**Page 52, Section 3.7.2, Glengarry Mine Wetland: If this area was a wetland prior to deposition of the mine waste, there may very well be a layer of peat beneath the dump with metals concentrations significantly greater than the mine waste. Material below the dump should be sampled during the removal to assure removal of any highly contaminated material. Insufficient detail is provided about the proposed construction or restoration of the Glengarry wetland. Presumably this lack of detail will be remedied during design. The design should include evaluation of reference wetland functions, hydrology, soils and vegetation as a design basis. As with the upland revegetation efforts, collection and propagation of site-specific adapted plants (cuttings and seeds) for wetland revegetation would improve probability of revegetation success and wetland development.**	**I**	**Comment noted.**
J	**Page 105, Section 8.4, Paragraph 2: Some consideration should be given to diverting the adit discharge from the Little Daisy Mine away from the waste rock dump at its mouth. Although the discharge is reported to be neutral, seepage through the waste rock is likely to add acidity and metals to any down gradient discharge (to either surface water or ground water). Failure to document a down gradient surface seep does not preclude the possibility that this anthropogenic source does not impact Miller Creek eventually via one pathway or another. If the natural water budget for the waste rock dump (precipitation influx) is shown to greatly exceed this influx from adit discharge, or the dump is shown to contain few sulfide minerals, then**	**J**	**Based on this comment as well as other comments received, the Little Daisy dump will be removed under the preferred alternative.**

	National Park Service Comments		*Response*
	controlling/diverting this anthropogenic flow may be unnecessary. At the least, some supporting justification for not diverting this flow should be provided.		
K	**In response to proposals made at the May 15, 2003 New World Natural Resources meeting, we strongly support funding Dan Tyers' New World Mine Reclamation Project on bear habitat monitoring at the 'Best Case Funding' level of $42,624 for two years if the following caveats are met:** **a) Data Quality Objectives are included in the study plan. That is, the objectives are focused on effects on bears of past, present and future mine-associated activities at the New World complex (again looking towards restoration of injured resources)** **b) The study plan specifies that a work product will be delivered to the Forest Service by a specified date; and** **c) The work product will provide recommendations for mitigation/restoration measures to compensate for mining- and mine reclamation-associated past and interim natural resource, i.e., bear and habitat losses.**	**K**	**Comment noted.**
L	**Finally, Scott Shuler indicated that the road to Lake Abundance contributes significant sediment to Daisy Creek and the Stillwater drainage. Although the entire road length is not on mining district property, we agree with your resource specialists that reduction, if not elimination, of this sedimentation, should be a high priority.**	**L**	**This change has been considered further, and, as part of the Final EE/CA, the Lake Abundance Road on District Property will be treated to reduce sedimentation.**
M	**We appreciate the opportunity to comment on the *Draft EE/CA for the Miller Creek Response Action.* If you have any questions, please contact Mary Hektner, DOI Project Coordinator, New World Mining District Response and Restoration Project, at 307-344-2151.**	**M**	**Comment Acknowledged.**

National Park Service Comments	Response

Sincerely,

Suzanne Lewis
Superintendent

Cc:
Bill Olsen, USFWS
John Koerth, MT DEQ
Jim Harris, EPA
Michael Cormier, Maxim

	Greater Yellowstone Coalition Comments		*Response*
A	**July 23, 2003** **Mary Beth Marks, OSC** **Gallatin National Forest** **P.O. Box 130** **Bozeman, Montana 59771** **RE: Miller Creek EE/CA** **Dear Mary Beth,** **The following represent the comments of the Greater Yellowstone Coalition on the Draft Miller Creek Response Action EE/CA.**	**A**	**Comment Acknowledged.**
B	**Section 2.5 - Mineralization in the Miller Creek Area. This description is informative and pertinent to the EE/CA. The Miller Creek Deposit is described as containing high grades of gold, copper and silver mineralization close to the surface to the southeast of Daisy Pass. The Homestake Deposit is described as containing very high grades of gold, copper and silver mineralization and is located adjacent to the Miller Ck. deposit. The narrative description of these deposits should be expanded to include approximate ounce per ton of mineralization ("high and very high grade") and the claim ownership pattern including specific interests conveyed by CBMI and Reeb to the US Forest Service. Clearly, these deposits contain a high monetary value resource in proximity of private lands immediately to the west as shown in Figure 3. The potential for eventual mining of this resource and the future impact on the response action should be addressed in the EE/CA.**	**B**	**The USDA Forest Service cannot speculate on what interests or possibilities private parties may have in the New World District as a mine property. According to the Consent Decree, the Forest Service is charged with mitigating historic man-caused mining impacts, which is what the Miller Creek Response Action is intended to analyze.**
C	**Section 3.7 Natural Resource Restoration Issues The EE/CA identifies two principal restoration issues, the impact of**	**C**	**The Natural Resources Working Group has discussed numerous actions that could be taken to address natural**

