

**SUPPLEMENTAL EIS
RESPONSES TO COMMENTS**

BIODIVERSITY

Wildlife Habitat	BIO-400
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BIO-400 Wildlife Habitat

1. *Possibility of more stringent requirements on other mineral activities in the area during life of Asarco Rock Creek and Noranda Montanore projects. ... How extensive is the area referred to? Will it extend into the West Fisher Mining District? (S1285)*

Response: Any new proposal, be it mining, timber, or something else on the east or west side of the Cabinet Mountains Wilderness will be analyzed based on its own impacts and then analyzed in combination with other existing and reasonably foreseeable projects which would include the Montanore and Rock Creek project (should it be permitted). Based on the analysis, requirements may be placed on the new proposal. The requirements will be specific to the proposal, the greater the project impacts, the more requirements may be placed on the project.

2. *Eliminate adverse impacts to wildlife. (S3701)*

Response: The various environmental laws protecting wildlife do not require 'elimination' of adverse impacts to wildlife. They do require the Forest Service to maintain viable populations. Project designs and required mitigations ensure viable populations (see Biodiversity and Threatened and Endangered Species section in Chapter 4 and the Biological Assessment in Appendix B).

3. *Page 4-110, last paragraph - This discussion does not speak to the Alt. V impacts to less than one acre of old growth. The impacts of Montanore versus Alt. V should be clarified. (S5)*

Response: Refer to the EIS developed for the Montanore project for specifics of that project's effects on biodiversity. The cumulative effects to old growth from both projects is pertinent for Alternatives II through V. The section has been changed to reference Alternative V also.

4. *Page 4-111, paragraph 3 - This discussion of world wildlife habitat loss seems inappropriate in the context of the Rock Creek cumulative effects. (S5)*

Response: The statement could be easily applied to a regional or national context as well. However, since many mining interests are international, it is pertinent to note that what happens in the United States, or what happens in a third world country, inevitably affects biodiversity cumulatively in other countries. This is especially obvious for wide-ranging wildlife such as neotropical birds that can visit dozens of countries over a year's time. Cumulative effects by definition are those that are broader than the project at hand.

5. *Rock Creek and where it drains into the Clark Fork River is an important travel corridor for grizzly bears, elk and other wildlife. Placing a mine here would undoubtedly destroy this important linkage zone, thereby threatening the genetic diversity and viability of wildlife metapopulations. (S3758)*

Response: Fragmentation of habitat and its effects on several species of wildlife is discussed in Chapter 4.

6. *The Elk and Bear population would be deprived of their sanctuary. (S4354)*

Response: Security impacts to elk and both species of bears are considered in Chapter 4, Biodiversity and a mitigation plan was developed to mitigate the effects.

7. *Justify the loss of elk winter range and the potential displacement of Rock Creek herd for decades; analyze and disclose the impacts to hunting demand and opportunities. (F1)(S4891)(S4912)(S5051)(S5088)(S5555)(S5763)*

Response: The decision-maker must consider the loss of elk winter range and impacts to hunting, as well as state and federal laws pertaining to minerals, when determining if there is sufficient

justification for the project. The impacts to hunting demand and opportunities were considered under Recreation in Chapter 4.

8. Page 3-51, last line - The term "integrity of habitat" is not defined? Is there a Forest standard related to habitat "integrity?" (S5)

Response: There is no Forest Service standard for integrity of habitat. Integrity from a biological perspective means to be whole or complete, as in adequate habitat to provide for all biological needs. Habitat integrity thus would be somewhat different for each species, but the term is used loosely to indicate good habitat quality and quantity for a group of species in a habitat type.

9. DEIS p. 4-83/SDEIS p. 4-77. The word "adverse" was inserted between the words "potential effects." (S3462)

Response: Effects listed in the sentence are adverse effects. The word was added to clarify the sentence.

10. DEIS p. 4-87/SDEIS p. 4-84, first full paragraph. This paragraph has been rewritten for the SDEIS. Instead of correcting the erroneous phrase, the authors have deleted it entirely. The DEIS read: "Usable habitat would be fragmented by construction of mine facilities, thus changing its nature and making it less ineffective for some species."

The corrected sentence would read: "Usable habitat would be fragmented by construction of mine facilities, thus changing its nature and making it less effective or ineffective for some species." The sentence that appears in the SDEIS reads: "Usable habitat would be fragmented by construction of mine facilities." (S3462)

Response: The concept of fragmentation was explored and expanded in several parts of the Biodiversity and Threatened and Endangered Species sections of Chapter 4. As a summary, the sentence is appropriate.

11. DEIS p. 4-87, last paragraph, 8th (last) sentence. "Loss of degradation" does not appear in the similar SDEIS paragraph. The paragraph has been completely rewritten. (S3462)

Response: Changes to the draft EIS were expected. Some of these changes were edits designed to clarify the text, and some changes incorporated information obtained after the draft EIS.

12. Page 4-77 4th paragraph "Other wildlife species ...suffer higher stress and mortality levels". This could be construed as significant environmental degradation. Same comment for last paragraph - "physical destruction, habitat fragmentation, and decreasing effectiveness." (S4832)(S4833)

Response: The effects of the project on wildlife and their habitat is detailed in Chapter 4 and is disclosed to cause a loss, in general terms, of habitat. Not all habitat loss is significant environmental degradation in the legal sense. For example, loss of grizzly bear habitat is more significant legally than is loss to white-tailed deer habitat. This is because of the grizzly bear's legal status under the Endangered Species Act, and conversely, the breadth of habitat suitable for white-tailed deer. The significance of the project's effects on wildlife is detailed in individual accounts in Chapter 4.

13. address disruption of wildlife corridors. (S6745)

Response: Impacts to movement corridors for Threatened and Endangered species are disclosed in Chapter 4.

14. Page 4-109, paragraph 5 – *There is no discussion of the proposed Wayup/ 4th of July projects in this section (see page 2-99). (S5)*

Response: Paragraph 5 on page 4-109 of the supplemental EIS identifies the Wayup/4th of July projects in the statement “loss of habitat to mine development.” The effects are considered in the individual wildlife species analysis. Since the decision to allow access to these two private parcels will occur before the decision on the Rock Creek Mine project, the effects of the two small property projects are included in the baseline existing conditions for the Rock Creek Mine and are therefore part of the cumulative effects analysis. The Wayup and 4th of July access issues were evaluated in the Biological Assessment and considered by the USFS in their Biological Opinion with respect to cumulative effects on threatened and endangered species.

BIO-401 General Wildlife Species

1. *There will be long term, cumulative effects from increased human activity, including road traffic, bridge reconstruction, pollution, noise, and residential building, among others, on the wildlife populations and on biological diversity. (S3260)*

Response: There will be impacts on wildlife from activities you describe. The direct, indirect, and cumulative effects on wildlife populations (of selected species), and on biodiversity is disclosed in Chapter 4.

2. *Your own evaluation indicates that many of this area's indigenous species are suffering from population declines. Mining activity will certainly exacerbate these declines both directly, by increased mortality (e.g. road kills) and indirectly, by widening the effects of fragmentation. (S3260)*

Response: Population declines are indeed reported for many indigenous species in western Montana, from many different causes. Construction of highways, city streets, and forest roads are important contributors to these declines. Highway mortality and fragmentation are only two of the many adverse impacts that human travelways have on many species of wildlife. The effects of road kills and fragmentation on wildlife are detailed in Chapter 4 of the Biodiversity and Threatened and Endangered Species sections.

3. *What do you think the impact of a mine operation running 24 hours a day is going to have on the forest dwelling animals nearby. (S4013)*

Response: Disturbance to animals in the adjacent forest is a factor in the project's effects on wildlife. The species analyzed included those active both day and night. These effects are detailed in the Biodiversity, Threatened and Endangered Species, and Noise sections of Chapter 4.

4. *The SDEIS contains no tried and dependable science to neutralize the inherent risks that the process of mining brings to wildlife habitat. (S6629)*

Response: The authors of the Biodiversity sections of the draft and supplemental EISs attempted to analyze the individual risks associated with the mine development, then to prevent, minimize, avoid, or mitigate each of those risks to wildlife and people. Experienced interdisciplinary professionals worked towards designing methods to manage inherent risks. Where design features or mitigation are expected but not proven to be effective, it is stated in the final EIS.

5. *Page 4-85, paragraph 2 - The conclusion that wildlife-vehicle collisions will increase does not seem to be based on the Alt. V traffic projections. (S5)*

Response: This paragraph referred to Alternative II projections. Alternative V requires the busing of mine workers, thereby substantially reducing the traffic on FDR No. 150 and likewise reducing the probabilities of animal/vehicle accidents. However, the figures have been changed to increase clarity in the final EIS.

6. *Page 4-85, paragraph 3 - The indirect impact/population argument needs to be reviewed as discussed for 4-80. (S5)*

Response: The paragraph has been reviewed, and the reviewer stands by the analysis as accurate because indirect impacts are expected from increased human development whether or not they are a result of the mine.

