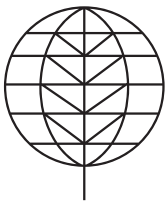

EARTHWORKS

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P.O.Box 200901
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December 21, 2011

Dear Ms. Hagarty and Ms. Ponozzo,

Re: Montanore SDEIS Comments

These comments are submitted on behalf of Earthworks, a national conservation organization dedicated to protecting communities and the environment against the adverse impacts of mining. Earthworks has 45,000 members across the country, with offices in Montana, Colorado, California, Washington DC, New York and Texas. Our membership includes people who regularly recreate in the Cabinet Mountains Wilderness and surroundings.

The Cabinet Mountains Wilderness Area is one of the first ten areas protected by Congress. This 93,000 acre gem remains the sole wilderness area in the 2.2 million-acre Kootenai National Forest.

The Supplemental Draft Environmental Impact Statement outlines significant impacts to wilderness, water and wildlife. Dewatering of mine tunnels underneath the Wilderness Area is predicted to lower the groundwater table by 10 to 1,000 feet throughout a large segment of the Wilderness Area. Even with mitigation measures, the drawdown is predicted to result in reductions in flows to wilderness lakes, rivers, and streams, which are designated Outstanding Resource Waters.

The drawdown is predicted to completely dewater the headwater reaches of the East Fork of Rock Creek and the East Fork of Bull River – ***the most important bull trout stream in the lower Clark Fork River watershed***. Many of the impacts to Outstanding Resource Waters are expected to continue for over a thousand years, and some will be permanent.

The grizzly bear population in the Cabinet-Yaak Ecosystem (CYE) is one of six populations essential to the conservation of the grizzly bear in the United States. Its geographic location is key for providing connectivity between other grizzly bear populations and Canada. The grizzly population in the CYE is threatened by small population size and increasing human demands on

its habitat. The mine would occur within occupied grizzly bear habitat within the Cabinet-Yaak Ecosystem (CYE). The SDEIS fails to demonstrate how the mine plans complies with the Forest Plan direction for threatened and endangered species, and how it will comply with the Endangered Species Act.

These impacts are incompatible with maintaining and protecting the Outstanding Resource Waters, fish and wildlife habitat, recreational uses and other significant values for which the Cabinet Mountains Wilderness Area was established.

The SDEIS also fails to provide sufficient information to evaluate the impacts, and efficacy of mitigation, on a long list of significant issues. The impacts to threatened bull trout and grizzly bears are inadequately analyzed, and there's no information to show how the plan will comply with the requirements of the Endangered Species Act.

The plan for the Poorman Tailings impoundment, which is identified as the preferred alternative, is entirely conceptual. There's no geotechnical data to demonstrate whether it is even feasible.

We appreciate the opportunity to comment on the proposed Montanore Mine, and we urge the Forest Service to deny the permit, based on its failure to comply with the CWA, ESA, NFMA, NEPA, MEPA, CAA, Montana's state water quality and air quality laws and the inadequacy of information within the SDEIS.

With these comments, I also adopt and incorporate by reference the technical and organizational comments submitted by Ann Maest, Tom Myers, Chris Frissell, Brian Peck, Save Our Cabinets and earlier comments submitted on the DEIS by Matt Clifford (June 4, 2009) and Dave Chambers (April 30, 2009).

Sincerely,

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Proposed Action

According to the SDEIS, MMI and MMC have requested that the DEQ consider MMI's application for a hard rock operating permit as an application by MMC for modification to DEQ Operating Permit #00150. It further states that, "with minor exceptions, MMC proposes to construct, operate and reclaim a new mine in accordance with the terms and conditions of DEQ operating permit #00150."

There are substantial differences between this project and the plan submitted by Noranda, which was never constructed and which Noranda relinquished in 2002. The new plan has been proposed by a different company, and the preferred alternative calls for the development of four major mine facilities that are entirely different from the previous plan of operations, including the Poorman Creek tailings impoundment, the Libby Plant site between Libby and Ramsey Creeks, and two additional adits in upper Libby Creek (p. S-8). Additional differences include: construction of an additional underground ventilation structure; relocation of the loadout facility; installation of a buried powerline; and construction of a temporary electrical substation. (p. S-2)

Comment: The Montanore project should be considered a new application by MTDEQ just as it is by the Kootenai National Forest. It is not a modification of an existing project plan, but an entirely different project by an entirely different operator.

2.5.3.2 Tailings Management

According to the SDEIS, "*The Poorman Impoundment Site would not provide sufficient capacity for 120 million tons of tailings without a substantial increase in the starter dam crest elevation if tailings were deposited at a density proposed in alternative 2. The tailings thickener requirements to achieve higher tailings slurry density are uncertain without additional testing of simulated tailings materials.*" (p. 46)

Furthermore, "*the design developed from the Poorman site is conceptual only and is based on limited geotechnical investigations. The tailings facility design would be based on additional site information obtained during the design process, which likely would include a preliminary design phase and a final design phase*." (p. 47)

According to the SDEIS, the field exploration program would include a site reconnaissance and a drilling and sampling program to evaluate: site geology and foundation conditions; groundwater conditions and water quality, borrow material availability, and geotechnical characteristics of foundation and borrow materials. The SDEIS further states that the review would encompass whether the tailings impoundment design is stable, in short and long-term, and additional geotechnical analysis would determine whether the proposed seepage collection system is sufficient to protect surface water. (p. 47 - 48).

Comment: It is impossible to evaluate the impacts of the Poorman tailings impoundment facility (the preferred alternative), and compare to other alternatives, when the plans considered by the SDEIS are conceptual only. The SDEIS clearly states that they need additional data to determine whether the site can accommodate the amount of proposed tailings (120 million tons), and that there is insufficient geotechnical data to demonstrate that alternative 3 will be stable over short and long-term. A preferred alternative should not be approved without sufficient information to determine its feasibility.

2.5.4.3. Water Use and Management

The SDEIS also states that using thickened tailings may affect the ability to use the tailings impoundment as a reservoir to maintain a water balance. It states that in final design, MMC would reevaluate the water balance and the tailings deposition plan. One option would use the drainage in the northern end of the impoundment are as a dedicated water storage area and readjust the dam alignment and deposition plan. A second option would be to use the Seepage Collection Pond for excess water storage. The Alternative 3 water balance assumes that all collected water would be returned to the impoundment and no water storage would occur in the Seepage Collection Pond. (p. 49)

Comment: The SDEIS fails to provide sufficient information to analyze water use and management. Without appropriate analysis and design for the tailings impoundment facility, the agencies cannot determine whether the tailings impoundment can be used for managing water, or whether some other option is needed altogether. This is a significant issue with broad implications that needs to be fully evaluated in this SDEIS, not left for some future decision outside of the public review process.

2.5.4.3.2. Water Treatment

According to the SDEIS, MMC would continue to monitor influent monthly, and make appropriate modifications to the water treatment plant if necessary to remove dissolved metals.

Comment: If monthly monitoring indicates elevated metals, how will MMC manage the water until modifications to the treatment system are in place? The water treatment analysis in this section is quite speculative, with insufficient information to analyze whether wastewater will be effectively treated. Given the uncertainties associated with water management at the Poorman tailings impoundment, there needs to be further discussion about how the water will be stored until additional water treatment is in place, if needed.

2.5.4.3.3. Storm Water Control

The SDEIS indicates that all storm water diversions will be sized to handle a 10-year/24 hour storm event.

Comment: Designing facilities for a 10-year/24 hour storm event doesn't appear to be sufficient to protect sensitive water resources from storm water runoff. This region is one of the highest precipitation areas within the state, and often experiences major weather events. What is the amount and frequency in which sediment could be released into neighboring bull trout streams under this scenario? Given the sensitivity of bull trout to sediment, the SDEIS should include analysis of the efficacy of designing storm controls for 10-year, 25-year and 100-year storm event requirements.

3.4 Air Quality

Please see the attached settlement stipulation and order pertaining to Permit No. 2414-01, which states in part:

"The Department agrees that, for any future consideration, installation, alteration, or use that would be located within 10 kilometers of the CMWA or that would have an air quality impact on the Class 1 Area equal to or greater than 1 microgram/cubic meter (24-hour average), and that requires an application for an air quality permit, including, but not limited to, permit actions involving the Noranda Montanore mine project, the Department will, as part of the permit application process, perform a computer dispersion modeling analysis of the cumulative consumption, by minor and major air contaminant sources, of the air pollutant increments that apply in Prevention of Significant Deterioration of Air Quality (PSD) Class 1 baseline areas."

Comment: How does the project and SDEIS comply with this agreement?

3.6 Aquatic Life and Fisheries

The East Fork of Bull River and Rock Creek are vital to the recovery of bull trout because they support pure populations of bull trout, and they are considered the most important bull trout recovery streams in the lower Clark Fork River watershed. According to the SDEIS:

- *Bull trout redds have been observed in the East Fork Bull River and Rock Creek. Redd surveys by Avista (Storaasli and Moran 2008) indicate that East Fork Bull River, and to a lesser extent Rock Creek, are two primary spawning streams that support the Cabinet Gorge bull trout population (Montana Bull Trout Scientific Group 1996). DEIS – p. 284.*
- *Bull trout in the East Fork Bull River and Rock Creek are included in the Cabinet Gorge core area within the Lower Clark Fork River Recovery Unit (USFWS 2002), and are isolated from the bull trout populations in the lower Kootenai River watershed. East Fork Bull River and Rock Creek are considered important spawning streams for this subpopulation (Montana Bull Trout Scientific Group 1996) and redd surveys by Avista support this contention. (DEIS p. 285)*
- *Genetic analysis of bull trout tissues collected in 1993 from three locations on the East Fork Bull River indicated that the bull trout populations were pure. (DEIS – p. 280)*
- *The East Fork Bull River was estimated to have about 200 bull trout present throughout its length. Subsequent sampling in the East Fork Bull River since 2000 has shown*

estimates of up to 7.3 trout/100 m in 2003 in downstream areas to as high as 43 bull trout/100 m in more upstream reaches in 2005 (Horn and Tholl 2008). Surveys of reaches in other streams within the Bull River drainage in 1999 indicated that the majority of the bull trout in this watershed are found in the East Fork, with 85 percent of the all the bull trout collected in the Bull River watershed collected from the East Fork Bull River. (DEIS p. 279)

- *Because the East Fork Bull River is considered the most important bull trout stream in the lower Clark Fork River drainage, decreased levels of bull trout spawning within this stream could have long-term adverse effects on bull trout population within the lower Clark Fork River Drainage*." (p. 146)
- *Loss of bull trout habitat in the East Fork Bull River in all alternatives could be detrimental to bull trout populations in the lower Clark Fork River because this stream is considered a primary spawning location in this system." (p. 178)*

According to the SDEIS, all alternatives will have impacts to bull trout and critical bull trout habitat.