Greater Yellowstone Coalition Comments	Response
sediment derived from roads on surface water quality and damage to probable wetlands below the Glengarry Mine portal. Grizzly Bear considerations have been completely overlooked. There are several authorities to guide the Natural Resource Restoration activities as they relate to grizzly bear: • **43CFR11.14, Natural Resource Damage Assessments; Definitions. Para. (f). "Biological resources means those natural resources referred in Section 101(16) of CERCLA as fish and wildlife and other biota. …and threatened and endangered, …". *(Grizzly Bear)*** • ***id*. (z) "Natural resources…mean land…wildlife… and other such resources belonging to…or otherwise controlled by the United States." *(Grizzly Bear)*** • ***id*. (11) "Restoration or rehabilitation means actions undertaken to return an injured resource to its baseline condition, as measured in terms of the injured resource's physical …properties or service it previously provided." *(Grizzly bear habitat fragmentation though excess road density and road incursion into habitat in the course of mineral exploration, development and production in the New World Mining District can be mitigated to provide the properties or service…approaching those previously provided.)*** • **FSM 2676 as providing "Specific Direction on Individual Species":** • **FSM 2676 11. Authority** **a. 2672.11 Grizzly Bear Recovery Plan.** • **FSM 2672.12 Objectives** **1. To assure that grizzly bear habitat on National Forest Lands is maintained and enhanced in accordance to recovery plan goals. *(Road closure in the New World District will help meet mandated recovery goals. The Interagency Grizzly Bear Management prescription for this area is 'Situation one', which means among other* **resource restoration in the District. There are several guiding concepts that the USDA Forest Service has developed for the Natural Resources Working Group to follow in determining which actions are appropriate within the structure of the New World Mining District Response and Restoration Project. These guiding concepts were presented to the group at the June 19, 2002 meeting in Bozeman, Montana. An excerpt from the meeting summary describes these concepts:** ***"Key to natural resource restoration is the definition of work that is allowed under the Consent Decree. After much discussion by the group, all agreed that there are two categories of natural resource work that can be done:*** • ***Category A – hazardous substances (i.e. mine waste) that are on District Property and non-hazardous substances (e.g. principally sediment from roads) on District Property. Work can be done prior to the Notice of Certificate of Completion is received from the United States Government.*** • ***Category B - after receipt of the Notice of Certificate of Completion, work can address other hazardous and non-hazardous sources on non-District Property."*** **An open discussion was held during this meeting on the group's concerns, followed by concluding statements on the consensus reached by the group during the meeting. The key understandings reached by the group, as stated in the meeting summary, include the following:** • ***"Formal Natural Resource Damages Assessment (NRDA) is not being done for this project.*** • ***Roads are the main source of sediment to Fisher***

Greater Yellowstone Coalition Comments	Response

things that road density should be no greater than one mile of road for one square mile of area.)

3. To accomplish planning and management for grizzly bear recovery in the most cost effective manner. ***(Recovery goal objective can be addressed with Natural Resource Restoration project costs provided for by the New World Agreement.)***

- **FSM 2676.13 Policy**

  2. Implement the Forest Service share of the Grizzly Bear Recovery Plan and the interagency guidelines on Management of Grizzly Bear by integrating the precepts of the documents into Forest planning and management activities. ***(The Natural Resource Restoration project is a management activity.)***
- **Endangered Species Act "Requires action to conserve endangered species within critical habitat upon which species depend. Includes consultation with Department of Interior."**

  (The ESA is identified as and "Applicable or Relevant and Appropriate Requiremen"t of the Miller Creek Response Action, within which the Natural Resource Restoration issues are discussed. The ARAR status is "applicable", and must be satisfied. The problem of excess road density contributing to the decline of grizzly bear through habitat fragmentation and access denial can be addressed through this response action)