7. *Page 4-183, paragraph 6&7 - The conclusions about loss of biodiversity are unsubstantiated. Most reclamation projects have an abundance of wildlife. The protected reclamation areas allow for less impact from humans,*

particularly hunting pressure. This often results in larger game using the mine and reclamation areas as a sanctuary as evidenced by the nearby Troy property. (S5)

Response: Biodiversity consists of far more than big game. It includes all organisms and the complex ecological interactions that occur with the diversity of a naturally occurring ecosystem. Because some organisms are not mobile, it is inevitable that a reclamation site present for only a few years or even decades is not going to have the diversity of organisms that were on site originally. Large, mobile animals such as deer and elk are early colonizers to these sites partly because of their mobility, and partly because of their attraction to planted forage species. They are much more obvious to human observers than a complex group of micro-organisms or fungi.

8. 4-184, paragraph 6 - The conclusion that the tailings impoundment will be less productive after reclamation is not supported. In the long term, the improved texture of the tailings (versus the existing clay and bedrock soils) should out-weigh the initial and temporary loss of organics. (S5)

Response: The agencies concluded that “Long-term loss of productivity would occur on the tailings paste facility and other mine developments.” In the introduction to Chapter 4 of the EIS a long-term impact is defined as one that extends beyond the life of the project. The majority of plant communities disturbed by the proposed action are forest habitat types. Forest habitats that are disturbed by logging, mining and other major disturbances can take at least 80-100 years to reestablish a stand of trees with at least some timber that would be considered mature or that would provide valuable wildlife functions like security habitat. The habitat for wildlife would return after reclamation but it would lack diversity for a considerable length of time. This has been proven in reclaimed areas throughout the western U.S. in over 25 years of reclamation monitoring. One of the complicating factors in establishing diversity in many plant communities today is the introduction of exotic plant species that can outcompete native plant species. The agencies do not deny that the productivity of the site in the long term after reclamation places 24 inches of salvaged soil over the paste may be greater than found on the site today but the diversity may not ever become comparable to existing conditions on the site today.

9. What is the potential for exposure to toxic chemicals and direct and secondary poisoning of wildlife species? Will there be toxic chemicals in the aeration pond for the ABC that birds or other wildlife could be exposed to? What is the potential for exposure to toxins in the paste pile? (S6312)(S2117)

Response: The potential for exposure to toxic chemicals and direct and indirect poisoning of wildlife is virtually absent. This topic is explored in the analysis of effects for Alternative V. The aeration pond will be composed of water that is already treated, with no chemicals present. It is ready to be released because the treatment has removed any foreign compounds. Thus there are no toxic compounds in the water at that point. Prior to treatment, this water is stored in covered metal containers which are unavailable to animals. The potential for exposure to toxins in the paste pile is also minimal. This is because the paste contains decomposed portions of the chemicals used (i.e. carbon, oxygen, nitrogen). Any seepage is returned to the water treatment plant for treatment.

10. There are no data presented in the SEIS on bird species composition or abundance in the project area. There isn't even a habitat cover type map that would allow predictions to be made about species composition. It is difficult to assess impacts without some baseline data. I was only able to locate a reference to baseline data in the DEIS on pg. 3-70. (S6312)(S2117)

Response: The most complete data on bird species composition and abundance was completed in the baseline study by Farmer and Heath (1987). Their study is too large to be included intact in the EIS, but pertinent data has been incorporated. The table titled “Representative Plant Species by Dominant

Vegetation Type and Lifeform Class” (Chapter 3) provides a summary of habitat types and proportions found in the baseline study area. A cover type map is included in the baseline study.

Another source of recent information on bird composition is a checklist of Kootenai National Forest birds (1995), which lists known species on the Cabinet Ranger District. This document was used to refine the list of known species in the EIS.

Chapter 3, Biodiversity has a table outlining the proportion of representative plant species by dominant vegetation type and lifeform class in the baseline study area and evaluation adit study area. Along with the baseline report and narratives, a reasonable picture of the local avifauna should be possible.

11. The combined impacts of habitat loss, increased disturbance, lower reproductive success from nest failures and cowbird parasitism, increased mortality from vehicle collisions and predation, and other indirect and cumulative effects will impact songbird populations. What, if any, mitigations are being proposed to help offset these impacts? (S6312)

Response: All of the impacts you listed are discussed in sections of Biodiversity, Chapter 4, except the increased mortality from predation. The project does not appear to pose a clear risk of increased predation to songbirds, except possibly through increased edge effects. The impact to songbird populations is not expected to be a threat to the viability of any songbird known or suspected to be in the project area, but the loss of habitat would be expected to impact individuals. This is disclosed in Chapter 4. This impact is most notable in its cumulative form, where habitat loss over the range of several species is marked.

Several features of Alternative V were designed to reduce impacts to songbirds, among others. Generally speaking, any mitigation or design feature that reduces habitat loss or disturbance would have a positive effect for songbirds as well as other emphasis species. Two features that are pertinent are the retention of effective old growth, and the closure of a portion of FDR No. 150B close to Rock Creek. Other mitigation includes baffled lighting at the mine facilities to reduce the direct mortality risk to night migrant songbirds.

12. Will there be an increase in the number of power transmission lines and associated overhead structures as a result of the project? Collisions with transmission lines and other above ground wires is a common source of avian mortality. Factors that can influence the potential of strikes and electrocution include the effects of artificial lighting, topography, land use, and line placement, orientation, and configuration. What measures will be taken to reduce the occurrence of line strikes? Monitoring should be done to assess mortality from line strikes. (S6312) (S2117)

Response: There will be an increase in the number of overhead transmission lines from the project, as outlined in the Description of the Alternatives, Chapter 2, in the Utilities section. Moving the mill to a lower site in Alternatives IV-V reduced the amount of overhead lines available for potential strikes. The number of overhead transmission lines in the Clark Fork Valley is quite high, and is in a configuration along a major river that is likely to receive a number of strikes, particularly during migration. The transmission lines planned for this project are shorter, with fewer lines (although these are of a smaller size) than the large ones in the valley. Cumulatively, they would represent a very small proportion of any strikes in the Clark Fork Valley because of their position along a forest road at the bottom of a drainage, next to taller vegetation, and unlighted. Further, the size of the 230 kV lines is large enough to be readily visible to any birds adapted to travel in wooded areas; the standard size is 1 1/3" (Nate Hall, Washington Water Power [now Avista], pers. comm. July 13,

1998). This is larger than the size of many branches that birds frequently must maneuver around. Power lines and lighting at the mill site were considered mortality sources to migrating songbirds, and lighting was designed to reduce the risk of this occurrence.

No monitoring is planned to assess mortality from line strikes.

13. Page S-18. Reclamation plans for Neotropical Migrant Birds would take place after 30 years of missing habitat. How can it be determined that this is effective mitigation? (S3462)

Response: Some of the reclamation would occur prior to mine closure; notably, wetlands mitigation would occur prior to mine production. Generally, however, the mine will reduce available habitat for many years, as disclosed in the effects analysis of Chapter 4. The mitigation is designed partly to prioritize the habitat and the species that depend on it. For example, wetlands habitat is in short supply nationally, so it is important to mitigate immediately. Mixed conifer forest, on the other hand, is not in short supply, nor can it be shown the species inhabiting this habitat in the project area are in jeopardy of extirpation or localized extinction. The amount of habitat lost during the project lifetime was not deemed to pose a viability risk to the species present (songbirds and others), so reclamation at the end of the project would be effective for the species involved. There would be some reductions in some species populations during the mine's lifetime.

14. The threatened species mitigation measures are particularly egregious. It is comforting to know that "design features would be incorporated at the millsite to avoid attraction and mortality to songbird night migrants" (SEIS, p.2-78). What exactly are these design features? Have they been documented as being effective? Rest assured that the heavy metal pollution the project will spew into the nearby waterways will override the benefits of the attempted mitigation. (S6332)

Response: The mill site would be designed without high objects (other than those required by safety standards) and would have lights facing downward, to avoid attracting migrants. These features were chosen in consultation with the international Fatal Light Awareness Program. This group did not consider the mill site to be a high risk situation with regards to night migrant mortality. The effects of metal pollution are discussed in the hydrology section of the EIS.

15. To assess the likely impacts of Asarco's proposed Rock Creek mine on wildlife, it is necessary to look at the direct and indirect effects of the project as well as the cumulative effects of this project and others (see attached color map). Wildlife will be impacted within the Rock Creek drainage and surrounding lands and waters inside and outside of the project area. Impacts to wildlife, especially waterfowl, on Denton Slough and Lake Pend Oreille should not be overlooked. These impacts were not addressed in the DEIS and are not being addressed in the SDEIS either. Impacts to the Cabinet-Yaak Ecosystem as a whole and to other Northern Rockies Ecosystems also should be considered. (S2117)

Impacts to wildlife, especially waterfowl, on Denton Slough and Lake Pend Oreille should not be overlooked. These impacts were not addressed in the DEIS and are not being addressed in the SEIS either. Impacts to the Cabinet-Yaak Ecosystem as a whole and to other Northern Rockies Ecosystems also should be considered. (S631 2)

Response: Direct, indirect, and cumulative effects were considered in the effects analysis, Chapter 4. Cumulative effects were considered for the scale that they were considered appropriate. For example, global habitat loss is considered appropriate for the cumulative effects of habitat loss in general, whereas mountain goat effects are considered primarily for the Cabinet Mountains. The effects of the project on waterfowl were analyzed, particularly in connection with water quality entering the Clark Fork River (excluding effects to harlequin ducks, which were treated much more extensively). No other project effects to wildlife occupying the Lake Pend Oreille or Denton Slough area could be identified except in terms of water quality.