- "*All action alternatives may affect and are likely to adversely affect the bull trout and designated bull trout critical habitat. (p. 165* - 404b analysis)
- *In general, reductions in streamflow in Libby Creek, East Fork Rock Creek, Rock Creek, and East Fork Bull River during one or more mining phases would decrease available aquatic habitat.*
- *Bull trout populations and designated critical habitat in the Libby Creek, East Fork Rock Creek, Rock Creek, and East Fork Bull River drainages would be adversely affected by the project. Changes in streamflow would reduce bull trout habitat, and may create barriers by reducing low flow within these drainages. Because bull trout spawn from August through November when low-flow conditions often occur, available spawning habitat in these streams may decrease. Increased nutrient and metal concentrations may affect the critical habitat in Libby Creek during all phases except Operations. If subsurface flow that reaches Libby Creek is eliminated from the tributaries in the Impoundment Site, slight changes in water temperature may adversely affect bull trout habitat along the reach below the Impoundment Site. (p. 27 Appendix X)*
- "*Alternatives 2, 3 and 4 could result in irreversible reduction of bull trout and westslope cutthroat trout habitat in Rock Creek drainage due to decreases in flow. Mitigation would reduce effects on stream flows in EFRC in Alt 3 and 4, but would result in permanent flow reductions in the EFBR.*
- *Loss of bull trout habitat in the EFBR in all alternatives could be detrimental to bull trout populations in the lower Clark Fork River because this stream is considered a primary spawning location in this system*." (p. 178)
- *Water quality impacts resulting from mine inflows post mining, if measureable would adversely affect the biotic communities and be an irreversible commitment of aquatic resources.*
- *Decreases in flow in Libby Creek, Ramsey Creek, Rock Creek and EFBR are predicted to occur for all action alternatives during and after mining operations.*

(p. 177)

- *Although some of the predicted flow changes may not be measureable or separable from natural flow variability, any decrease in flow could have adverse long-term effects on the bull trout and westslope cutthroat populations by decreasing available habitat in the headwaters of these streams during certain times of the year. Bull trout may be particularly affected by these decreases because the habitat loss would occur during their spawning period. (p. 177)*
- Under the category of irreversible and irretrievable commitments, the SDEIS states that*, "Alternatives 2, 3and 4 could result in an irreversible reduction of bull trout and westslope cutthroat trout habitat in Rock Creek drainage due to decreases in flow. Mitigation would reduce effects to stream flows in East Fork Rock Creek in Alternative 3 and 4, but would result in permanent flow reductions in the East Fork Bull River. Loss of bull trout habitat in the EFBR in all alternatives could be detrimental to bull trout populations in the lower Clark Fork River because this stream is considered a primary spawning location in this system." (p. 178)*
- *Decreased base flows predicted to occur in the upper Rock Creek and East Fork Bull River drainages may reduce available bull trout and westslope cutthroat trout habitat and fish passage. The reduction in habitat may affect bull trout more severely than westslope cutthroat trout because they spawn during low-flow times of the year from August through November*. – (Draft 404b analysis p. 31 Appendix L)
- *Additionally, dewatered reaches of Rock Creek have been observed during low-flow periods under existing conditions, and these reaches might remain dewatered for longer periods and/or the length of stream dewatered may increase. Because these reaches are near the mouth of Rock Creek, they may further reduce migratory bull trout from accessing any significant portion of the Rock Creek drainage for spawning. The bull trout population in Rock Creek is thought to be comprised primarily of resident fish, but migrant bull trout also have been observed. (*Draft 404b analysis – p. 31, Appendix L)
- *Increased concentrations of some metals, total dissolved solids, and nutrients as a result of 402-permitted discharges during all phases except Operations would occur in the Libby Creek drainage. Draft 404b analysis.*
- *low flow in Bear Creek would be reduced during the Operations Phase by diversions and a pumpback well system at the Little Cherry Creek Impoundment. The effect was not quantified. Bull trout habitat in Bear Creek would be reduced. (p. 147)*
- *The reduced flows would affect designated bull trout critical habitat with direct effects to springs, seeps, groundwater sources, and subsurface water connectivity that contribute to water quality and quantity and provide thermal refugia, and a decrease in sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited (USDA Forest Service 2011a) (p. 152)*
- *Operation of the pumpback wells would reduce streamflow and available habitat in Libby, Poorman and Little Cherry creeks. Overall, reductions in low flow conditions would decrease available fish habitat. (p. 151)*
- *The effect on aquatic life of any increase in nutrients or metals up to the ALS or BHES Order nondegradation limits would be the same as discussed for Alternative 2.*

Comment: The SDEIS fails to provide sufficient analysis of the impacts to threatened bull trout, the effectiveness of mitigation, and how the proposed activities will comply with the Endangered Species Act and Montana's bull trout recovery efforts. It simply states that, "*All action alternatives may affect and are likely to adversely affect the bull trout and designated bull trout critical habitat. For all alternatives, ESA compliance would be ensured through Section 7 consultation." DSEIS, p. 165.* This violates NEPA, which requires a thorough analysis on the impacts to threatened and endangered species, a thorough discussion on potential mitigation measures, and the effectiveness of those mitigation measures.

The SDEIS indicates that base flow will be reduced in EFBR, EFRC, RC, and Libby Creek – all of which include critical habitat for bull trout.

- *Decreased base flows predicted to occur in the upper Rock Creek and East Fork Bull River drainages may reduce available bull trout and westslope cutthroat trout habitat and fish passage. The reduction in habitat may affect bull trout more severely than westslope cutthroat trout because they spawn during low-flow times of the year from August through November. (p. 31 Appendix L)*

Comment: What is the total amount of critical habitat that will potentially be affected by drawdown at all stages. For example, the SDEIS predicts a reduction in base flows of 37% with mitigation in the wilderness at EFBR-300 and 3% at the wilderness boundary at EFBR-500 during the closure phase. The SDEIS doesn't provide information on the number of river miles or percent of EFBR effected under these seasonal conditions, but based on the map in Figure 55, it appears to be almost a third of the EFBR -- all of which is designated critical natural habitat. This should also be expressed as a range, due to the uncertainties and assumptions associated with calculating low flows.

The SDEIS indicates that the upstream reaches of the EFBR contain the highest density of bull trout. The SDEIS also indicates that the upper reaches of the EFBR will be the most severely affected by low flows.

- *Generally, bull trout densities were highest in the upstream reaches of the EFBR. (DEIS p. 363) Surveys of reaches in other streams within the Bull River drainage in 1999 indicated that the majority of the bull trout in this watershed are found in the East Fork, with 85 percent of the all the bull trout collected in the Bull River watershed collected from the East Fork Bull River. Fish found in the upper reaches within the CMW included bull trout, westslope cutthroat trout, and slimy sculpin (FWP 2008a). Bull and brown trout redd surveys also were conducted on the East Fork Bull River and Rock Creek from 2001 to 2007 by Avista (Storaasli and Moran 2008). The number of bull trout redds in the East Fork Bull River ranged from nine in 2004, 2005, and 2007 to a high of 32 in 2002.* (DEIS – p. 371)

Comment: Once again, the SDEIS doesn't quantify the impacts to bull trout, the efficacy of mitigation, or how the proposed mine would comply with the Endangered Species Act. How

will the long term impacts of reduced flows in the upper EFBR effect spawning, the long-term viability of the EFBR bull trout population, and the long-term viability of the lower Clark Fork River watershed? Is there anyway to mitigate the impacts? How does the project comply with the USFS' duty to "maintain and protect fisheries and wildlife habitat which may be affected by the operations." 36 CFR 228.8(e).

The SDEIS indicates that a reduction in flows will likely also result in an increase of temperatures, may affect migratory bull trout due to seasonal dewatering issues, and bull trout spawning may be impaired because bull trout prefer areas of groundwater upwells.

- *The reduced flows would affect designated bull trout critical habitat with direct effects to springs, seeps, groundwater sources, and subsurface water connectivity that contribute to water quality and quantity and provide thermal refugia, and a decrease in sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited (USDA Forest Service 2011a) (p. 152)*

- *Additionally, dewatered reaches of Rock Creek have been observed during low-flow periods under existing conditions, and these reaches might remain dewatered for longer periods and/or the length of stream dewatered may increase. Because these reaches are near the mouth of Rock Creek, they may further reduce migratory bull trout from accessing any significant portion of the Rock Creek drainage for spawning. The bull trout population in Rock Creek is thought to be comprised primarily of resident fish, but migrant bull trout also have been observed. (p. 31, Appendix L)*

- *Two seasonally dewatered segments of the mainstem of Rock Creek encompass all or portions of four of the five critical habitat sections. The extent of critical habitat area that is affected annually depends on year-round streamflow conditions. In most years, habitat is adversely affected to some degree due to the seasonal lack of connectivity preventing upstream movement of adult migratory bull trout. Annual subsurface streamflow conditions in summer and early fall severely affect the ability of bull trout to find suitable spawning areas. Consequently, it is likely that reproduction in most years is significantly limited (USFWS 2007a)*

According to comments from the USFWS, "Water temperature is already functioning near, or at unacceptable risk in Libby Creek Drainage and stream temperatures may increasingly become a limiting factor for the bull trout local population."