The argument that grizzly bear must be included in a natural resource response is bolstered by comments attributed in the Meeting Summary of the Natural Resources Working Group, of 6/19/02, where the Gallatin NF. Biologist Marion Cherry stated among other issues:

- **"…the importance of white bark pine;**
- **On wildlife, grizzly bear and lynx are the important species;**
- **Road closures are the best protection; high density of**

and Miller Creeks; 90% of sediment in Miller Creek is from roads; 80% of sediment in Fisher Creek is from roads. We can improve water quality and still might not see an aquatic response. In general fish are sensitive to the load (amount) of sediment; aquatic insects are sensitive to the combination of the sediment load and sediment quality. Because of this, the consensus of the group was closing roads and/or fixing erosion problems on roads is a proper response from a natural resources perspective."

The Natural Resources Working Group met again on May 14, 2003 in Bozeman, Montana, specifically to discuss the natural resource restoration actions presented in the Agency Review Draft of the Miller Creek Response Action EE/CA. Comments were received from some members of the group, and these comments were incorporated into the natural resource restoration actions proposed in the EE/CA.

With regard to the grizzly bear issue raised in the comment, study of bear populations in the District will continue. The consent Decree allows the USDA-FS to address restoration, such as enhancement of habitat for grizzly bears, but does not require it. As discussed above, the Natural Resources Working Group agreed to focus their work principally on sediment from roads. The natural resources restoration actions proposed in the Final Miller Creek EE/CA do reduce the number and length of roads in the District to the extent possible.

Travel planning for roads and trails in the Gallatin National Forest is ongoing under the National Environmental Policy Act and the Endangered Species Act. Travel planning is considering many issues, including grizzly bear effects, when making decisions on whether to close a road. In the Final Miller Creek EE/CA, decisions on closing roads are based on

	Greater Yellowstone Coalition Comments	*Response*
	roads = dead bears. Road improvements aid access but impact habitat." **To partially address this matter of natural resource restoration as applied to grizzly bears, the total road density (miles of road/square miles of area) shown in Figure 16 of the EE/CA (north of Highway 212 and Cooke City) should be calculated to reflect the existing condition. Then the same calculation should be applied to the proposed actions that would exclude the Type 1 roads already targeted for closure. There should be a prioritization of the remaining roads to be closed to satisfy natural resource damage to grizzly bear. We recognize that roads accessing private lands and the Daisy-Lulu loop are not subject to closure, but must be included in the density calculation. Prioritization should also acknowledge specific grizzly bear habitat attributes such as white bark pine foraging areas.**	**natural resource issues and are focused primarily on erosion of metals contaminated soils, not the potential for roads, whether contaminated or not, to adversely affect grizzly bear populations. Another consideration is whether or not the road is part of the Forest's road system and if it crosses or accesses private land. No action is proposed for roads that are non-District Property or that access private property. Road work proposed in the Final EE/CA has been evaluated with the travel planning team and management as to whether the work would be contrary to current travel planning recommendations.**
D	**We find that the highest priority road closure ("Type 1 - Close Road, Recontour, Seed, Fertilize, Erosion Blankets") using density and habitat criteria as expressed in the Grizzly Bear Recovery Plan, would be the road into the area of the Tredenic adits that continues to the saddle between Scotch Bonnet and Sheep Mountain. This little used road departs the Fisher Ck. road to enter a nearly pure stand of White Bark Pine, and emerges into a broad sub-alpine basin, continuing to timberline. Since the improvement of the road to facilitate the response actions at the lower, middle and upper Tredenic Mines, recreation traffic has increased. The proposed Huckleberry Lake road, scheduled for construction by the Custer National Forest will create an ORV route that will further compromise the habitat characteristics (by human presence) of this area. Additionally, the highly erosive soils of the area above the Upper Tredenic should not be subjected to wheeled traffic that will be attracted to this contrived loop. The Tredenic road could easily be barriered at the departure from the Lulu Pass road. Should the road be necessary for**	**D**	**To the extent possible, under Category A requirements as described in the preceding response, work on the Sheep Mountain road is included in the Final EE/CA.**