According to the watershed analysis, there would be no measurable changes to the Clark Fork River. It follows that there would be no measurable change, or impacts to waterfowl, in Denton Slough or Lake Pend Oreille.

Impacts to the Cabinet-Yaak ecosystem and the northern Rockies were considered where pertinent in the cumulative effects section of Chapter 4.

16. Based on what I know about the habitat types in the project area, I would predict that impacts to songbird populations associated with old-growth, mature forest, and riparian habitats would be most likely. Impacts to neotropical songbirds as well as resident species of songbirds should be considered. Habitat loss is as detrimental to residents as it is to migrants. For example, the Winter Wren, a year-round resident, disappears when Cedar/Hemlock Old-Growth stands with flowing streams are lost. (S2117)

Response: The impacts to songbird populations were indeed noted in Chapter 4 to be primarily from loss of old growth and riparian habitats, with less impacts from other habitat types lost. All songbirds regardless of migratory status were considered, as noted in Chapter 3 and 4. Winter wrens are not limited to the habitat you describe, although certainly this would be prime habitat. This can be readily confirmed by on site visits in Rock Creek and elsewhere in the Rocky Mountains.

17. The project would disrupt the riparian stretch along Rock Creek. Birds maintaining territories next to FDR 150 (typically juvenile birds) would likely suffer higher mortality from collisions with vehicles than birds maintaining territories away from the road. Studies have shown that birds with territories along roadsides suffer the highest rate of mortality. In addition, human disturbance can lead to nest abandonment and failed nesting attempts. (S2117)

Response: Increased mortality from vehicle collisions was noted as an effect on wildlife in general in Chapter 4. Increased human presence was also identified as causing disturbance to wildlife in general. One of the results of increased disturbance is reduced productivity for some individuals of some species.

18. On page 3-69, the statement is made that the general status of neotropical migrant populations in western U. S. forests is thought to be mostly stable. Viewed on a broad scale, and looking at those species that sample well this may be generally true. However, it is not relevant to this project. Several of the breeding birds that occur in the project area are showing a declining trend including Brown Creeper, Varied Thrush, Western Tanager, Hammond's Flycatcher, Olive-sided Flycatcher, Chestnut-backed Chickadee, and Sharp-shinned Hawk (note that not all are migratory species). These species all are sensitive to habitat fragmentation. Increased levels of cowbird parasitism and predation rates likely would result from further habitat fragmentation. Loss of snags would impact primary and secondary cavity nesters. Wherever people go, house cats and domestic dogs follow. Both can have enormous impacts on wildlife, especially house cats on songbirds. The combined impacts of habitat loss, increased disturbance, lower reproductive success from nest failures and cowbird parasitism, increased mortality from vehicle collisions and predation, and other indirect and cumulative effects will impact songbird populations. What, if any, mitigations are being proposed to help offset these impacts? (S2117)

Response: The overall stability of the neotropical migrant populations in the U.S. is important from a broadscale perspective, i.e., it lends some context to the discussion, just as a statement that overall declining populations of an endangered species might generate specific actions in a local area. Many of the species you listed are cumulatively affected by habitat loss across their entire species ranges (resident or migratory), and this cumulative habitat loss is noted in the cumulative effects section of Chapter 4. All of the effects you list, except for the loss of snags which is implied in loss of general habitat, are identified and discussed in Chapter 4.

Several mitigations, or design features, were incorporated into Alternative V to reduce these impacts. Alternative V has the least overall habitat loss of the action alternatives, although still 480 acres are

affected. Increased disturbance and vehicle mortality is lower in Alternative V because of busing of mine employees and road closures for grizzly bears, harlequins and other concerns. Cowbird parasitism is not mitigated at this time, primarily because solutions are only effective in localized areas with specific concerns.

19. *Page S-23 4th complete paragraph "Lights from ...". What impacts does this have on nocturnal creatures? Any analysis done? Has the FS identified any of the T&E or sensitive species as relying on the cover of darkness to assist in foraging, feeding, or breeding?*

Page 2-128 last paragraph Effects from light during night hours would affect not only the hikers in the area who search for solitude, but potentially nocturnal animal species. Has this been addressed anywhere in the SDEIS? (S4832)(S4833)

Response: An analysis on effects of lights on migrant songbirds is included in Chapter 4, Biodiversity. Alternative V incorporates mitigation for reducing light visibility, particularly from above. This should reduce effects to other wildlife as well, including nocturnal threatened, endangered or sensitive species. However, except for certain situations, it is unlikely that lights affect behavior of most species. These exceptions include the effects of headlights on road-crossing animals, and this effect is incorporated into the vehicle mortality issue noted in Chapter 4. Lights can be considered a form of human disturbance, whose general effects are described in Chapter 4.

20. *The SDEIS also does not adequately consider probable impacts to cutthroat trout, harlequin duck, and fisher. All of these species are of particular interest to the Tribes and must be adequately considered and fully protected. Additional species that will likely be impacted but are not adequately considered include lynx, wolf, woodpeckers, wolverine, mountain goat, and numerous bird species. (S2034)*

Response: An EIS is not to be encyclopedic, but has the level of detail necessary for the decision maker to decide among an array of alternatives. Some species received considerably more analysis than others, but this was done because of the sensitivity of the species and the possibility/probability of the potential impact of the project on them. It is true that more information could be written about the impact to the species mentioned, but it is believed that the discussion as is presented in the final EIS is adequate for public understanding of the impacts and meets the intended need of the decision makers.

BIO-402 Sensitive Wildlife Species

1. *As a bird watcher I am concerned about the fate of the harlequin duck population that breeds on Rock Creek. Given the experiences in Glacier National Park and in Alberta regarding the detrimental effect of human disturbances on breeding birds, it seems that the project will be the end for the ducks on the creek and a push closer to endangered status. (S2866)*

Response: The concern for harlequin ducks on Rock Creek is explored in Chapter 4, Biodiversity. Disturbance to ducks is listed as a major concern, and several design features of Alternative V were incorporated primarily to satisfy these concerns. An example is the closure of FDR No. 150B. With the design features incorporated, and mitigation plan implemented, Alternative V was considered to adequately protect the viability of the harlequin ducks, with respect to project-related impacts.

2. *The proposed mine threatens other already precariously surviving wildlife: harlequin duck, mountain goats, fisher, grizzlies, elk, and black bear. The mine not only threatens these awesome creatures with air and water pollution, but with loss of habitat and noise pollution. The massive increase in human neighbors would no doubt disrupt the mental peace and comfort of these precious animals. (S3276)*

Response: Air pollution is not considered an issue for either wildlife or people (please refer to the Chapter 4 section on air quality). The project's effects on water quality are discussed in Chapter 4, Hydrology. Based on this analysis, the effects to wildlife from changes in water quality are essentially unmeasurable, or are mitigated for in terms of design (as in the wastewater treatment plant). Loss of habitat is an issue noted as an effect to wildlife in Chapter 4. Noise pollution is primarily a disturbance issue for wildlife; disturbance effects to several species, including those you listed, are discussed in Chapter 4. Although it is difficult to determine the disruption of mental peace and comfort in wildlife, several measurable effects to wildlife from increases in human populations are noted in Chapter 4.

3. *I do have concerns where I see potential for mitigation actions going overboard. They regard the harlequin duck. They are important birds to our state and our ecosystems, but should not be used to hold this or any other project hostage. Harlequin ducks are game birds in various parts of the Northwest, particularly Washington and Oregon. Rock Creek appears to be on the edge of their natural habitat. The point is, there has to be an edge to any bird or animal's habitat. (S4529)*

Response: Rock Creek is not on the edge of the harlequin duck's natural range. It has a broad circumpolar range that includes the Cascades through the eastern front of the Rocky Mountains and south to Wyoming (Johnsgard 1986). The historic range included several more drainages than currently occupied, so the range reduction is cause for concern.

Harlequins are game birds in Washington and other areas, and their harvest status and bag limits are controlled by the state or province. Harlequin ducks marked in the Lower Clark Fork subpopulation are known to winter in areas with legal harvest. This is indeed a concern, as noted in the effects analysis. The mitigation plan is designed to avoid or mitigate adverse effects caused by the project, but it can not mitigate for impacts beyond its control. Regulating legal harvest is beyond the scope of this project.