Comment: What are the effects to bull trout from sediment, habitat loss, low flows, water quality, increased temperatures, impediments to passage, loss of groundwater upwells for spawning, etc… in all drainages? Are there mitigation measures for these effects? How effective are they? Will the predicted changes benefit non-native fish over bull trout? Is there baseline data for all potentially effected bull trout streams?

3.6.4.3.6 Threatened and Endangered Species/Effects to Critical Habitat

A statement is made under Effects to Critical Habitat that "reduced flows would affect designated bull trout critical habitat with direct effects to springs, seeps, groundwater sources, and subsurface water connectivity…such that normal reproduction, growth, survival are NOT inhibited." (emphasis added) (p. 152)

Comment: Where is the documentation to support this statement?

During operations and closure, the mine is likely to experience tailings leaks and or spills, such as those described in the Troy Mine DEIS (DEIS p. 3-47, 2011):

> In 1984, a tailings spill released an unknown quantity of tailings into Lake Creek (EPA 1992).
>
> In 1996, a slump occurred in the fill slope on NFSR 4626 between the mill site and the North Portal area resulting in a debris avalanche that buried approximately 200 feet of upper Stanley Creek with landslide debris. After reaching Stanley Creek, the slide became a debris torrent that caused major scour and sediment deposition down to the creek's confluence with Fairway Creek. Sediment deposited during this event is still evident throughout upper Stanley Creek and is a chronic source of sediment during peak flow events. It is likely that much of the sediment resulting from the 1996 slope failure is now deposited in lower Stanley Creek.
>
> In October of 2009, a leak in a tailings pipeline spilled tailings into Thicket Creek (a tributary to Stanley Creek) about 150 feet above its confluence with lower Stanley Creek. Approximately 40 tons of tailings solids flowed out of the pipeline during the course of the spill and much of this material settled in Thicket and Stanley creeks as a layer of cohesive silt. Some of the material was suspended in the stream and carried down to Lake Creek. Cleanup operations removed most of the tailings from Thicket Creek. Difficult access and high water velocities made it impossible to remove most of the tailings that had reached Stanley Creek. Tailings are presently visible in the slower water areas downstream from the confluence with Thicket Creek.

Comment: What are the potential impacts to water quality and fisheries resulting from pipeline leaks or spills? Overflow of seepage ponds?

3.6.4.10 Cumulative Effects (p. 164)

The SDEIS indicates that the cumulative effects of permitting the Rock Creek and Montanore mines would adversely affect threatened bull trout in Rock Creek and the East Fork Bull River.

- *"In Rock Creek, cumulative flow reductions would be 0.03 cfs greater at the mouth with operation of the Rock Creek Project. The functioning of the core area population may be adversely affected due to additional reductions in flow at the mouth of Rock Creek, which may exacerbate the intermittency over what currently exists and would exist under the Montanore Project alone. Therefore, access to Rock Creek by migratory fish may be excluded for longer periods of time. Resident bull trout populations in Rock Creek would have longer periods of time with restricted movement, making them more susceptible to environmental changes." SDEIS 3.6.4.10 page 164.*

- "*In the East Fork Bull River decreased low flow would be 0.03 greater in the EFBR at the mouth and 0.08 CFS greater at EFBR-500 and the CMW boundary. The cumulative decrease at EFBR-500 would be a 16 percent reduction in the 7Q10 flow. Similar effects would occur in the Bull River below the confluence of the EFBR. The cumulative effects would result in additional habitat loss downstream of St. Paul Lake including the bull trout spawning period.*"

- "*Any loss of bull trout from these cumulative impacts would represent an irretrievable loss of genetic diversity*." (p. 165)

Comment: The SDEIS fails to provide adequate analysis on the cumulative impacts, efficacy of mitigation measures, or how the proposed project(s) would meet the Endangered Species Act. What are the cumulative effects to bull trout from reduced flows, changes in temperature, sediment, habitat loss, impediments to migration, loss of groundwater upwells for spawning, changes that benefit other species, etc… Furthermore, it's impossible to determine whether additional alternatives must be considered that could reduce impacts to bull trout, without this additional information. What are the cumulative impacts upon the Lower Clark Fork core area and implications for range-wide recovery of bull trout of the Montanore Mine, Rock Creek Mine, and climate change on bull trout? Given the different definitions of cumulative effects in NEPA and the Endangered Species Act, cumulative effects analysis of the issues must be analyzed in the SDEIS.

3.8 Hydrologic and Geochemical Approach to Water Quality Assessment

The SDEIS states that there are no regular gaging stations in any of the area streams, so base flows, 7Q2 and 7Q10 were estimated.

Comment: Why hasn't the company been required to obtain flow data? This is important baseline data that should have been collected during the permitting process, and used to develop the information in this section. The estimates of flows (7Q2 and 7Q10) should be provided as a range of flows to indicate the potential variability, and that should also be provided in the calculation of estimated dewatering rates. This would provide for a best case and worst case range of potential impacts.

3.9 Geology and Geochemistry

According to the SDEIS, "The risk of acid generation for rock exposed in underground workings or tailings at Montanore would be low, with some potential for release of select metals at near-neutral pH and a high potential for release of nitrate due to blasting."

- Low acid generation potential exists for a portion of the waste rock from the Prichard Formation, with moderate potential suggested by static tests for a fraction of this rock.

- Moderate potential for ARD exists within the halo zones of the Revett Formation (particularly of the barren lead zone), which MMC proposes to mitigate through selective handling and backfilling of underground workings.

Comment: What is the efficacy of selective handling and/or backfilling of underground workings on managing metals leaching or acid generation?

The SDEIS also states that:

- Four alteration halos surrounding the ore zones in both the Troy and Rock Creek-Montanore deposits would be mined as waste rock to varying degrees depending upon the geometry of underground workings at each mine. The amount of pyrite (FeS2) also varies within these four halos, so potential for acid generation and trace element release may vary more between the three projects for waste rock than it would for ore.
- According to Hayes' data, of the two halos that immediately surround the ore zones, the chalcopyrite-ankerite halo contains "local trace" amounts of pyrite, while the chalcopyrite-calcite halo contains no pyrite. The galena-calcite halo contains a "trace" amount (less than 0.1 percent) of pyrite, while in the pyrite-calcite halo "...pyrite constitutes only an average of about 0.2 volume-percent of the rock whereas the calcite constitutes an average of around 4%." Pyrrhotite was logged infrequently in trace amounts in the pyrite-calcite halo only. These mineralogy data collected at Troy suggest that waste rock mined from the alteration haloes at ***Montanore may have some potential for acid generation and trace element release that should be fully evaluated***. (p. 206, emphasis added)

Comment: The SDEIS indicates that Montanore may have some potential for acid generation and metal leaching that should be fully evaluated, and that water quality impacts may be more significant than indicated. The SDEIS inappropriately defers analysis until after the ROD has been issued.

3.10 Ground Water Hydrology

According to the SDEIS, there will be significant information gathering, monitoring and analysis that will occur after the ROD is issued. For example, Appendix C outlines a conceptual monitoring plan for Alternative 3, which states that, "*MMC would develop final monitoring*

plans for the agencies approval before the evaluation phase for the selected alternative in the KNF's Rod."

According to the Conceptual Monitoring Plan, "*the monitoring described in the following sections have two, overarching objectives. The first is to assess if the alternative selected in the KNF's ROD is adversely affecting the environment. The second objective is to monitor the effectiveness of the agencies mitigation measures described in the EIS and ROD.*" C-1 SDEIS Appendix C

Comment: A determination of the impacts to the environment and the ability to mitigate those impacts should be evaluated in the SDEIS, not delayed for some time after the ROD.

The pre-evaluation phase outlined in the conceptual plan (c.10.3) identifies an extensive array of activities that would occur after the ROD is issued, including:

- Identify and characterize groundwater dependent ecosystems in the upper Libby Creek, upper East Fork Rock Creek, and East Fork Bull River drainages,
- Characterize water levels, water supply and water quality of Rock Lake.
- Characterize streamflows and water quality in upper East Fork Rock Creek and East Fork Bull River.

It appears that springs below 5,625 feet in elevation are likely to be effected by the drawdown of groundwater as a result of dewatering the underground tunnels and lowering the water table. The SDEIS has identified at least nine springs within the CMW (Table 84 p. 227). One of which (SP-31) is the only source of groundwater to Rock Lake during the late summer and early fall of typical precipitation years. But, a comprehensive survey of springs hasn't been done, and it hasn't identified the source of water to these springs to determine how many will be dewatered, and to what extent. According to the SDEIS, *"one of the objectives of the ongoing Groundwater Dependent Ecosystem (GDE) surveys and monitoring is to determine the source of water to each spring." (p. 227)*

Comment: The SDEIS does not contain sufficient baseline data or analysis of the impacts to springs, wetlands, and other groundwater dependent ecosystems, in the Wilderness Area that would be affected by drawdown. This is important baseline data that is missing from the SDEIS. Without this information, it is impossible to evaluate the impacts of the various alternatives on important resources. How many acres of Wilderness, old growth, wetlands, etc., are likely to be effected by the proposed drawdown? How long will those impacts occur? What amount will be permanently affected? What are the implications for the wildlife that rely on the GDEs? What are the cumulative effects of drawdown to GDEs, and the wildlife that rely on the GDEs, from developing the Rock Creek and Montanore Mine?