	Greater Yellowstone Coalition Comments		*Response*
	continued administrative activities at the response sites, then a gate installed at this location would suffice until completion of those activities. The road should then be restored and converted into a hiking trail. Limiting this area (Polar Star Basin) to hiking will round out the full range of recreation travel experience through creation of a trail head at the Glengarry that is accessible to passenger cars.		
E	**Another road that should be considered for closure departs from the Miller Mountain Road and continues up into the Sheep Creek drainage. On Figure 16 of the Miller Ck. EE/CA it is shown as a "no work" category. Closing this road would also help the Gallatin National Forest meet grizzly bear management obligations. Other "no work" roads that are shown in Figure 16 stubbing off other "Type" roads should be closed unless precluded by private land access requirements.**	**E**	**Comment Acknowledged. Regarding the road in Sheep Creek, this road is currently closed with a gate and signs.**
F	**Reclamation activities on closed roads including disturbed cut and fill slopes must be carefully conducted. This is an opportunity to utilize the hand work services of the Montana Conservation Corp, as suggested in my e-mail to Mark Story on 1/21/03. The natural resource response action is also an opportunity to regrade the trailhead area at Daisy Pass, and relocate the sediment producing trail down into Daisy Creek. This trail was probably established during historic mineral exploration activities and should be closed and rerouted to eliminate erosion and sediment transport. The Montana CC crew could be mobilized to do this work.**	**F**	**Comment Acknowledged.**
G	**Closure of these roads as suggested will augment the Type 1 roads already identified. Benefits to bear management goals are especially strong with the proposed closure of the roads on the south-west flanks of Henderson Mountain. The NRD working team should be commended for this recommendation.**	**G**	**Comment Acknowledged.**

	Greater Yellowstone Coalition Comments		***Response***
H	**<u>Glengarry Mine Wetland</u>** **Restoration/construction of this wetland is an appropriate use of NRR funds. Consideration should be given to this work season's construction of a second settling impoundment necessary for the GG mine reclamation. The wetland construction will be in this vicinity, thus the liner system and use of native soils should be done in such a way so as not to compromise the eventual wetland. Removal of the GG dump to the repository should also be accomplished without compaction of the existing vegetative surface below the waste. The historic mining artifacts accumulated and placed in the vicinity by CBM should be relocated to a secure location (in anticipation of museum acquisition) before any wetland work is done.**	**H**	**Comment Acknowledged.**
I	**The remainder of the response action appears appropriate in achieving the goals of the clean-up of the Miller Creek drainage.** **Thank you for the opportunity to submit these comments.** **Don Bachman** **ec: NW Agency Group** **NW Conservation Group**	**I**	**Comment Acknowledged.**

	Beartooth Alliance		***Response***

	Beartooth Alliance		*Response*
A	**July 31, 2003** **Mary Beth Marks, OSC** **Gallatin National Forest** **P.O. Box 130** **Bozeman, MT 59771** **Re. Miller Creek Response Action, Draft EE/CA Review.** **Dear Mary Beth;** **I have completed review this draft plan on behalf of the Beartooth Alliance. We support the preferred alternative for treatment of mine wastes in the Miller Creek Drainage, understanding that drainage from mine adits such as at the Black Warrior Mine will be covered in a subsequent EE/CA.**	**A**	**Comment Acknowledged.**
B	**We concur with the comment of GYC (letter of 7/23/03) regarding the mineralization of the area and the potential for eventual development on the private inholdings. Please address this issue as they requested.**	**B**	**Comment noted. Please see response to Comment B in the Greater Yellowstone Coalition responses.**
C	**Section 3.7 NATURAL RESOURCE RESTORATION ISSUES** **We support the recommendation to restore the Glengarry Mine wetland with use of New World Restoration funding. Capability exists within the Beartooth Alliance (BA) membership to contribute to the design of this restoration and we would appreciate having an opportunity to do so when the time comes. Please keep us advised in this regard.** **In relation to this wetland restoration, the plan makes no mention of the disposition of numerous mining artifacts in this area, and in the Miller Creek drainage for that matter. We believe the Forest Service (FS) should take measures to prevent "high grading" of these artifacts by the public or contractor personnel and BA would like the opportunity to**	**C**	**Comments noted. The USDA Forest Service will consider these concerns in the engineering design process.**