4. *The adverse effects of nearby human activity on harlequin ducks have been well documented throughout their range. Various types of human disturbance (e.g., rafting, fishing, hiking, traffic) in the vicinity of harlequin ducks has been shown to decrease breeding fitness. Increased road traffic at both the first and second bridges may confine harlequin breeding and brood rearing activity to the area between the two bridges; both the area above the second bridge and below the first bridge are probably too small to support breeding and brood rearing activity on*

their own. Asarco privately owns a little over half of the land (in two separate parcels which both span across the stream) between the two bridges. If this land were used for the construction of any mine buildings and/or a worker housing area it could effectively fragment the harlequin breeding habitat into areas too small to support breeding and brood rearing. Female harlequins have been shown to, almost solely, return to their natal streams for breeding purposes. If cumulative effects were to extirpate harlequins from Rock Creek it may be quite some time before the population is reestablished; it may never be. Plans for these blocks of land and associated effects on the harlequin duck population need to be adequately addressed in order to meet the requirements of the NEPA. In addition a population viability analysis for the harlequin population in the lower Clark Fork region may be called for in order to meet the NFMA's requirement of maintaining viable vertebrate populations. (S4905)

Response: The permit includes detailed site plans for both land owned by Sterling and National Forest System lands. No buildings except those noted on the permit application are planned. According to Montana state regulations, any additional disturbance within the permit area must go through a permit amendment or revision process if it is outside of the range of previous and substantial evaluation in this EIS (ARM 17.24.102(3) and (21), 17.24.119, 17.24.120). Because the project is jointly permitted by the U.S. Department of Agriculture (USDA), Forest Service, and Montana DEQ, the Forest Service would also review the proposal for possible effects on harlequin ducks, among other issues.

It is noted in the effects analysis that the high site fidelity harlequins possess decreases their chances for reestablishment in the event the subpopulation is extirpated. This is the rationale for maintaining the subpopulation as a whole, including Rock Creek, as healthy as possible. A viability analysis is most needed in the event that individuals of a species are affected, i.e. it allows one to determine if a loss of individuals can be absorbed by the species without trending the species towards extinction. Alternative V and its mitigation plan were designed to avoid a loss of any breeding harlequin ducks.

5. The degree to which the cumulative effects of increased road traffic and possible building activities on private lands adjacent to USFS road 150 would impact breeding habitat for the harlequin duck population inhabiting Rock Creek. For the past two summers (1996, 1997) I have conducted stream surveys for harlequin ducks on all of the streams in the Noxon and Trout Creek area and a number of other streams across western Montana for the Montana Natural Heritage Program. The lower Clark Fork supports one of the largest metapopulations of harlequin ducks in the state of Montana and the Rock Creek population is a key component of this metapopulation. During the period of time harlequins have been monitored on Rock Creek, they have only reproduced successfully in an area extending from just above the second bridge crossing to approximately one mile below the first bridge crossing. The issue of water quality has been addressed for this section in the SDEIS, but the cumulative effects of increased road traffic and possibility of building construction on private land adjacent to USFS road 150 have not. (S4905)

Response: The importance of the Rock Creek harlequins to the Lower Clark Fork subpopulation and to the species as a whole is noted in several locations in Chapters 3 and 4. It is precisely because the reach of creek you mentioned is so important that Alternative V incorporates a road closure along FDR No. 150B on the west side of the lower portion of Rock Creek. The east side of Rock Creek would still be accessible from FDR No. 150. The effects of road traffic are discussed as direct effects rather than cumulative effects, because they primarily affect the area along Rock Creek.

The applicant has submitted all plans for buildings on their land as well as NFS lands, in their proposed action or alternatives to the proposed action. These have been addressed in the Chapter 4 effects analysis.

6.. *There seems to be some glaring discrepancies between the Draft EIS and Supplemental with regards to the extent and severity of the effects of the action alternatives on wildlife species. These need to be rectified. How could one document state that. The proposed project would result in loss or degradation of lynx habitat... and the other state "Lynx habitat would not be significantly affected.. This is just one example. What evidence is presented in the supplemental for downgrading the effects from significant" to less than significant. (S4922)*

Response: The draft EIS stated that there was inadequate information known about lynx (and fisher and wolverine) within the project area and planning area to make a reasoned determination of effect, and no determination of effect was rendered in the Draft Biological Evaluation. In the supplemental EIS, it is noted in Chapter 3 that several major advances in information on lynx habitat were made, including completion of a forest-wide habitat assessment and development of a conservation strategy. Research on lynx occurring after the draft EIS, including the Kootenai National Forest population, provided important data to help determine the project's effects. The information used to determine the effects of the project on lynx in the supplemental EIS is presented in Chapters 3 and 4.

7. *Prohibit activities that would likely result in a trend to federal listing or a loss of viability for the harlequin duck and other sensitive species (P)*

Response: The intent of the project design and mitigation plans of Alternative V is to prevent the trend towards federal listing of all sensitive species within the project area.

8. *The project does not adequately address the potential loss of harlequin duck. (S5777)*

Response: Alternative V project design and mitigation plans are intended to prevent the loss of harlequin ducks in Rock Creek, and the Lower Clark Fork subpopulation. The level of analysis is in adequate detail to address the issues raised and to ensure an informed decision can be made. The project was reviewed by a panel of experts in harlequin duck biology to carefully identify effects and solutions to prevent or mitigate effects. Provided that all design features and mitigation items are implemented, it is the opinion of the professional wildlife biologist rendering the determination of effect that Alternative V would not trend the harlequin duck towards federal listing. If Alternative V is selected, the design features and other mitigations would be a mandatory part of project implementation.

9. *There is no further mitigation for the potential impacts to the Harlequin Duck. (S5813)(S5827)*

Response: The EIS and Alternative V have mitigation items considered necessary to mitigate for potential impacts to harlequin ducks.

10. *Page 2-105, issue 2, 3 bullet: Why are lynx, fisher, and wolverine no longer considered in this section? And why is alternative V not included in this statement. In other sections of the SDEIS harlequin ducks would admittedly be affected by alternative V. (S6342)*

Response: The Issue statements you refer to are summaries of the detailed analysis of effects in Chapter 4. This section of the EIS covered impacts that were considered significant or potentially significant. Impacts to these species were not considered to fit either category and so were not mentioned. Refer to the lynx, fisher, and wolverine sections of Chapter 4 for the reasons why these species are not included in these bullet issue statements. Alternative V is omitted from the bullet on harlequins because design features and mitigation have resulted in less than significant impacts.

11. Page 4-88 4th paragraph DEIS: “Should fishers successfully.....” This section has been changed to read, “If fishers were to be displaced” Please explain how the agencies arrived at nearly opposite conclusions in these two documents. Will the fisher have a good chance of re-establishing in the Rock Creek vicinity? If so, how do you explain your previous publication? (S6342)

Response: The draft EIS was based on limited information on fishers, as noted in the introduction to the Biodiversity section in Chapters 3 and 4, in both the draft and supplemental EISs. Extensive habitat analysis over the Kootenai National Forest was completed in order to increase the broad scale and project specific habitat context for determining project effects. Based on that analysis, fisher habitat was found to be far more abundant than suspected in the draft EIS analysis. However, quality and quantity of habitat are not the only concerns with fisher management, as detailed in the effects analysis. The account you refer to is the effects analysis for Alternative II; please continue to read the other alternatives for a more complete answer to your question. While it is impossible to say definitively that fisher would reestablish in Rock Creek, it is likely with habitat as maintained in Alternative V, it would occur if fishers established in other areas of the Cabinet Mountains.

12. Page 4-102 (Harlequin Duck): We are pleased that busing of mine workers has been added as a mitigation measure to reduce traffic disturbances to the harlequin duck and other wildlife, and that timing restrictions on construction activities and access restrictions have been added. We understand, however, that the U.S. Fish & Wildlife Service (USFWS) has remaining concerns in regard to impacts upon the harlequin duck. The USFWS indicates that more detailed analysis of timing, duration, and intensity of impacts of construction activities and other disturbances upon the harlequin duck should be presented, and that a long term monitoring plan should be developed to better identify and mitigate impacts. The EPA supports the USFWS analysis and request. (S146)

Response: The disturbance impacts from the construction phase in Alternative V would be eliminated by limited operating seasons around those activities considered to cause disturbance to harlequin ducks. These are listed in Chapter 4, Alternative V under harlequin ducks. Not all activities at any phase were considered disturbing to harlequins, for example work at the exploration adit.

A requirement to develop a long-term monitoring plan tied to the mitigation plan has been added (see Appendix K).

13. Page 104 (Harlequin Duck): The SDEIS states that reductions in surface water flow have been analyzed and considered among the potential effects upon the harlequin duck. We would like to better understand the basis for the statement that “the effects analysis for Alternative V determined that water flow in Rock Creek would not change to an extent that is likely to adversely impact the harlequin duck.”

We did not see Rock Creek water flow information presented in the SDEIS that included estimated reductions in surface water flow or extended durations of low/no flow periods for Rock Creek? (See earlier comments regarding reduced water flow concerns in Hydrology and Aquatics sections). We do not believe flow impact effects will be known until results of water resource monitoring are collected and analyzed to verify that water flow in Rock Creek will not change to an extent that it would adversely impact the harlequin duck. Flow impacts upon the harlequin duck should be addressed in the water resources and harlequin duck monitoring and mitigation plans. (S146)

Response: The conclusion that water balance would not cause an impact to harlequin ducks is based on the hydrologic analysis. This analysis is included for public review in the EIS. There is an extensive monitoring plan for hydrologic effects, but based on even a large margin of error a change in water flow is unlikely and so harlequin ducks would remain unaffected. Thus, no direct monitoring of this parameter is considered necessary for harlequins. However, if indirect monitoring were to show a change in water flow considerably different than expected, it is likely that the effects on all resources, including wildlife and harlequin ducks, would be reviewed.