According to the SDEIS, "MMC would submit to the agencies for approval a GDE monitoring plan for important GDEs found during the inventory. The plan would be incorporated into an overall Water Resources Monitoring Plan. The GDE monitoring program is intended to

"*effectively detect and minimize stress to flora and fauna from effects on surface water or groundwater due to mine dewatering*." C-45. *The plan would be submitted to the agencies for approval after the inventory was completed and early enough for at least 1 year of data to be collected before extension of the Libby adit started. The results of the initial inventory, subsequent inventories and monitoring would be reported in annual reports to agencies.*"

Comment: The SDEIS states that the GDE monitoring program is intended to detect and minimize stress to flora and fauna from mine dewatering. How does a monitoring program minimize stress? What are the proposed mitigations that are intended to reduce these impacts? Once drawdown occurs, isn't it impossible to mitigate the impacts to the GDEs that rely on that groundwater?

C.10.3.2.2 includes an extensive of list of additional GDE monitoring that would be done post-permitting, including: "MMC would complete a Level2 GDE inventory focusing on areas potentially affected by mine inflows. The inventory area is shown on Figure C-3, and is based on areas of groundwater drawdown predicted by the 3D groundwater model." It further states that, "An inventory would help identify and rank GDEs based on their importance in sustaining critical habitats or species." (Appendix C, C-39)

Comment: An inventory to identify and rank GDEs based on their importance in sustaining critical habitat or species should be incorporated as baseline data in the SDEIS, to determine what the impacts of the various alternatives are to critical habitat or species, effectiveness of mitigation, and whether there are other alternatives that could reduce these impacts.

The monitoring program would include an inventory of springs that could be affected by drawdown. Page C-40, Appendix C. And, the inventory area would be surveyed for groundwater dependent wetlands, fens and riparian areas. "*At each critical GDE habitat identified from the inventory, a vegetation survey using the Forest Service Level 2 Sampling protocol for GDEs (USDA Forest Service 2011) would be completed*."

A 2007 memo by Forest Service Hydrologist Joe Gurrieri reiterates the need for a survey of groundwater dependent ecosystems in order to develop a monitoring program.

"*Prior to setting up a monitoring program, an inventory of ground water dependent ecosystems (GDE) is required. An inventory would help identify and rank GDE's based on their importance in sustaining critical habitats or species. The most important ones would be targeted for monitoring*."

And finally, the monitoring program proposes to collect stream flow data in the inventory area. According to the SDEIS, "in the initial inventory, the flow of any stream in the GDE inventory area currently not being monitored (Figure C-3) would be measured when the area was initially accessible in the spring." Streams would be assessed for their connection to a regional groundwater system based on flow measurements, water chemistry, the associated hydrogeology, etc…." C-40. All of this would occur after the ROD has been issued.

"NEPA procedures must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 CFR § 1500.1(b). "NEPA is not designed to postpone analysis of an environmental consequence to the last possible moment. Rather, it is designed to require such analysis as soon as it can reasonably be done." Kern v. BLM, 284 F.3d 1062, 1072 (9th Cir. 2002).

The agency lacks the required baseline information. "[W]ithout establishing ... baseline conditions ... there is simply no way to determine what effect [an action] will have on the environment, and consequently, no way to comply with NEPA." Half Moon Bay Fisherman's Mark't Ass'n v. Carlucci, 857 F.2d 505, 510 (9th Cir. 1988).

Comment: Information on stream flows, and their connection to regional groundwater systems should be included in the SDEIS. This is critical information, particularly in relation to impacts to bull trout who rely on groundwater upwell areas for spawning. The agencies are repeatedly using a permit now and determine the impacts later approach that violates MEPA/NEPA. With this approach, the public will be prevented from understanding the extent of impacts to groundwater dependent ecosystems, and the wildlife that depend on them. This precludes the public from having meaningful input in evaluating alternatives and the effectiveness of mitigation, and violates NEPA.

In C.10.7.3, the mitigation plan related to groundwater flow clearly demonstrates that mitigation will not ensure that Rock Lake will not be dewatered. The SDEIS states that, "if the mine void encountered substantial groundwater inflows in the vicinity of the Rock Lake Fault or Rock Lake, MMC would notify the agencies within 5 business days. Substantial flows are those over 50 gpm over a 24 hour period. At that point MMC would evaluate the possible effect to Rock Creek and Rock Lake and provide an evaluation report to the agencies within 30 days after initial agency notification. (C-69 Appendix C)

Comment: This is clearly inadequate to prevent impacts to Rock Lake and Rock Creek. This underscores the inability of MMC to ensure that key wilderness features, including ORWs are protected during mine operations.

Research by Gurrieri indicates that dewatering or water quality impacts may be an issue for wilderness lakes above underground mine workings, given the fractured rock and uncertainties associated with groundwater flows.

Comment: The SDEIS does not provide sufficient analysis of the potential for these impacts to occur to wilderness lakes, and the efficacy of mitigation, due to the development of the proposed Montanore Mine or the cumulative effects of Montanore and Rock Creek.

The SDEIS states that five springs are in the tailings impoundment site. With a steady source of water infiltrating the tailings impoundment, the plan creates the potential for long-term water treatment or water treatment in perpetuity.

Comment: The SDEIS doesn't provide analysis of the implications for long-term water treatment or water treatment into perpetuity as a result of infiltration of water into the tailings impoundment from the five springs which will be buried by the tailings impoundment. The SDEIS should analyze the extent of long-term treatment.

According to 3.13.4.3.2, "during the evaluation, construction, closure and post-closure phases in Alternative 3, excess water would be treated at the water treatment plant and discharged to one of three outfalls at the Libby Adit site." And, "The outfall currently being used is a percolation pond next to Libby Creek. Mine and adit water treated at the water treatment plant (up to 500 gpm) would be below groundwater BHES Order nondegradation limits or Montana groundwater quality standards, so if the water were discharged to groundwater via the percolation pond, groundwater quality would not be adversely affected." (p. 335)

Appendix G is intended to provide estimates of water quality concentrations during various mine phases. The water quality concentration discharging from the water treatment plant for alternatives 3 and 4 in this appendix indicate arsenic concentrations of 0.005 mg/l (P. G-22). If that is discharged to groundwater via the percolation pond adjacent to Libby Creek, wouldn't it exceed the ambient groundwater quality of .001 mg/l?

Comment: Where is the analysis that demonstrates that groundwater quality wouldn't be degraded by the discharge from the water treatment plant into groundwater via percolation ponds?

3.11 Surface Water Hydrology

According to the SDEIS, mining will result in reductions in streamflow in streams and rivers within the affected area. Those that are within the wilderness area are designated Outstanding Resource Waters.

Percent increase or decrease in 7Q10 without mitigation:

Table 94: Construction Phase:
+79% in Libby Creek LB-300
+10% in Libby Creek LB-2000

Table 95: Operations phase (Years 6-25):
-18% in Poorman Creek-1200,
-16% in Little Cherry Creek LC-800,
-18% in Libby Creek LB-300,
-14% in Libby Creek LB-2000,
-21% in EFRC-200

Table 96: Closure phase (Year 26-30):
-62% at East Fork Rock Creek -200,
-17% Poorman Creek-1200,
-16% Little Cherry Creek 800
+ 74% Libby Creek - 300.

Table 97: Post Closure phase (Years 31+) :
-59% East Fork Rock Creek EFRC-200; -100
-13% East Fork Bull River-500
-20% Poorman Creek 1200
-16% Little Cherry Creek -800
+34% Libby Creek 300

Percent increase or decrease in 7Q10 with mitigation:

Table 95: Operations Phase: Same as above, except 17% for EFRC-200 (in text p. 283) and RA-600, PM -1200 and LB 2000 would be 0.01 cfs less than Table 95 (in text p.284).

-17% EFRC-200
-17% for LB-300;
-10.5% LC-800;
-16% PM-1200
-14% LB-2000.

Table 96: Closure Phase "Low flow would be .01 to .03 cfs greater than show in Table 96 with mitigation." (p. 284)

-72% EFRC-200 (using .03 cfs)
-20% Poorman PM-1200
-31% LC-800
+76% LB-300

Table 97: Post Closure Phase
-100% East Fork of Rock Creek 200
-10% Rock Creek RC-2000
-14% EFBR 500
-20% Poorman PM-1200
-14% Little Cherry Creek LC-800
+34% Libby Creek LB-800

Comment: The SDEIS predicts that drawdown will result in reductions and/or increases in flows in the 7Q10 in a number of Outstanding Resource Waters ("ORW") that exceed the 10% threshold outlined in Montana's nondegradation policy. These streamflow alterations are"degradation" as defined in 75-5-103(7), and therefore violate Montana's nondegradation

policy, which prohibits any degradation of ORW. ARM 17.30.705(2)(c). Furthermore, the Forest Service is required to ensure the project is in compliance with water quality standards, including a state's anti- degradation policy. See 33 U.S.C. § 1323(a), and Hells Canyon Preservation Council v. Haines, No. CV 05-1057-PK (D. Oregon 2006). The proposed project does not meet these requirements.

Comment: Tables 94-97 provide information on the changes in 7Q10 without mitigation, but only table 97 provides information on the changes in 7Q10 with and without mitigation. Tables 94-96 should be made consistent with Table 97, so that all tables clearly show the changes in flows with and without mitigation.

A 2007 Forest Service memo from Joe Gurrieri to Ray TeSoro emphasizes the impacts that will occur due to dewatering of underground tunnels, and the uncertainties associated with mitigation of hydrologic impacts.

"*Impacts from pumping out and extending the adit are depletion of ground water discharge to springs, wetlands, lakes, and streams. Extrapolating from ERO's flow model, the locations of concern include springs and wetlands in the upper Libby Creek watershed, baseflows in Libby Creek, Libby Lakes, Rock Lake, and surface water features along the Rock Lake Fault between Rock Lake and St Paul Lake*."

"*… it should be noted that once the head distributions and flow dynamics in a fractured bedrock aquifer are disrupted by mining, it is very difficult if not impossible to restore the aquifer to its original condition. In other words, there may be irreversible surface impacts from the project for which no practical mitigation exists*."