	Beartooth Alliance		*Response*
	participate in plans for their ultimate disposition. This concern applies to all FS properties. One possible source for deposition is the proposed Cooke City Mining Museum which will be housed at the new Visitor Center in Cooke City. Proposals are currently being drafted and property is being obtained for the Center. Suzie Hahn or Florence Zundel in Cooke City would be your best contacts for information on the Museum.		
D	**3.7.1 <u>Roads as a Source of Sediment and Contamination</u>** **BA representatives spent considerable time during the past week examining roads in light of recommendations contained in this plan. In addition, BA members and local citizens (a total of about 20) spent the day of July 25th touring the NW District roads with Gardiner District Ranger Ken Britten and several staff members. The purpose of this tour was to gain a better understanding of the Forest Travel Plan (FTP) review process, to discuss the various public values associated with specific road segments, and discuss the various options available for effective roads management. Ranger Britten indicated that the time table for this planning project calls for release of the draft plan/NEPA document in spring of 2004, providing next summer season for public review. He further indicated that it could take as long as 3 to 5 years before the FTP is final and its implementation begins.** **This timetable appears to be totally out of sequence with that of this EE/CA: issuance of the decision memorandum and implementation of the resulting response action. Furthermore, while BA certainly supports the overall goal of reduced sediment and contaminant loading to area streams, we also have an appreciation for many considerations that should go into the very important decisions related to future management of roads in the NW District. These include: public values, recreation management opportunities, wildlife management and the full range of road management options (beyond those selected in this EE/CA), to name a few.**	**D**	**With regard to the different timetables for natural resources restoration and road work proposed in the Miller Creek EE/CA and the implementation of travel planning recommendations, proposed road work has been evaluated with the travel planning team as to whether the work would be contrary to current travel planning recommendations. To alleviate your concern on this issue, several modifications were made to the Final EE/CA. The scope of work on roads considered in the Final EE/CA was narrowed to just District Property, and allowing travel planning to make decisions on roads where consensus by interested parties could not be reached in this EE/CA process. Our goal is to ensure that, when travel planning recommendations are put into effect in future years, work done under the New World Mining District Response and Restoration Project will be complimentary.** **With regard to specific road closures, the USDA Forest Service has revisited all road proposals presented in the Draft EE/CA and has had numerous discussions with the Beartooth Alliance, the Greater Yellowstone Coalition, the District Rangers and Forest Supervisors on the Gallatin and Custer National Forests, and the travel planning team. The modifications presented in the Final EE/CA reflect these discussions.**

Beartooth Alliance	Response
It is clear to us that the roads recommendations contained in this EE/CA, as depicted on Figure 16, do not reflect consideration of the full range of options available to alleviate erosion and sedimentation problems, balanced against the public's demand for recreational opportunities. We believe that the FTP process better provides for examination of the broader public interest. One case in point is the road (upper segment) that departs the Daisy Pass Road just SE of the pass and traverses the SW face of Henderson Mountain. **Careful examination of this road reveals substantial erosion taking place, and we are aware that a portion of this road passes through an area identified as having "anomalous metals concentrations in soils" (figure 11). However, surface evidence of erosion indicates that very little erosion is taking place on the road surface itself. The great preponderance of erosion is the result of downslope water movement crossing the road and eroding the sidecast fill material (photos enclosed to illustrate). The draft EE/CA (figure 16) has assigned this road a "type 1" designation, "close road". In this example, the plan makes a giant leap from sediment yield to road closure. In so doing, it jumps right over the possibility that one solution does not always apply to the physical circumstances.** **We believe that the type 1 treatment, as described on page 48, may not be appropriate or necessary to meet the sediment reduction objective. Light vehicle traffic on this road surface is not the cause of erosion. Nor is the road surface a primary conduit of runoff water. This road was constructed by a half-bench/side-cast method. The fill is composed of highly erosive material of decomposed granite characteristics. Unless this fill material were completely removed or armored, erosion would continue. We suggest that armoring the fill in selected locations in connection with some drainage and runoff control would do more to reduce**	