14. The SDEIS states that Alternatives II-IV may result in significant impacts to harlequin ducks, and the Department concurs with the conclusion (pages 4-116 and 4-117) that the loss of reproducing harlequins in the Rock Creek drainage, which represents 25 percent of the breeding population, would be extremely damaging to the viability of the Lower Clark Fork subpopulation. While the impacts of Alternative V may result in lesser impacts due to the mitigation plan, the FWS is particularly concerned about the possible permanent loss of harlequin ducks from Rock Creek and the associated impacts of any alternative to the harlequin duck population in Montana. The Department also is concerned about the noticeable absence of scientific information incorporated into the authors conjecture that this project "is not likely to adversely impact" harlequin ducks in Rock Creek.

The SDEIS states (page 4-114) that the location of sound, visual, and human traffic disturbances pose the greatest threat to nesting and rearing harlequin ducks in Rock Creek. The Department understands that the mitigation plan included with Alternative V was designed to address these disturbances and is intended to increase the reproductive success of harlequins in Rock Creek. However, the SDEIS suggests that insufficient streamflow also may be a factor (page 4-115) of the observed low reproductive success. If the limiting factor(s) to harlequin reproductive success are not known, the SDEIS should clearly state that.

The proposed timing restrictions on construction activities, along with the specific benefits they will achieve for harlequins, should be specifically stated in the SDEIS. It is not clear to the reader why visual and sound barriers during construction are important considerations if the construction period will occur outside the breeding (courtship through fledging) season for harlequin ducks. However, if the proposed timing restrictions are to allow for some construction activities during the breeding season, then the Department has the following concerns:

The SDEIS states that the "sound of one ore truck is not likely to be heard above the ambient creek noise" (page 4-114), yet the SDEIS does not discuss how the noise level of one ore truck compares to the expected noise levels during construction activities where several machines and people will be operating in concert with high traffic levels on the access roads. The FWS believes that heavy traffic and construction activities may exceed the sound levels generated by one haul truck. Therefore, the discussion should address construction and operational sound disturbances to harlequins, based upon the best available scientific information, in the context of the expected sound disturbances (decibels) and the likely impact the sound will have on nesting harlequins on a seasonal/yearly (low flow) basis. The sound analysis also should include considerations of the effects of ground vibrations caused by heavy equipment engaged in ground disturbing activities, blasting, and frequent haul truck traffic on harlequins because they are ground nesters.

On pages 4-114 and 4-115, the SDEIS also states, as the concluding remark about the influence of paste facility construction, that the "construction activities on the paste facility would eventually reach a point where a activity is no longer visible from the creek." This suggests that construction at the paste facility would no longer impact nesting harlequin ducks. Rather than concluding when the threat would diminish, the analysis of visual disturbances should center on timing, duration, and intensity of the construction activities that will pose a risk to the breeding success of harlequin ducks and the likely outcome of the exposure to construction disturbances at the paste facility. Again, the Department encourages that the conclusions be based upon the best available scientific information.

The Department believes the SDEIS should quantify sight distances and linear distances to each potential disturbance source from the reach(s) known to historically be used by harlequin ducks for nesting and rearing. This information will provide a better understanding to the reader to assess the risk of construction and operational impacts (bus, haul truck, etc.) to reproducing harlequins.

As part of the mitigation plan (page 4-115), the SDEIS proposes to impose a temporary closure area around . . . the upper bridge as a measure to reduce possible disturbance from foot traffic and dogs . . ." and construct an experimental screening device on the bridge to decrease the visibility and disturbance of vehicles on nesting harlequins. Yet, no information is reported to justify these measures and, in the absence of a scientifically sound

monitoring plan and clearly defined evaluation criteria, the FWS believes the cause of low nest success will continue to remain a mystery and possibly impose unnecessary restrictions on public access.

The SDEIS concludes (page 4-116) that flows in Rock Creek would not change to an extent that is likely to adversely impact harlequin ducks," but no evidence is provided to support this claim. The Department strongly recommends that the analysis that was performed that led to support this claim be displayed. At a minimum, the analysis should portray the existing (long-term) streamflow data and the anticipated effects from the project on streamflow (water budget) in Rock Creek so the conclusion can be supported by empirical data.

Finally, the Department strongly recommends that an analysis be conducted, using the best available science, on the short- and long-term effects of the reported 30 percent annual increase in sediments generated during the construction phase (Bull Trout Section, page 10) to the food resources required for breeding and rearing harlequins. The scientific literature is voluminous on the importance of sustained supplies of high energy food resources (invertebrates) to female waterfowl preparing for breeding and brood survival to fledging. The FWS believes that the amount and location of sediment producing activities associated with the project is important to analyze because of the potential that large sediment inputs to Rock Creek may dramatically diminish the availability of existing high energy food resources for reproducing harlequins.

The SDEIS correctly conveys the impression that any impact (even short-term) could lead to a long-term (permanent) loss of breeding harlequins in Rock Creek. However, the SDEIS also is clear that the tolerance for disturbance and the cause of low reproductive success is unknown. Given the projected timing of this project (implementation and life of mine), the Department strongly recommends the development of a long-term monitoring plan accompanied with a scientifically valid study of the harlequin subpopulation in the Lower Clark Fork drainage. The study should be specifically designed to explore and develop measures intended to enhance nest success under varying disturbance regimes to increase the long-term viability of the subpopulation.

Without an adequate study and monitoring plan, the Department finds it difficult to support restrictions on public access based upon conjecture and speculation for the life of the project (30 years) and simultaneously agree to much higher levels of noise and visual disturbances associated with the construction and operation of the mine during the breeding season. In the opinion of the Department, the mitigation plan should be designed with shorter term restrictions on public access and more restrictions on the construction and operational activities of the Rock Creek Project until more information is available from the study and monitoring plan. (S971)

Response: Paragraph 1. The best available information was used to determine the extent and type of impacts to harlequin ducks, including recent literature, ongoing research, consultation with harlequin duck experts, and site-specific monitoring. Some of these are listed in Chapter 3. The loss of harlequin ducks from Rock Creek was indeed a concern, and that is the reason design features and mitigation were incorporated to reduce the risk of the loss to a level considered acceptable. The rationale leading to the determination of effect of the project on harlequin ducks is detailed in Chapter 4, Alternative V.

Paragraph 2. While limiting factors to harlequins are not completely known, most can be surmised from available information. The text has been revised to include the factors that are listed in the Harlequin Duck Conservation Strategy.

Paragraphs 3. The limited operating seasons are designed to reduce or eliminate disturbance to nesting harlequins, as stated in the effects analysis. Some construction may occur if disturbance is mitigated through other means, such as sight barriers.

Paragraph 4. Additions to the text in the final EIS present information on noise disturbance to harlequins.

Paragraph 5. The statement you refer to has been clarified. During the time that the paste pile activities would cause visual disturbance to nesting harlequins, the activities would be restricted. Timing, duration, and intensity of disturbance were considered in the development of construction period restrictions.

Paragraph 6. A somewhat different approach than you suggest was taken to reduce disturbance effects. With quantified sight and linear distances would come the assumption that greater precision would produce greater protection, even though the number of variables in the analysis (such as vegetation density, creek gradient noise, etc.) would make precision difficult to come by. In the EIS, it was assumed that certain activities would cause disturbance because they are near important sections of the creek or because they occur during important periods in the harlequin's life cycle.

Paragraph 7. Disturbance, or reduced water flow, in the vicinity of the upper bridge are considered possible causes of lack of nesting success in that area based on several years of monitoring harlequins (J. Reichel, pers. comm. December 7, 1996a). Restrictions on direct mine-related disturbances are more controllable through mitigation or project design than are restrictions on public access. The area at the upper bridge is the area most heavily used by people walking the stream, so it is the best candidate for restriction on public use for maximum benefit to harlequins.

A monitoring plan is included as a requirement in the EIS, with evaluation criteria and trigger points for further action.

Paragraph 8. The analysis supporting the statement on water flow changing immeasurably was not included in the supplemental EIS. However, no water is proposed to be withdrawn from alluvium near Rock Creek; the make up water well would be located down by the Clark Fork River. It is also not anticipated that collection and discharge of ground water intercepted by the mine would have any affect on the flow in Rock Creek. Only a small portion of the Rock Creek orebody lies beneath the Rock Creek watershed and the water to be intercepted by the mine would move very slowly through the rocks and might take decades or centuries to reach surface waters. So it is not anticipated that the project would affect the flow of Rock Creek.

Paragraph 9. Sediment increases, and the resultant effects on macroinvertebrates as harlequin duck food, would be a major concern. The final EIS includes a sediment reduction plan that includes mitigation to reduce sediment sources from existing conditions prior to the onset of mine construction (Pers. comm. with S. Wegner, see hydrology section). With this mitigation in place, effects to macroinvertebrates from sedimentation should be lower than exist currently.