The SDEIS also emphasizes the uncertainty associated with mitigation measures. *"Historically, grouting of fractures in the Libby Adit has been effective in reducing inflows, but the effectiveness of grouting over the long term (i.e., 100 years or more) is uncertain. Fracture grouting of storage facilities use a design life of 50 years. The confidence level in grouting may decrease beyond 50 years."(*p. 253*)*

Comments: The SDEIS indicates that there is no mitigation to address the predicted adverse impacts from drawdown that are demonstrated to work over the long term (i.e., 100 years or more). Is it possible to reclaim the mine to meet Montana's statutory requirements for reclamation, if the impacts are predicted to continue for over a thousand years? What are the long-term consequences of drawdown to groundwater dependent ecosystems in the Wilderness, and to the fish and wildlife that depends on those ecosystems?

3.11.4.9 Cumulative effects on surface water hydrology

According to the SDEIS,

- *The Montanore and Rock Creek Projects, assuming they occurred concurrently, would cumulatively reduce flows in the Rock Creek and East Fork Bull River watersheds. Page 297. The maximum effects on Rock Creek and the East Fork Bull River would occur after both mines ceased operations (assumed to be operating and closing simultaneously). Cumulative flow reductions would be 0.03 cfs greater in Rock Creek at the mouth and the East Fork Bull River at the mouth, and 0.08 cfs greater at EFBR-500 at the CMW boundary. The cumulative decrease at EFBR-500 would be a 16 percent reduction in the 7Q10 flow, which may be measurable.*

- *At the mouth of Rock Creek, the predicted reductions in low flows may not be measurable in the stream because the creek is often dry during baseflow periods (the flow reduction would be to subsurface flow in the stream alluvium).*

Comments: The cumulative effects of Rock Creek and Montanore on surface water hydrology are only provided for water stations RC-2000 and EFBR-500. Why doesn't the DSEIS include the predictions for other stations on Rock Creek and EFBR?

According to the Montanore DEIS (S-30), "*Mine dewatering and the resulting drawdown of bedrock ground water could subtly change water quality of various water bodies, such as Rock Lake, and unidentified springs and seeps. Assuming these water bodies receive water from both shallow and deep ground water sources, reducing the source of deeper ground water could reduce the introduction of certain minerals considered to be necessary for potential populations of organisms.*"

"The agencies' numerical model indicates that during the post-mining period, there would be the potential for ground water to flow toward the mine void from the East Fork Rock Creek drainage (including Rock Lake). If this were to occur, there may be subtle changes in the water quality of Rock Lake, as described in the previous paragraph."

Comment: What are the impacts to Rock Lake's water quality and biological productivity, resulting from the combined Montanore Mine and Rock Creek mines?

3.13 Water Quality

The BHES Order, issued to Noranda in 1992, authorized degradation and established nondegradation limits in surface and ground water adjacent to the Montanore Project for discharges from the project (BHES 1992). The Order established numeric nondegradation limits for total dissolved solids, chromium, copper, iron, manganese, and zinc (both surface and ground water), as well as nitrate (ground water only), and total inorganic nitrogen (surface water only). Pursuant to BHES's Order, these nondegradation limits apply to all surface and

ground water affected by the Montanore Project and remain in effect during the operational life of the mine and for so long thereafter as necessary (BHES 1992).

Comment: The SDEIS improperly relies on an authorization to degrade, issued in 1992 to another company (Noranda) that subsequently abandoned the project. How can a BHES Order issued in 1992 properly evaluate water quality impacts of mine-related discharges that were not considered in the 1991, 1997, and 2006 versions of the MPDES? Cumulative impacts from the multiple discharges, many of which have yet to be permitted, were not considered when the 1992 BHES Order was issued.

Comment: Much of the surface water impacted by the BHES Order now provides habitat for the threatened species of bull trout. The original order, when issued, was not required to consider the impacts to bull trout nor impacts to the westslope cutthroat trout and interior redband trout, which are both sensitive species. The wildlife impacts to threatened and sensitive species should be considered when evaluating the validity of the order issued in 1992. The 1992 Order does not authorize the degradation of bull trout habitat.

The BHES order establishes degradation limits that would allow total copper concentrations up to 0.003 mg/L in all surface waters affected by the project (BHES 1992.) This is a significant increase in copper concentrations in the area streams, and would allow degradation of high quality waters to the chronic aquatic life standard of .00285 mg/l. For example, dissolved and total copper concentrations in most reaches of Libby Creek are measured at <0.00038 mg/l. Thus the BHES Order would allow an increase in copper concentrations in Libby Creek of a thousand-fold over ambient conditions. Furthermore, the MPDES permit would authorize a mixing zone that exceeds aquatic life standards. The MPDES is not included for analysis in the SDEIS, therefore there is no information on the size of the mixing zone, or predicted concentrations within the mixing zone.

The SDEIS fails to provide any analysis on the potential impacts to salmonid populations as a result of these degraded conditions. It simply states that, "*Potential effects of aquatic life from an increase in copper concentrations are difficult to determine given recent uncertainties regarding the protectiveness of the hardness-modified copper standard and existing instream copper concentrations. Typical groundwater and snowfed mountain streams would be expected to have low dissolved organic carbon concentrations that make dissolved copper bioavailable and potentially toxic*." (p. 31, SDEIS, Draft 404b(1) analysis.)

It further states that, "*Any increase in metal concentrations could increase the potential risk for future impacts to fish and other aquatic life in some reaches. Metal concentrations near the aquatic life could result in physiological stress, such as respiratory and ion-regulatory stress, and mortality."S-38.*

Current scientific research indicates that increases in copper concentrations as little as 2-9 parts per billion can have sublethal effects on salmonids.[1] One study showed an increase of just 2.3 to 3.0 ppb of dissolved Cu above background levels was enough to interfere with behaviors tied to olfaction in juvenile coho salmon; from 1.0 to 20.0 ppb affected their sense of smell within10 minutes and water hardness did not influence the study outcome (Baldwin et al. 2003). Rainbow trout olfaction was impaired when exposed to 8.0 ppb for 2 hours (Hara et al. 1977).

Comment: The SDEIS does not include the MPDES permit, or information on the size of the mixing zone, or predicted water quality concentrations within the mixing zone. It's impossible to evaluate the impacts to bull trout or other aquatic species within Libby Creek without this information. How will the degradation limits authorized in the BHES affect threatened and endangered species or sensitive species, given the sensitivity of salmonids to even very small increases in copper?

3.6.4.2.3. Water Quality-Nutrients

According to the SDEIS, "Increases in nutrient concentrations as a result of discharges during all phases except Operations would occur in the Libby Creek Drainage." (p. 140)
Predicted TIN concentrations are based on discharging 130 gpm of untreated water at the LAD areas and 370 gpm from the Water Treatment Plant; water would be sent to the Water Treatment Plant as necessary to prevent the BHES Order nondegradation limit of 1 mg/L from being exceeded outside of a mixing zone.

These are very high levels of pollution, and deserve a correspondingly detailed level of analysis under MEPA and NEPA. According to the SDEIS, the EPA has indicated that TN and TP are the minimum acceptable nutrient criteria for nuisance algal growth. The DEQ has prepared a preliminary technical analysis to address total nutrient concentrations could represent an undesirable biological impact for streams in Montana during the growing season from July 1 through Sept. 30. DEQ's preliminary technical analysis indicates that for the Northern Rockies Ecoregion, a TN concentration of 0.23 mg/l and a TP concentration of 0.012 mg//L could be appropriate numeric criteria for the MT Board of Environmental Review to consider for adoption. Total Nitrogen (TN) is the sum of total Kjeldahl nitrogen and Total Inorganic Nitrogen (TIN).

The BHES Order for Montanore sets a nondeg limit of 1 mg/L for TIN in Libby, Ramsey and Poorman Creeks – which is roughly 4 times the recommended level. Clearly this level is unacceptably high, and a full analysis of the impacts of this level of nitrogen pollution is necessary.

The SDEIS makes a reference to increases in nutrients having some beneficial use of increased productivity for fish, but there is no analysis of whether this would benefit non-native fish over

[1] Dr. Woody, Carol Ann, "Copper: Effects on Freshwater Food Chains and Salmon: A Review" September 7, 2007. Available at: *www.pebblescience.org/pdfs/Pebble_**copper**_salmon.pdf*

native fish – west slope cutthroat and/or bull trout.

Comment: Increases in nitrogen pollution in receiving waters needs a detailed level of analysis under MEPA and NEPA that evaluates the impacts of nutrient pollution on algal growth, dissolved oxygen and aquatic life, particularly bull trout. It is insufficient to rely on a future monitoring program when the most current scientific data demonstrates that the BHES Order is insufficiently protective for streams in the Northern Rockies ecoregion.

New Source Performance Standards:

The agencies have failed to require that the operator meet the zero-discharge requirements of EPA's New Source Performance Standards for copper milling operations using froth-flotation (the milling method here). Subject to minor exemptions not applicable here:

"[T]there shall be no discharge of process wastewater to navigable waters from mills that use the froth-flotation process alone, or in conjunction with other processes, for the beneficiation of copper, lead, zinc, gold, silver, or molybdenum ores or any combination of these ores." 40 CFR 440.104(b)(1).

Comment: Any discharge from the mill would violate the new source performance standard in the CWA requirement and could not be authorized. Please demonstrate how the proposed project meets the New Source Performance Standards for copper milling operations using froth-flotation.

Comment: Additionally, the USFS cannot approve the Plan of Operations without the required Certification under Section 401 of the CWA. This requirement applies to not only the Section 404 permit, but the Plan of Operations as well. Thus, all potential discharges must be included in the Section 401 review and MDEQ cannot issue the Certification if any potential discharge may violate any water quality requirements at any time – including discharges that may not occur for many years.