	Beartooth Alliance		Response
	sediment yield than would the stated prescription for road closure, in this case. **Furthermore, as discussed with Mr. Britten, this road affords outstanding vistas of the mountain ranges to the north and south for the recreation visitor. In short, it may be possible to reach sediment yield objectives while retaining established uses and public values. Why foreclose a public value for a broad-brush treatment that may have very limited effectiveness? This road is but one example of the need to allow the public the opportunity to work closely with the FS on a road-by-road basis in selecting from a range of management options and treatments that best meet legitimate natural resource goals while, to the extent possible, retaining important public values. In other cases roads are shown as remaining open for no apparent reason; the Rommel Loop is a good example. Other examples include: installing physical barriers to and rehabilitating numerous shortcut trails or seasonal closures below snow banks to prevent detour trails and rutting by vehicles and horses. Both of these measures can reduce sediment with no real sacrifice of public opportunity.**		
E	**Upon careful consideration of the above points, BA recommends that the planned actions described in section 3.7.1 of this EE/CA be deferred to the TMP process where a more holistic approach to road management may lead to satisfactory long-term decisions. BA and others in the community are committed to working closely with Mr. Britten and his staff as the TMP evolves. We assume the TMP process will factor in natural resource restoration considerations along with public values and other management options. BA does support the use of NW Restoration Project funds for selected aspects of implementation of the TMP.** **However, in the event that the decision is made to proceed**	**E**	**Comment noted. Please see response to previous comment.**

	Beartooth Alliance		*Response*
	with road treatment measures as a response action under this EE/CA, we request an extension of the public involvement process (for this portion of the EE/CA only) to allow us to work with you exploring road-by-road options. This roads issue is very important to the local community and deserves your and our careful consideration.		
F	**On another issue, we were surprised to learn on July 7th that, as we understand, New World restoration funding has been committed for a grizzly bear study in the District. To the best of our knowledge, the decision to commit these funds was made without public notice or involvement, or with very select public involvement that did not include BA. This seems contrary to the spirit and intent of the public involvement plan for this project. BA membership holds expertise that is well qualified to evaluate design for this type of study and we are disappointed to have been denied that opportunity initially. Please provide us information as to the purpose, need and justification for commitment of NW funds, study design, duration, and expected deliverables for this study.**	**F**	**The public is participating in the New World Mining District Response and Restoration Project in accordance with 40 CFR Part 300 and the project Community Relations Plan.**
G	**Thank you for the opportunity to participate in this important EE/CA review. As you can see, there is at least one important issue to resolve before it becomes final and a decision is issued. As always, we stand ready to discuss these matters with you. Please keep us advised.** **Sincerely,** **Mike Whittington** **NW Response and Restoration Project Representative** **Copies by email:** **Mr. Ken Britten, USFS Gardiner** **New World List** **BA Board of Directors**	**G**	**Comment Acknowledged.**

APPENDIX B
DETAILED COST ESTIMATE FOR NATURAL RESOURCE RESTORATION ACTIONS

FINAL MILLER CREEK RESPONSE ACTION ENGINEERING EVALUATION/COST ANALYSIS

New World Mining District Response and Restoration Project

MILLER CREEK

ENGINEER'S ESTIMATE - PREFERED ALTERNATIVE

New World Mining District Response and Restoration Project

Miller Creek Response Action EECA

SELECTED SITES

Selected site	Material Type	Volume (cubic m)	Area (ha)	Proposed Action
MCSI-99-72, Miller Cr Dump One	waste	50	0.01	Alt. MC-2 - In-Situ Reclamation
DCSI-99-91, Bull of the Woods Shaft/Dump	waste	20	0.01	Alt. MC-2 - In-Situ Reclamation
MCSI-96-1, Miller Creek Dump Two	waste	220	0.10	Alt. MC-2 - In-Situ Reclamation
Lower Miller Creek Dump 1	waste	30	0.05	Alt. MC-2 - In-Situ Reclamation
Total		**320**	**0.17**	
MCSI-96-2, Miller Cr Headwaters Dump One	waste	**610**	**0.07**	Alt. MC-3 - Total Removal
MCSI-96-6, Little Daisy Adit and Dump	waste	**680**	**0.20**	Alt. MC-3 - Total Removal

ALTERNATIVE MC-2 - In-Situ Reclamation of Waste Rock Dumps

	Unit	Unit Cost	Quantity	Cost	Explaination
Clearing and Grubbing	ha	$4,600.00	0.05	$234.60	A B & J Mine Rec. Contractor Bid
Upgrade Access Roads	km	$9,383.00	2.88	$27,023.04	Basin/Cataract Creek Eng. Est.
Waste Spreading and Grading	m^3	$3.82	360.0	$1,375.20	McLaren Pit Eng. Estimate *2
Incorporate Lime in Upper 0.3 meters	ton	$62.00	53.7	$3,329.40	McLaren Pit Eng. Estimate
Drainage Channels	ls	$1,000.00	4.0	$4,000.00	Engineers Estimate
Erosion Control	ha	$3,420.00	0.17	$581.40	McLaren Pit Eng. Estimate x 2
Reclaim Roads	km	$6,850.00	2.88	$19,728.00	McLaren Pit Eng. Estimate
Revegetation	ha	$31,278.00	0.17	$5,317.26	McLaren Pit Eng. Estimate x 1.5
		SUBTOTAL		**$61,588.90**	