Paragraph 10. A harlequin duck monitoring plan is required to be developed and agreed to by the agencies. The Lower Clark Fork Subpopulation is one of the most studied subpopulations of harlequin ducks, monitored annually by the Montana Natural Heritage Program. The monitoring plan does not explore and develop measures intended to enhance success under varying disturbance regimes, but rather is designed to determine if the mitigation measures developed during project design work as intended, and if not, to develop alternative measures.

Paragraph 11. The restrictions on public access to the creek at the upper bridge is based on disturbance potential to brood-rearing harlequins along that reach of creek. Disturbance during construction has been eliminated by limited operating seasons, so no disturbance to breeding

harlequins is expected to occur from construction activities. Visual disturbances to breeding harlequins have been controlled by several design features, the most important of which is the closure of the most important brood-rearing section of stream along lower Rock Creek, providing greater security than harlequins currently enjoy. The analysis indicates that sources of disturbance to harlequins includes people walking along the stream. No amount of restrictions on construction and operation would reduce this source of disturbance. Information from the monitoring plan is intended to be used to determine if the public closure is warranted or effective.

15. Page 4-77, paragraph 4, line 2 - What "greater information" will be available for the FEIS? (S5)

Response: Additional information was under development, was expected, and became available since the draft and supplemental EISs were developed. These include continued monitoring and banding returns of harlequin ducks, and further research on the Kootenai National Forest lynx status.

16. Page 4-80, last paragraph - Indirect impacts to wildlife are once again inferred to result due to increased population. This is inconsistent with the conclusion that the project will result in lower population (4-127). Even in the short term, mine in-migration would only cause an increase equal to a few years equivalent population increase over projected growth. The FEIS should make this clear. (S5)

Response: Please refer to the corrected new graph in the EIS. One of the reasons that an increased rate of population growth is a greater impact to wildlife than a slower rate of growth is the reduction of options that additional planning can provide. This is further described in the no action alternative effects analysis in Chapter 4, Biodiversity.

17. Page 4-102, paragraph 5 - The implication that seasonal operating restrictions for the tailings impoundment within sight of the stream are being considered is very disturbing to Asarco. We are currently committed to seasonal haul of waste rock to the starter disk areas. Asarco will also enhance the visual screening of the operations as required. (S5)

Response: The only portions of the tailings paste facility with operating restrictions are those areas in line-of-sight to the creek. This is a relatively small area of the operating area.

18. Page 4-103, paragraph 3 - The possibility of seasonal closures during the already short construction season area is of great concern to Asarco. The 300 foot buffer zone between the road and the stream should be adequate to reduce visual and noise impacts. There is no evidence supplied to justify seasonal closure as a necessary mitigation measure. (S5)

Response: The seasonal closure is not imposed on Sterling activities but rather public use of the creek and campsite. A 300-foot buffer is an adequate distance for many activities along Rock Creek because of the density of the vegetation, but this does not preclude hikers from walking along the stream. The evidence to justify a closure to the public is described in Chapter 4 on the effects of disturbance on harlequin ducks.

19. Page 4-104, paragraph 1, line 2 - This discussion appears to confuse the term "hazardous materials" with the mill reagents discussed in the October 23 memo. This should be corrected throughout the entire section. (S5)

Response: The discussion has been clarified to indicate mill reagents where appropriate.

20. Page 4-104, paragraph 4 - The conclusion that all four streams must be maintained as breeding sites in order to maintain the lower Clark Fork harlequin population is not substantiated or documented. The discussion seems to ignore the fact that there are currently many years when ducks do not successfully reproduce on Rock Creek due to weather or other natural factors. (S5)

Response: There are still many unknowns in the management of subpopulations such as the Lower Clark Fork harlequins. Therefore, it is not possible to positively conclude that all streams are

necessary to maintain the subpopulation, or conversely, that they are not all needed. However, individual harlequin ducks interact between the streams, and it is many miles to the next nearest occupied stream. The effects analysis account refers to citations more fully detailing this effect. The latest monitoring report on ducks to the applicant, dated April 1998, reads, "Harlequin ducks, like many other birds with clumped distributional patterns, key in on areas with others of the same species present." (Hendricks and Reichel, Harlequin Duck Research and Monitoring in Montana: 1997) Thus, if it is a long distance to other occupied streams, and if individuals of the four streams interact, and if reproductive success is low and highly variable, then it follows that all four streams are necessary for the subpopulation to remain viable.

21. *Page 4-105, paragraph 2 - It is not clear what is meant by "If mitigation is not implemented as described..." There is discussion of possible seasonal operational limits on the tailings impoundment and "...land acquisition or easements proposed as mitigation for harlequin ducks..." (paragraph 5). This appears to be an attempt to precondition an as yet undefined mitigation package to include items that are not acceptable to Asarco. (S5)*

Page 4-105, paragraph 4 - Land acquisition for Harlequin duck mitigation has not been agreed to. (Asarco would like to discuss and finalize the mitigation plan as soon as possible). (S5)

Response: The mitigation plan in draft form has been defined and the outline is in Chapter 2, Alternative V description. The determination of effect that is rendered in this paragraph is based on the conditions noted, that is, that mitigation is implemented as described. If these conditions are not met, then the determination of effect is not valid. In this case, since negotiations are ongoing with regards to mitigation specifics, a final determination of effect will be made when a final mitigation plan is completed. That determination would be on file at agency offices after it was made. If the effect is greater than predicted in the final EIS, then additional MEPA/NEPA analysis would be required.

22. *The SEIS is basing its conclusions on impacts to wildlife on the assumption that worst case scenarios will never occur. Worst case scenarios should be analyzed and bonded for. (S6312)*

Response: Risk assessment involves not only determining the extent of the risk and its consequences, but the likelihood of their occurrence. For those scenarios which have an extreme consequence, or a high likelihood of occurrence, mitigation is proposed to reduce impacts.

23. *Action Alternative IV was predicted to have significant short and long term impacts for harlequin ducks on Rock Creek and for the lower Rock Creek subpopulation. Alternative V is not predicted to have a significant adverse impact on harlequin ducks because it is assumed that the proposed mitigations will adequately reduce impacts. It is further assumed that such mitigations will be carried out. Although the proposed mitigations may reduce impacts, the presence of an industrial complex in the Rock Creek drainage will likely result in loss of the harlequin duck subpopulation in Rock Creek. This species is known to be intolerant of human disturbance. Can the agencies cite an example of harlequin ducks successfully breeding next to an industrial complex with a similar level of disturbance? (S6312)*

Response: Some assumptions have been made that mitigation would be effective, and where that is less clear the effects analysis states so. Monitoring is designed to determine the effectiveness of the mitigation. It is assumed that mitigations will be carried out. If this was not assumed, then there would be no purpose to planning mitigation of any kind.

The authors are unaware of any example of harlequin ducks successfully (or unsuccessfully) breeding next to an industrial complex. However, harlequin ducks are known to breed on rivers with adjacent major highways such as the Lochsa River in Idaho, and on streams with railroad traffic such

as the Bull River in Alberta (pers. comm. B. MacCullum, with Sandy Jacobson, USFS, July 9, 1998). The effects analysis in Chapter 4 indicates that disturbance along the road is an important factor, so these examples of greater disturbance than expected along Rock Creek should be helpful in comparing disturbance potential. The effects analysis also describes other factors such as human presence along the creek as disturbance. Please refer to Chapter 4, Biodiversity section.

24. *The action alternatives call for paving FDR No. 150, building or reconstructing bridges, and a new paved road on the east side of Rock Creek. Road and bridge construction would require the use of heavy equipment and possible blasting, causing disturbance in the vicinity of Rock Creek. Mitigations proposed in the SEIS include restriction of waste rock hauling from adits to the tailings paste facility. On page 2-50, it is stated that hauling will be restricted in May, June, July, and the first half of August, while on page 2-58 it is stated that hauling will be restricted in April, May, June, and July. Which time frame is correct? Does the restriction represent a total cessation of hauling activity? How will this be enforced? (S6312)*

Response: The limited operating season would be from August 1 through March 31, and the final EIS has been changed to reflect this. Only activities that are considered to be a disturbance to harlequin ducks during the sensitive breeding period would be restricted. Biologists would be consulted at the time for any needed refinements but the activities currently expected to cause unacceptable disturbance would be included in the limited operating season. The Forest Service would be responsible for ensuring compliance with the restrictions.

25. *Page 4-103, paragraph 3 states that a limited operating season would be imposed on those activities that have the potential to disturb nesting harlequins including road and bridge construction and repair, pipeline and powerline construction, hauling of waste rock, and construction of the paste facility and spill contingency pond. This implies that no construction or hauling activities would occur during the breeding season (see above question regarding time frame). Is that correct? Figure 2-5 shows construction activities occurring at all times of the year. Why the inconsistency? Would this provision be enforced? These mitigations should become conditions of an operating permit if one is issued. (S6312)*

Response: Some limited activities may still be permitted if it is determined on a case by case basis by a wildlife biologist that no disturbance would occur to breeding harlequins. The intent is to identify and control ahead of time those activities now considered to be potentially disturbing to nesting harlequins, not to restrict all activities. The requirements placed on Sterling would be enforced, and would become part of the operating permit.