3.13.1.2.4. TMDLs

Libby creek is separated into two segments on the 303d list. The upper segment is from 1 mile above Howard creek to the US 2 bridge. The lower segment begins at the US 2 bridge and is impaired for sediment and siltation. This segment may be affected by proposed upstream activities in all of the mine activities.

Comment: How would the increase in flows in Libby Creek and other streams affect sediment and siltation levels, and how would the loss of RHCA increase sediment loads?

3.13.4.3 Alternative 3 Water Quality

3.13.4.3.1. Effects of Mine Inflows and Pumpback Wells

For alternatives 2 and 3: "*Depending on the relative contribution of surface water, shallow groundwater and deep groundwater to each surface water and groundwater body, water quality changes may be slight and not measureable or maybe greater and measureable*." (p. 334)

Three adits in the Libby creek drainage would reduce streamflow in Libby Creek slightly more than alternative 2 so water quality effects on upper Libby creek may be slightly greater than in alternative 2. (p. 334)

Alternative 3: The pumpback wells, located downgradient of the tailings impoundment would reduce streamflow in Poorman and Libby Creeks. The modeled flow reduction in Poorman Creek would be nearly 20 percent of the estimated 7Q10 flow. (p. 334)

Comment: The SDEIS does not provide information on the range of potential water quality impacts related to these changes or how these water quality changes and flow changes will affect bull trout, westslope cutthroat and other trout populations in these streams. Nor does it provide information on how the cumulative effects of water quality, flow and periodic increases in sediment could affect bull trout in these reaches.

3.13.4.3.2. Effects of Discharges

According to the SDEIS, "Discharges would meet water quality standards or BHES Order nondegradation limits at the end of the mixing zone in Libby Creek." (p. 335) The SDEIS states that, "discharges are predicted to increase concentrations above ambient TDS, nitrogen and metal concentrations in Libby Creek below LB-300.

Comments: What is the size of the mixing zone in Libby Creek? What are the projected metal and nutrient levels within the mixing zone, particularly copper? What are the expected impacts to bull trout in relation to elevated metal levels within the mixing zone and outside of the mixing zone? Will it create an avoidance area, interfere with migration, spawning, predation, etc…? Will it create conditions that benefit non-native fish over bull trout? Without this information it is impossible to analyze the impacts to bull trout, and the efficacy of mitigation, if any.

<u>Effects of mine dewatering and resulting drawdown of bedrock groundwater</u>

According to the SDEIS,

- Mine dewatering and the resulting drawdown of bedrock groundwater may subtly change the water quality of various water bodies, such as the East Fork Rock Creek, Rock

Lake, East Fork Bull River, and springs and seeps. Reducing the source of deeper groundwater may reduce the concentration of certain ions and cations to surface water, such as sodium, calcium, potassium, bicarbonate, magnesium, chloride, and sulfate. The affected surface water may become more dilute. If such a water quality change occurred, it would be detectable only during low flow periods when bedrock groundwater is the major source of supply to surface water. The effects would be similar for west side waterbodies. (p. 329)

- Effects on west side streams, lakes, and springs would persist through the Closure and Post- Closure phases as mine dewatering would continue to reduce the groundwater table. Without mitigation, the largest reductions in deep bedrock groundwater discharge to springs, the East Fork Rock Creek, Rock Lake, East Fork Bull River and St. Paul Lake would occur about 16 years after mine closure. After that time, groundwater discharges to surface would begin to increase as the groundwater table was recovering. Less deep groundwater entering surface water may reduce the concentration of certain ions and cations in surface water, such as sodium, calcium, potassium, bicarbonate, magnesium, chloride, and sulfate. Whether water quality changes would be measurable or could be separated from natural variability is unknown. Based on previous studies of Rock Lake (Gurrieri 2001, Gurrieri and Furniss 2004), the water quality in Rock Lake may change due to the reduction in deep bedrock groundwater, and may be measurable if mitigation to reduce effects on Rock Lake were not implemented. The lake would become somewhat more acidic, would lose some of its buffering capacity, and the loads of nutrients (especially nitrate), sulfate, calcium, magnesium, sodium, and silicon dioxide would be reduced. This would reduce nutrient availability to phytoplankton in Rock Lake. Similar effects may occur to St. Paul Lake. (p. 333)

Comment: How will the water quality in these rivers, streams and lakes be protected against the long-term impacts of drawdown, given that there is no supporting evidence to demonstrate that mitigation measures are effective in the long term? What are the potential impacts to fish and other aquatic life, particularly bull trout?

Tailings Impoundment Area

According to the SDEIS, "In all mine alternatives, a MPDES permit outfall would not be required for the tailings impoundment seepage because seepage reaching groundwater would be collected by the pumpback system and not discharged to surface water." P. 329.

There appears to be a glacial riverbed that is quite permeable, and could be a preferential pathway for flows to Cherry Creek. Further investigation is needed to evaluate these issues.

Comment: It is unrealistic, and unsupported by evidence, to assert that all seepage from the tailings impoundment will be captured by the pumpback system. An MPDES permit outfall must be developed for the tailings impoundment seepage. Additional hydrological work is needed to understand the Poorman Tailings impoundment area. Will the preferential

pathway created by the glacial riverbed allow flows from the impoundment to flow into Cherry Creek? How will surface and groundwater be affected by seepage that bypasses the tailings impoundment? The SDEIS cannot properly analyze the impacts of the mine's discharges until the specific number, location, and nature of these outfalls, as well as the enforceable conditions applicable to each, are specifically described in a proposed permit and fact sheet. Will tailings seepage increase nutrient levels, metals, and any other constituent?

According to the SDEIS,

- During the Closure Phase, the tailings would continue to consolidate and MMC would begin reclamation of the impoundment. MMC would continue to operate the seepage collection and pumpback well facilities until water quality standards, BHES Order nondegradation limits, and MPDES permitted effluent limits were met without treatment. As a result, long-term water treatment and surface water and groundwater quality monitoring may be required.

Comment: Please provide analysis to indicate the estimated length of time for surface and/or groundwater treatment from the tailings impoundment seepage. Given the presence of springs under the tailings impoundment, please provide information on whether the interaction of spring water with tailings will form a discharge source, which will have to be addressed in perpetuity?

<u>Discharges from underground mine workings</u>

According to the SDEIS,

- During closure and post closure: Eventually, water may begin to flow out of the underground mine workings and may mix with groundwater in saturated fractures, react with iron oxide and clay minerals along an estimated 0.5-mile flow path, undergo changes in chemistry due to sorption of trace elements and mineral precipitation, and, without mitigation, flow at a predicted rate of 0.05 cfs (22 gpm) as baseflow to the East Fork Bull River. With mitigation, the flow, at a predicted rate of 0.01 cfs, would be to Rock Lake via a 500-foot or greater flow path. The flow to either drainage is unlikely to adversely affect the water quality of the East Fork Bull River or Rock Lake. (p. 331)

- When mine void water discharged to the East Fork Bull River after mine closure, it is not likely that changes in water quality in the river would be measurable. The effect cannot be accurately quantified without additional information from the underground setting. It is likely that cadmium, lead, and copper minerals exist within bedrock fractures at low concentrations. These minerals are in equilibrium in the saturated, neutral pH environment, and as such, are unlikely to be soluble. To develop a quantitative estimate of the actual effect, MMC would monitor the chemistry within the underground workings, evaluate downgradient groundwater flow and chemistry within bedrock fracture systems, and monitor baseflow in the East Fork Bull River (see Appendix C,

Water Resources Monitoring). (p. 333)

Comment: Please provide analysis to indicate the estimated length of time in which discharges to East Fork Bull River, or other potential discharges could occur. Given the uncertainty associated with the efficacy of mitigation measures over 50 years, (i.e., grouting, etc.), impacts to the EFBR could be considerable. This is crucial information to provide, given the importance to the calculation of an adequate reclamation bond. Also, the calculations are based on significant assumptions. The SDEIS should provide a range of potential impacts, and information concerning the margin of error or confidence levels associated with these projections. There is no analysis to demonstrate that water quality in Rock Lake and EFBR will not be adversely affected. The SDEIS also fails to analyze the potential for mine void water to discharge to other outlets in the wilderness area when the adits are plugged.

According to a report by Joe Gurrieri on the proposed Rock Creek Mine, *"If the mines were completely plugged, the entire void space would fill and the potentiometric surface in the overlying rock mass would begin to rebound. Some groundwater would migrate from the mine workings to discrete surface discharge points. The exact locations of preferred fracture flow paths cannot be identified. However, based on the structural geology of the area and the geometry of the deposits, higher probability discharge locations can be identified. Based on water quality data from the Troy mine the principle contaminant in drainage from these deposit types is dissolved copper at about 0.1 mg/L. Under the plugging scenario, likely locations for discharge of mine water from the Rock Creek deposit would be where the deposit outcrops. These locations would be in South Basin below 5800 ft elevation and in North Basin below 5200 feet elevation (Fig.1). Several small springs and substantial streamflow were observed in South Basin." (p. 43)*

Comment: If the company tries to mitigate the impacts of mine discharge water to EFBR with grouting or bulkheads, what are the most likely places for where that water will surface? Table 84 on page 227 indicates that there are a number of springs within the Cabinet Mountains Wilderness where this may be an issue. The SDEIS indicates that it will be surveying these springs after the ROD is issued to identify the source of water. This is critical baseline data to include in the SDEIS to determine whether these springs would be affected by dewatering, and/or water quality would be affected by mine discharges after closure.

The Rock Creek Mine Record of Decision describes the long-term water treatment that will be required to address discharge of mine water from mine adits. (p. 7 of the 2003 ROD) which states:

"At the end of operations all remaining surface area disturbances and facilities will be reclaimed. Water treatment of mine water and tailings seepage will continue as long as necessary until each water source meets appropriate water quality standards or limits without treatment. Bonding will cover water treatment in perpetuity. The mine adits will either be plugged and sealed once the mine water meets ground water or surface water standards and allowed to fill up the mine workings or sealed primarily against unauthorized access and

allowed to drain or be pumped down to the river in perpetuity. In the second case, the drainage will be either pumped from within the mine or captured near its source and treated, if necessary, and discharged to the Clark Fork River in perpetuity."