ALTERNATIVE MC-3 - Black Warrior and Little Daisy Dump Removals

	Unit	Unit Cost	Quantity	Cost	Explaination
Waste Removal, Haul, and Place					
Clearing and Grubbing	ha	$4,600.00	0.27	$1,242.00	A B & J Mine Rec. Contractor Bid
Upgrade Access Roads	km	$9,383.00	1.00	$9,383.00	Basin/Cataract Creek Eng. Est.
Excavate, Load and Haul Waste	m^3-km	$2.76	12,498	$34,494.48	Engineers Estimate
Regrade Removal Areas	ha	$2,965.25	0.27	$800.62	2000 Sel. Source Eng. Estimate
Revegetation of Removal Areas	ha	$31,278.00	0.27	$8,445.06	McLaren Pit Eng. Estimate x 1.5
Drainage Channels	ls	$2,000.00	1	$2,000.00	Engineers Estimate
Erosion Control	ha	$3,420.00	0.27	$923.40	McLaren Pit Eng. Estimate x 2
Reclaim Roads	km	$6,850.00	1.00	$6,850.00	McLaren Pit Eng. Estimate
Waste Spreading and Grading	m^3	$3.82	1,806	$6,898.92	McLaren Pit Eng. Estimate x 2
Repository	m^3	$150.65	1,290	$194,338.50	Selective Source Average Cost
		SUBTOTAL		**$265,375.98**	
	TOTAL MC-2 & MC-3			**$326,964.88**	
		Mobilization (10%)		$32,696.49	
		Contingency (12%)		$39,235.79	
		TOTAL CONSTRUCTION		$398,897.15	
Ancillary Actions:		Road Rehabilitation		$349,800.00	
		Glengarry Wetland		$97,400.00	
		Cumberland Debris Cleanup		$11,965.00	
		TOTAL ANCILLARY		$459,165.00	
		Eng. Eval. And Desgin (8%)		$68,644.97	
		Const. Oversight (5%)		$42,903.11	
		PRSC		$14,237.38	
Total Preferred Alternative Cost:				**$983,848**	

NATURAL RESOURCE RESTORATION
COST SUMMARY
FINAL MILLER CREEK RESPONSE ACTION EE/CA

CATEGORY	ROAD TYPE	DRAINAGE	COST	TOTAL COST
Road Closures	Reclamation Type 1 Roads	*DAISY*	*$ 17,437.48*	
		FISHER	*$ 42,063.24*	
		MILLER	*$ 20,972.38*	
		SODA BUTTE	*$ 14,356.80*	
		ROSEBUD	*$ -*	
		Total		**$ 94,829.90**
Restricted Use	Administrative Closure Type 4 Road	*DAISY*	*$ -*	
		Total		**$ -**
	Restricted Width Type 3 Roads	*DAISY*	*$ -*	
		FISHER	*$ -*	
		MILLER	*$ -*	
		SODA BUTTE	*$ -*	
		ROSEBUD	*$ -*	
		Total		**$ -**
Road Upgrades	Drain + Leave Open Type 2 Roads	*DAISY*	*$ 30,623.56*	
		FISHER	*$ 47,231.75*	
		MILLER	*$ 39,260.81*	
		SODA BUTTE	*$ 18,217.06*	
		ROSEBUD	*$ -*	
		Total		**$ 135,333.19**
	Improve Drainage Type 5 Roads	*DAISY*	*$ 25,012.50*	
		*FISHER**	*$ 26,842.88*	
		MILLER	*$ 57,739.75*	
		SODA BUTTE	*$ -*	
		ROSEBUD	*$ -*	
		TOTAL		**$ 119,595.13**
PROJECT TOTAL				**$ 349,758.21**

DAISY CREEK	*$*	*73,073.55*
FISHER CREEK	*$*	*126,137.87*
MILLER CREEK	*$*	*117,972.94*
SODA BUTTE	*$*	*32,573.86*
ROSEBUD	*$*	*-*
TOTAL	**$**	**349,758.21**