26. *Traffic on FDR No. 150 will increase dramatically over current levels. What will traffic levels be during the construction and operating phases of the mine? Page 2-71 states that ASARCO must submit a traffic plan which would include busing employees between the waste water treatment plant, the mill, and mine. Page 4-103 states that busing employees will reduce disturbance by a considerable amount compared to other alternatives, but that the paving of FDR No. 150 would enable an increased number of recreational visitors to access the road and creek. What is the projected increase in recreational use? (S6312)*

Response: Please see the Transportation section of Chapter 4. An analysis done for recreation effects on grizzly bears in the Cabinet Mountain Wilderness for this project estimated the increase to be 31% over existing condition (W. Johnson 1998). Not all of these users would be interested in stopping along the creek, but certainly some would do so. The most important reaches of the creek for breeding harlequins are protected from the majority of the increased use by design features or mitigation items, including gating FDR No. 150B and an area closure at the upper bridge.

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27. On page 4-103 a proposal to close off the upper bridge during breeding season is discussed as a measure to reduce foot traffic and dogs along the creek. While this measure may help, it is noted on page 2-78 that angling pressure in Rock Creek and its tributaries would likely increase due to improved access and use. There is nothing that will prevent anglers from traversing upstream, except to close the area to fishing during harlequin breeding season, a measure that would likely be unpopular. (S6312)

Response: Topography in some of the most important areas for harlequins limits access by anglers. This would not change with the project. Fishing is not very common on Rock Creek because the fishing is not high quality, and that is unlikely to change. Anglers would probably continue to try to fish the area but minimal success would reduce repeat visits. A closure on the area for fishing would be unpopular. A proposal to delay the opening of fishing season on several streams with breeding harlequins was considered by the Agencies but must be agreed to by the Department of Fish, Wildlife, and Parks before implementation; therefore, this mitigation was not included in the final EIS.

28. The SEIS discusses impacts from spills of toxic materials and then dismisses them based on partial closure of FDR 150B (page 4-103) and a memo from Doug Parker of ASARCO (page 4-104). Over the life of the mine, spills of toxic material (or intentional dumping of those materials) will occur. Spills of toxic materials into a neighboring creek (Lake Creek) has occurred at ASARCO's Troy facility. In addition, the tailings line ruptured at this facility. Toxic spills could result in direct or indirect poisoning of the birds or a loss of their food base. The occurrence of spills, as well as the periodic releases of storm water which will occur, should be taken into account. A die off of macroinvertebrates for even a short time during the breeding season could result in unsuccessful breeding by harlequins. Also, an analysis of the worst case scenario -tailings impoundment collapse and movement of tailings into Rock Creek should be done. (S6312)

Response: Toxic spills are identified in Chapter 4 as being a serious concern in the worst case scenario, along with the possible consequences of a worst case situation to harlequin ducks. Storm water is contained within the mining compound, up to a 100-year, 24-hour storm event, so the high water is likely to be a greater threat to harlequins than the mine site runoff would be should it discharge into Rock Creek. A short-term macroinvertebrate dieoff would be serious to at least one year's productivity, as also was noted in the Chapter 4 analysis. The possibility of the worst case scenario of a collapse of the tailings facility is included in the Geotechnical Engineering and Hydrology sections of Chapter 4. Catastrophic failure is considered unlikely under all action alternatives, least of all under Alternative V (see Hydrology, and Geotechnical Engineering, Chapter 4), with highly variable environmental consequences depending on numerous factors of when, where, how, and what. The benefits of the tailings paste facility over a tailings impoundment reducing the likelihood and serious consequences of failure, particularly to Rock Creek and harlequins, was a driving factor for development of Alternative V.

29. Construction and operation of the mine, mill, paste plant, and other facilities associated with the Asarco project will convert the Rock Creek Drainage and surrounding area into a major industrial complex with increased traffic. Harlequin ducks are not known to occur in this habitat, and the proposed mitigation measures are not likely to preclude the trend toward listing for the subpopulation of harlequins found in the Rock Creek drainage. Furthermore, harlequins require streams with high water quality, and the water quality of Rock Creek will be negatively impacted. The conclusion that Alternative V is not likely to adversely impact harlequin ducks or their habitat in the short or long term cannot be made with any degree of confidence. (S6312)

Response: Increased traffic would occur over most of FDR No. 150. Significantly for harlequin ducks, FDR No. 150B would be closed to traffic, thereby reducing the level of disturbance to lower than existing condition in the reach of Rock Creek most important to harlequin duck nesting success. The other design features of Alternative V and the mitigation package were determined by professional wildlife biologists to be adequate to preclude a trend towards listing. Change in water

quality in Rock Creek was determined by the hydrologic analysis in Chapter 4 to be unmeasurable as there would be no direct discharge to or withdrawals from Rock Creek.

30. *On page 2-121 it is stated that all action alternatives would impact the fisher but not trend the species towards federal listing. Camera sets have revealed unmarked fishers in the area, but because the status of fishers in the Cabinet Mountains is unknown, it is impossible to determine what impacts habitat loss, reduced fecundity, and increased mortality would have on the population as a whole. What are the agencies basing their conclusion that the project would "not trend the species toward federal listing" on? Mitigation features are referred to for Alternative V, but not given in detail. On page 2-78, there is mention of securing private habitat for fisher. How much habitat would need to be acquired to replace lost habitat? Is enough suitable habitat available?*

The proposed project would likely result in increased mortality from road kill and trapping. The project would result in habitat degradation and loss and the disruption of travel corridors. Cumulative impacts from the Montanore mine and other activities would further impact fishers. (S6312)

Response: It is possible to estimate the impacts resulting from the effects you list would have on the population as a whole. One method was the analysis done on fisher habitat on the planning unit, that is, the entire Kootenai National Forest. The basis for the determination of effect can be found in Chapter 4, Biodiversity.

Mitigation for the fisher is combined with mitigation for grizzly bears because the effects to fisher are considered minimal. As explained in Chapter 4, habitat is probably not limiting fishers at this time, given the large amount available in the planning area, so mitigation would be a bonus of securing habitat over the long term rather than increasing available habitat.

Vehicle mortality has not been an important source of mortality for fishers in Montana (pers. comm. H. Nyberg, FWP, with Sandy Jacobson, USFS, October 8, 1997), but placing animal-friendly crossings along FDR No. 150 may further reduce this risk. Trapping and the other effects you note are also discussed in Chapter 4.

31. *As with the fisher, there are insufficient data available on the population of wolverine in the Cabinets. Wolverines have a large home range, and males may defend an area as large as 400 square miles. Given the size of their home range and solitary nature they were probably never numerous in the Cabinets. Are historical numbers available? What levels of harvest have wolverines in the Cabinet Ecosystem been subjected to? (S6312)*

Response: As with fisher, wolverine habitat was analyzed over the planning area (the Kootenai National Forest). Population numbers for wolverine are difficult to ascertain under the best of circumstances, although some historic trapping information is available. Since 1975, one wolverine has been harvested from the Cabinet Mountains, near Libby in 1995 (pers. comm. Brian Giddings, FWP, with Sandy Jacobson, USFS, November 4, 1998).

32. *The proposed project would likely result in increased mortality from road kill and trapping. Loss of even one individual could be deleterious to this small population of animals. The project would result in habitat degradation and loss and the disruption of travel corridors. Cumulative impacts from the Montanore mine and other activities would further impact wolverines. On page 4-90, it is stated that increased human development in the Bull River and Clark Fork valleys may cause a more important impediment to wolverine movement. In what context is this statement being made? Is it alerting the reader to additional cumulative impacts to wolverines or is it an attempt to dismiss the potential impacts from the project because there may be greater impacts from other activities? What, if any, mitigations are specifically proposed for wolverine? Page 2-78 mentions road closures, but provides no specifics. (S6312)*

Response: The effects you note are disclosed in the effects analysis for wolverine, however, the analysis considered the *risk* of mortality to increase, which is not the same as concluding that the project would *likely result* in increased mortality. The loss of one individual being deleterious to the population of wolverines is not supported by Montana Fish, Wildlife, and Park's trapping data.

The statement you refer to on page 4-90 of the supplemental EIS is an attempt to put the project's effects in relative terms; that is, increased human development is the greater impact.

Mitigation is combined with road closures for grizzly bear. Specifics on this mitigation depend on the negotiations for grizzly bear mitigation and would not be listed until that was complete. Some mitigation items are considered protected under the Freedom of Information Act and not currently available for public review because the selection of actual mitigation lands from the list of potential sites is pre-decisional.

33. A statement is made on page 4-77 that impacts to lynx, fisher, and wolverine have been determined to be much lower than expected when the DEIS was written under alternatives II through IV, and that Alternative V would further reduce impacts. The former seems to be based on a conclusion by the Forest Service that there is more habitat available than was previously thought. What is this conclusion based on? How much more habitat is there than previously estimated? Where are the old and new numbers? If there is so much new information available, why wasn't a revised Biological Evaluation done for sensitive species? The claim that Alternative V would further reduce impacts seems to be relying heavily on the busing of employees to reduce disturbance and mortality, partial temporary road closures, and the attainment of suitable habitat off site. How will these mitigations be monitored and enforced? Who will pay for the mitigations? (S6312)

Response: This conclusion was based on a better understanding of available habitat. As stated in Chapter 3, Biodiversity and Threatened and Endangered Species, considerable new information became available on the three species because of a Kootenai National Forest-wide habitat assessment. This information and other information listed in that section was also used to update the analysis. Habitat was not quantitatively estimated for the draft EIS, but based on the draft biological evaluation, one of the major concerns noted was limited and diminishing habitat. The habitat analyses were initiated partially due to the lack of quantitative data.