Comment: How will the mine discharge from the adits at Montanore differ from the Rock Creek Mine? If water treatment in perpetuity is expected at Rock Creek, why would it be different at Montanore? If the mine plan incorporates the use of mitigation measures such as grouting or bulkheads, which require maintenance after mine closure, who would be responsible for monitoring and maintenance? If the void was filled, how would the work be performed?

3.23 Impacts to Wetlands

According to the SDEIS, "*Indirect effects on wetlands, spring and seeps may occur during mine dewatering. The indirect effect on wetlands, spring and seep habitat overlying the mine would be the same in all mine action alternatives and difficult to predict (see section 3.10.4.2.1, Evaluation through Operations Phases)*."

The effect on plant species, functions, and services associated with the affected wetlands, springs or seeps by a change in water level would be best determined by relating plant species with water abundance and quality for monitoring and evaluation. In Alternative 3 a GDE inventory and subsequent monitoring would be completed of a selected area overlying the proposed mine and adits and used to evaluate indirect wetland effects. The monitoring would not alter the effect of Alternative 3 but would assist in determining if an impact was occurring and the scale of any impact.

According to the USDA Forest Service website, "GDEs encompass many of the regionally-and nationally-significant ecosystems on NFS lands and are critical to management of many threatened and endangered species. In many watersheds, they support a disproportionately large percentage of the total biological diversity relative to their size."

Comment: A groundwater dependent ecosystem (GDE) survey is essential baseline data that should be included in the SDEIS for public review. The SDEIS fails to analyze the impacts to GDE, analyze the efficacy of mitigation, or provide comparisons amongst the alternatives. Furthermore, the SDEIS provides no information on the number of acres affected by the drawdown zone, or the number of acres affected by the cumulative effects of drawdown from Montanore and Rock Creek. What are the possible effects of dewatering GDEs on grizzly bears or other threatened and endangered species and other wildlife within the project area?

3.24 Impacts to Wilderness

According to the SDEIS, "*Groundwater drawdown during mine operations **may** indirectly impact aquatic habitat and associated ecological processes within the CMW, potentially resulting in seasonal reductions in Rock Creek water levels and streamflow in the upper reaches of EFRC and*

EFBR. Reductions in streamflow and lake levels may reduce habitat for fish and other aquatic life."

Comment: This statement is inconsistent with other portions of the SDEIS, which predicts that there *will be* long-term and even permanent impacts from mining operations. For example, 3.6.4.14 which specifies unavoidable adverse environmental effects (page 178) states that "*because of the connection of surface water and groundwater in the analysis area, mining of the ore body would unavoidably reduce streamflow and spring flow, and affect lake levels in Rock Lake. Decreased streamflows would result in the loss of aquatic habitat*."

The SDEIS further predicts the extent of seasonal flow reductions (i.e., decreased baseflows) in streams and rivers within the wilderness boundary, with or without mitigation, for the East Fork of Rock Creek, East Fork Bull River, and Libby Creek.

- *A reduction in base flows of 25% of East Fork Rock Creek within the wilderness boundary, with or without mitigation, at the end of operations. (Table 86, p. 242) A reduction in base flows of 100% during the closure and post closure phase, with or without mitigation (Table 87, page 246 and Table 88, p. 247).*
- *A reduction in baseflows of 17% is predicted for EFBR within the Wilderness Boundary, with or without mitigation, at the end of operations. (Table 86 p. 242) A reduction of 41% without mitigation or 37% with mitigation within the wilderness boundary during closure; and 97% with mitigation or 100% without mitigation during post closure. (Table 87, page 246 and Table 88 p. 247)*
- *Dewatering of Libby Creek within the wilderness boundary. A reduction in baseflow of 11% within the wilderness, at the end of operations. (Table 86 p. 242) A reduction in baseflow of 14% without mitigation and 11% with mitigation during closure and post closure (Table 87, page 246 and Table 88 p. 247)*
- *Based on the results of the numerical models, the water table will be permanently dropped within the wilderness boundary, with a reduction in flows to springs within the wilderness which are hydraulically connected to the deeper groundwater flow path (below an elevation of about 5,600 feet or 5,625 feet in the case of EFRC. (p. 243)*
- *groundwater dependent ecosystems within the wilderness boundary.*

3.23.4.13 Irreversible and Irretrievable Commitments

The SDEIS seems to suggest that successful mitigation will restore lost wetlands and provide similar functions and services to altered wetlands at another location. However, no survey has been done to quantify the amount of wetlands within the area that will be affected by drawdown of groundwater.

Comments: The SDEIS does not include a survey a groundwater dependent ecosystems in the wilderness area and surroundings that would be affected by drawdown. This information is necessary to determine whether there will be an irreversible and irretrievable loss of wetlands resulting from the permanent drawdown of groundwater in the area.

3.23.4.15
Unavoidable Adverse Environmental Effects
Once again, the SDEIS states that the agencies anticipate effects on wetlands and other waters of the U.S. would be mitigated and wetland functions and services would return to the area in time.

Comment: A survey of wetlands that would be affected by the drawdown of groundwater within the area has not been completed. This information is necessary to determine whether there will be an unavoidable adverse environmental effect on wetlands, and the severity of it.

Impacts to Rock Lake

Analysis of the loss of groundwater to wilderness lakes such as Rock Lake in the Cabinet Mountains wilderness was addressed in a 2001 report by Joe Gurrieri of MTDEQ, which states that:

- "Groundwater plays an important role in the chemical regulation of lakes (Kenoyer and Anderson, 1989; Sacks et al., 1992; Wentz et al., 1995). The importance of groundwater is accentuated for dilute lakes, like those in the Cabinet Mountains, that rely on groundwater inputs as their primary source of dissolved solids and nutrients. Groundwater may be a major nutrient source for phytoplankton in lakes in temperate latitudes fed mainly by snowmelt (Hurley et al., 1985). Although the volume of groundwater inflow to these lakes is a small fraction of the annual hydrological budget, groundwater inflow can contribute considerable amounts of water and solutes. This is particularly important in the summer when peak biological activity takes place. Mining induced changes in the volume of groundwater inflow could have an effect on the chemical balance and, consequently, the biology of the lakes."[2]

- "For mountain lakes in the northern Rockies, peak biological activity takes place in august, the time of year when groundwater contributes a large percentage of the nutrient load to the lakes compared to other sources. Compared with solute mass fluxes to Rock Lake from precipitation, groundwater and surface inflow are the principle sources of Ca, MG, K, Na SiO2, No3, So4 and Cl. Surface inflow contributed 37% of the inflow and 25% of the solute load." (p. 40)

Comment: the SDEIS does not analyze the impacts to Rock Lake from the loss of nutrient load due to reduction inflow from surface water during important summer/fall period. Given the

[2] Gurrieri, Joe, Montana Department of Environmental Quality, "Rock Creek Project EIS: Technical Report: Hydrology and chemistry of wilderness lakes and evaluation of impacts from underground mining, Cabinet Mountains Wilderness, Montana" February 2011.

uncertainty associated with the effects of drawdown on Rock Lake, the SDEIS should provide a range of potential impacts to surface water from the loss of nutrient load.

3.24.4.4 Cumulative Effects

Comment: What will be the cumulative effects of the Montanore Mine and Rock Creek Mine on water quantity and water quality on the Outstanding Resource Waters within the wilderness area due to the combined effects of the two mines? What are the effects of dewatering to spring and groundwater dependent ecosystems within the Wilderness Area from the combined effects of these two mines?

3.24.4.6 Irreversible and Irretrievable Commitments

Comment: The SDEIS states that, "none of the alternatives would result in an irreversible and irretrievable commitment of resources within the CMW." Page 418. This is inconsistent with the SDEIS, which states that:

- Based on the results of the numerical models, the water table will be permanently dropped within the wilderness boundary, with a reduction in flows to springs within the wilderness, which are hydraulically connected to the deeper groundwater flow path (below an elevation of about 5,600 feet or 5,625 feet in the case of EFRC. (p. 243)

Comment: SDEIS does not demonstrate that the overlying Wilderness Area will be protected from subsidence or adverse hydrologic impacts. Examples in Montana demonstrate the impacts and failure to address those impacts in previous permitting processes.

Agency experts acknowledge that it is not possible to eliminate the potential for subsidence. According to Forest Service hydrologist Joe Guerreri, "While it is possible to minimize the potential for subsidence, it is not possible to completely eliminate the potential for subsidence. The nature of geotechnical engineering is such that it is never possible to completely characterize all rock mass conditions. It is conceivable that unexpected conditions and rock mass response may occur. Carrying out an ongoing testing, monitoring, and probing program is a reasonable and prudent way to reduce the potential of encountering unexpected conditions, but can never completely eliminate the potential for their occurrence."[3]

To illustrate these points, Guerreri includes the following examples of subsidence at other modern Montana mines, where subsidence was not predicted in the mine permitting process, yet subsidence occurred, with significant surface impacts.

Stillwater Mine

The Stillwater Mine is a platinum group metal mine located in Montana. The underground mine

[3] TetraTech, "Final Geotechnical Assessment Report Sinkhole Development at the Troy Mine and Implications for the Proposed Rock Creek Mine," June 2006.

began operation in 1986 and drove an adit to access ore serves. At 4,000 ft the adit encountered a large inflow of water that peaked at 884 gpm and within a few months decreased to a steady-state of approximately 200 gpm where it has remained. A small watershed containing a several springs and a perennial stream was located a vertical distance of 830 ft above the adit. The springs and stream both dried up and have remained dry ever since. In 1994 the ongoing mining operations resulted in the drying of three additional springs in another basin.

Other workings at Stillwater exhibited particular behaviors. When a tunnel below the Stillwater River connecting the east and west side workings was constructed water began draining at a peak of 350 gpm from the above lying groundwater aquifer. Above lying strata consists of 790 ft of fractured bedrock overlain by 310 ft of unconsolidated glacial and alluvial sediments. Despite grouting efforts, heads in the above lying bedrock zone dropped over 120 ft. and a large downward gradient was produced between the alluvial aquifer and the bedrock aquifer. However, water levels in the sediments representing the alluvial aquifer were not affected due to the low permeability of the sediments near the bedrock contact and the large permeability contrast between the sediments and underlying bedrock (Gurrieri, 52).

Troy Mine

Two sinkholes have developed over the southeast end of the Troy Mine since April 2005. Sinkhole #1 was first noted on October 31, 1997 and was described as being 8 feet deep and 20 feet across. On April 29, 2005, the sinkhole enlarged to approximately 50 feet wide and 20 feet deep (Call and Nicholas, Inc. [CNI] 2005). By May 5, 2005, the sinkhole had deepened to about 50 feet while remaining approximately 50 feet in diameter. The volume of the sinkhole at the time of backfilling was approximately 2,550 cubic yards (CNI 2005).

Sinkhole #2, which occurred in February 2006, is approximately 150 feet north-northwest of the first sinkhole. It is oblong and elongated in an east-west direction. It is about 135 feet long in an east-west direction and about 100 feet wide in a north-south direction. It is about 20 to 30 feet deep at the north end and about 20 feet deep at the south end. The volume of the second sinkhole has been estimated at 8,800 cubic yards (Kirk 2006). The two sinkholes have developed at the surface about 270 and 320 feet, respectively, above the top of the mine workings. Based on geologic mine mapping by ASARCO in 1990 and 1991 (Genesis, Inc. 2006), the projection of the East Fault lies directly beneath sinkhole #1 and the surface projection of the fault runs directly through sinkhole #2.

Comment: Subsidence was not predicted during the permitting of the Troy Mine or the Stillwater mine, and yet it occurred at each mine. What are the potential impacts of subsidence at Montanore, particularly given its location underneath the Cabinet Mountains Wilderness?

3.25 Wildlife Resources

According to the SDEIS, "*The grizzly bear population for the Cabinet-Yaak Ecosystem is currently*

estimated at 42 bears, including at least 166 bears in the Cabinet portion of the Cabinet-Yaak Ecosystem, with a 78 percent probability of a downward population trend (Kasworm et al. 2010)."

Comment: It appears that there is an error in this paragraph, stating that 166 bears are in the Cabinet portion of the Cabinet-Yaak ecosystem. (p. 477)

The goal for grizzly bear management on the KNF is to provide sufficient quantity and quality of habitat to facilitate grizzly bear recovery. According to the SDEIS, the grizzly bear population for the Cabinet-Yaak Ecosystem is currently estimated at 42 bears, with a 78% probability of a downward population trend. (p. 477)

SDEIS states that none of the action alternatives comply with KFP direction on threatened and endangered species.

- *"None of the action alternatives would comply with KFP direction on threatened and endangered species that applies to the grizzly bear (KFP Vol.1, II-1, #3 and 5, II-6, and II-22-23)." (p. 510)*
- *"All of the action alternatives would decrease or maintain HE below recommended levels during construction in BMUs 5 and 6, alternatives 2B and 3E-R would decrease HE below existing levels during operations in BMU-6." P. 510 While road access changes included in the agencies alternatives would create core habitat, many would not improve HE because they would occur on roads where use is currently restrict but that are not barriered.*
- *"All of the action alternatives would create two to three additional openings with points in the opening greater than 600 feet from cover." (p. 510)*
- *"Additionally, alternative 2 would not be in compliance with the KFP because it would increase linear ORD in BMU 5 to worse than the KFP standard and would cause a loss of core habitat in BMUs 5 and 6." (p. 510)*

Comment: None of the action alternatives comply with the Kootenai Forest Plan direction on threatened and endangered species. The Forest Service cannot simply amend Forest Plan requirements for protection and conservation of threatened and sensitive species simply to enable a mining project to proceed as the mining company prefers. The Forest Service must oversee and manage *all* activities on its lands (including mining) in compliance with other laws such as the Endangered Species Act and the National Forest Management Act.

According to the SDEIS statement of findings (p. 511), the combined agencies' alternatives may affect, are likely to adversely affect, the grizzly bear for the following reasons:

- *In all combined agency alternatives, between 1,531 and 1,887 acres of grizzly bear habitat would be physically removed for at least 32 years.*
- *All combined agencies' alternatives would decrease HE below recommended levels during construction in BMU 5.*
- *All combined agency alternatives, except for Alternative 3E-R, would decrease HE below*

existing conditions in BMU 6 during construction. Alternative 3E-R would decrease HE below existing conditions during construction and operations. During the reclamation phase, HE would return to existing levels for all combined agency alternatives.

- *All combined agencies' alternatives would create three additional openings with points in the opening greater than 600 feet from cover.*
- *In all combined agencies' alternatives, mine-related activities would occur continuously along the east Cabinet front during spring (April 1 to June 15) throughout the life of the project. Mine-related activities in Libby Creek would occur in proximity of the CMW and core grizzly bear habitat.*
- *TMRD in BMU 6 remains worse than the 26 percent goal recommended by best science during construction, operations, and closure. For all combined agencies' alternatives, TMRD improves to 32 percent during construction and reclamation due to road access changes. For Alternatives 3-D, 3-E, 4-D, and 4-E, TMRD also improves to 32 percent during construction.*

The SDEIS does not explain how the Endangered Species Act will be met other than stating that, "For all alternatives ESA compliance would be ensured through Section 7 consultation.

Comment: The SDEIS fails to demonstrate that the proposed activities, even with mitigation, will meet the requirements of the Endangered Species Act for grizzly bears.

The SDEIS states that:

- *All of the combined action alternatives, in combination with other reasonably foreseeable actions, would cumulatively decrease HE in BMUs 5 and 6 during construction and operations, resulting in HE worse than recommended levels.*
- *Alternative 2B would decrease HE in BMU 5 more than the other alternatives. In BMU 6, Alternatives 3C-R, 3E-R, 4C-R, and 4E-R would contribute the most to cumulative reductions in HE.*
- *All of the combined action alternatives, in combination with other reasonably foreseeable actions, would cumulatively increase linear ORD in BMUs 5 and 6 during construction and operations, resulting in cumulative ORD worse than recommended levels.*
- *All of the combined action alternatives, in combination with other reasonably foreseeable actions, would cumulatively increase OMRD in BMU 6 during operations and construction. Alternative 2B would cumulatively increase OMRD in BMUs 5 and 6 during construction more than the other alternatives.*
- *All of the combined action alternatives, in combination with other reasonably foreseeable actions, would cumulatively decrease TMRD in BMU 5 during all phases of the proposed projects.*
- *The combined action alternatives, in combination with reasonably foreseeable actions such as the Rock Creek, Miller-West Fisher, and the Libby Creek Ventures projects, disrupt bear movement along riparian corridors. If activities associated with the Miller-West Fisher Vegetation Management Project and construction of the combined action alternatives occurred concurrently, grizzly bear movement may be particularly affected*

in either the Miller or West Fisher creek corridors, depending on the alternative.

- *The combined action alternatives, in combination with reasonably foreseeable actions, would result in cumulative disturbance to grizzly bears during spring. The combined action alternatives and the Rock Creek Project would occur adjacent to, and on opposite sides of, the CMW and core habitat. The Miller-West Fisher Vegetation Management Project also would occur in grizzly bear spring habitat. Due to the magnitude and duration of the cumulative disturbances, and the limited amount of foraging options available to bears in the spring, changes in spring habitat use might have adverse consequences for bear survival.*
- *The combined action alternatives, in combination with other reasonably foreseeable actions, may increase mortality risk due to the influx of employees and vehicles into the analysis area.*

The SDIES relies on proposed land acquisition as the primary mitigation measure to offset the impacts to grizzly bears, yet there is no analysis in the document about whether high quality habitat is available for purchase, and there is no analysis of whether that would effectively protect the grizzly bears, let alone enhance recovery, given that any currently available habitat is already in use by grizzly bears.

According to the USFWS comments on the Montanore SDEIS, "In general, the grizzly bear analysis focuses on the traditional methods of examining Open Motorized Route Density (OMRD), Total Motorized Route Density (TMRD), Core, Habitat Effectiveness, and other measures. The USFWS and the Forest have a long history of relying on these measures. However, the typical project examined using these measures is a timber sale and associated road system. The timber harvest portion of such a project usually has temporary effects on grizzly bears, with the negative effects to grizzly bears diminishing within a decade. Road effects can, of course, be more chronic. The Montanore project would last for decades, affecting two to three generations of grizzly bears, and could result in the permanent adverse conversion (e.g., from forest to tailings impoundments) of significant quantities of habitat (varies with the alternatives analyzed in the SDEIS) currently used by grizzly bears. Therefore, we recommend a more comprehensive examination of the underlying habitat effects."

Comment: Although the Rock Creek mine is recognized as a reasonably foreseeable activity, the SDEIS fails to provide sufficient analysis of the cumulative effects on grizzly bears in the Cabinet-Yaak ecosystem from the proposed Rock Creek Mine, Montanore Mine, climate change, etc... The cumulative impacts fail to meet the Forest Plan, and the SDEIS does not show how the cumulative effects of activities will comply with the Endangered Species Act. Given the different definitions of cumulative effects in NEPA vs. the Endangered Species Act, cumulative effects analysis of the Montanore and Rock Creek Mine on grizzly bears must be analyzed in the SDEIS.

I would also like to incorporate by reference the comments submitted by the Department of Fish Wildlife and Parks on the DEIS, which do not seem to be addressed in the SDEIS.