The elements of a new biological evaluation were included in the supplemental and are included in the final EIS, including consideration of the new information and determinations of effect for all sensitive species. The information on the lynx has been incorporated into the Biological Assessment in Appendix B. The determinations of effect are based on several factors, including those you list, and are noted in Chapter 4 for each species. Some of the factors are design features of Alternative V and can be found in various appropriate sections of the document.

Sterling would be responsible for funding monitoring and mitigation, unless otherwise noted, as detailed in the monitoring or mitigation plans.

34. The agencies have created a new alternative, Alternative V, with some mitigations involving temporary partial road closures and a proposal to bus employees. While busing of employees is certainly preferable to having each individual mine worker drive his/her vehicle, there is still going to be heavy traffic on FDR No. 150, a road that previously has seen little use and that use has been largely used on a seasonal basis only. The threatened and sensitive species of concern will not fare well in habitat in or near an industrial complex that is subject to heavy traffic, high human densities, constant light, and noise.

The cumulative impacts of this mine, the Montanore mine, and the other proposed activities in the east Cabinets likely will drive out individuals that will have no suitable habitat to occupy, resulting in mortality of these individuals and the loss of their reproductive potential. There will not be enough suitable habitat available for mitigation. Much of the potentially suitable habitat in the Bull River Valley has already been acquired to mitigate for other projects. Even if there were habitat available nearby that was suitable for the species of concern, one cannot assume that this habitat would not be saturated with occupied territories. Displaced individuals probably die or rarely are able to drive out territorial occupants who are then displaced. The bottom line is that the ASARCO Rock Creek project would result in the loss of individuals and populations from the area. (S6312)

Response: The disturbance and displacement factors that you note are disclosed in the effects analysis in Chapter 4. Cumulative effects, including those species affected by the Montanore mine, was described in Chapter 4 at the end of each resource section. The Bull River Valley is not the only available location for mitigation lands, however, land available for mitigation is diminishing over time. This factor is noted in the effects of the No Action alternative. There would likely be a loss of some individuals of some species with the habitat loss associated with the mine; this effect is disclosed for several species or groups of species in the effects analysis of Chapter 4.

35. *Page 2-52: the last phrase on page is meaningless; please replace with statement about how much harlequin duck habitat will likely be affected. (S3462)*

Response: No harlequin duck habitat is directly affected by the plant location. The visibility of the plant is the concern, and to minimize this would be best done on site by managing microsite and vegetation characteristics.

36. *Page 2-121. "The most significant impact would be to harlequin ducks in Alternatives II, III, and IV, where the alternatives were determined to trend the species towards federal listing under the Endangered Species Act. Alternative V incorporates adequate mitigation to prevent or avoid impacts such that this trend would not be expected to occur." According to whom? According to what data? (S3462)*

Response: Your quote is a summary of the effects analysis in Chapter 4 which includes several pages of detailed analysis. The effects analysis and determination were done by professional wildlife biologists working closely with acknowledged harlequin duck experts to identify effects and to develop solutions.

37. *Page 2-121. "Lack of available suitable habitat does not appear to be limiting to fishers." This sentence doesn't make sense. Is it just poor writing? Do you mean "A decrease in available suitable habitat?" How could a lack of suitable habitat not limit any species? (S3462)*

Response: The sentence is rephrased to clarify that there is more habitat available than there are individual animals to occupy it. Another way of saying this is that the area is apparently below carrying capacity for fishers. It is not uncommon to have wildlife species limited in population size by something other than habitat availability, although certainly that is probably the most widespread reason for reduced wildlife populations. In the case of fishers, overtrapping along with habitat removal is likely the cause for many extirpated populations (Powell and Zielinski 1994).

38. *DEIS page 2-117/SDEIS page 2-105. Issue 2, 3rd bullet: This entire bullet is new to the SDEIS. In DEIS it read: "sensitive animal species (harlequin duck, lynx, fisher, and wolverine) due to loss, degradation and fragmentation of habitat (all action alternatives)" It now reads: "harlequin ducks due to disturbance, habitat alteration, and increased mortality risk (alternatives II-IV)" According to the errata sheet it should read: "sensitive animal species (harlequin duck, lynx, fisher, and wolverine) due to loss, degradation and fragmentation of habitat, increased mortality risks, and population reduction (all action alternatives)" (S3462)*

Response: The errata sheet refers only to items in the draft EIS. Some of these items, such as the one you mention, have been updated to incorporate new data.

39. DEIS page 4-83/SDEIS page 4-77, 4th full paragraph. The first two sentences in the SDEIS are slightly different than they were in the DEIS. The errata sheet recommended that the first two sentences be deleted. In the DEIS they read: "The analysis of sensitive animal species is based on limited information. Additional studies are ongoing or would be started, with information being available for the final EIS." In the SDEIS they now read: "The analysis of sensitive animal species in the draft EIS was based on limited information. Additional studies were completed or started after the draft EIS." (S3462)

Response: That is correct. Additional information became available as the Kootenai National Forest completed a forestwide habitat analysis for fisher, lynx, and wolverine, and the analyses were revised accordingly.

40. DEIS page 4-89, 2nd and 3rd full paragraphs. This section has been completely rewritten for the SDEIS. Where is the specific material that is mentioned in the errata sheet? (S3462)

Response: The errata sheet refers only to material in the draft EIS. As additional information became available and was incorporated into the analysis, the errata items frequently became irrelevant or incorrect.

41. DEIS page 4-91/SDEIS page 4-88, 3rd paragraph. The DEIS reads: "While fishers have demonstrated tolerance to moderate degrees of human activity (Heinemeyer and Jones, 1994), the proposed project would cause high levels of human activity. As a result, fishers could be displaced out of Rock Creek drainage and/or suffer high stress levels. At least one of the remaining radio-fitted fishers uses the proposed project area as part of her home range. At a minimum, the proposed project would likely displace this female in all or part of her home range and may disrupt reproduction success."

The correction was to replace the first sentence of the above paragraph with the following sentence: "The proposed project would increase mortality potential if direct or incidental trapping increased as a result of mine-related human population growth (see Recreation)."

The SDEIS reads: "Fishers have demonstrated tolerance to moderate degrees of human activity (Heinemeyer and Jones 1994); however, Alternative II would cause high levels of human activity. As a result, fishers could be displaced out of Rock Creek drainage and/or suffer high stress levels that could result in reduced reproductive success." (S3462)

Response: The supplemental EIS represented the author's best professional judgement of the situation and used all data and information available at the time. Please read the entire updated section on fisher in the final EIS.

42. DEIS page 4-91/SDEIS page 4-88, 4th paragraph. The DEIS reads: "Should fishers successfully relocate elsewhere during mine life, they may not re-establish in Rock Creek drainage after mine closure due to reduced habitat quality and expected low fisher population numbers." The errata sheet reads: Insert the phrase "portions of" before the phrase "Rock Creek drainage."

The SDEIS has been completely rewritten and now reads: "If fishers were to be displaced from the Rock Creek drainage, they would probably re-establish after mine closure because suitable habitat is widespread around the Rock Creek vicinity and adequate fisher habitat would remain in the drainage." (S3462)

Response: The supplemental EIS was based on a much better understanding of the amount and distribution of habitat available in Rock Creek and on the Kootenai National Forest, as noted in the introduction to fisher in Chapter 3. This understanding is based on the availability and use of additional data.

43. DEIS page 4-91/SDEIS page 4-88, paragraph 6. The DEIS reads: "Impacts to the fisher under Alternative II could be potentially significant." The errata sheet reads: Replace the entire paragraph with the following paragraph: "The proposed project would eliminate and degrade critical fisher habitat (such as old growth), and increase human disturbance and mortality risks. This would result in much of Rock Creek drainage becoming a less or an unsuitable place for fishers to live. The effects of the proposed project on fisher populations and recovery in the Cabinet Mountains is discussed in context of cumulative effects at the end of this Biodiversity section."

The SDEIS reads: "Alternative II would reduce fisher habitat, increase human disturbance, and increase mortality risks. Alternative II may impact individual fishers, but would not trend the species towards federal listing under the Endangered Species Act." (S3462)

Response: Terminology in the supplemental and final EISs conforms to Forest Service Manual direction on determination of effects.

44. DEIS page 4-92/SDEIS page 4-89. The information on the wolverine has been rewritten for the SDEIS. The specific wording corrections that were made in the errata sheet were not included in this rewrite. Most notably, "incidental trapping" still appears in the section. (S3462)

Response: As noted in Chapter 3 of the supplemental EIS, much new information was available for wolverine analysis. As the analysis was updated, some sections were completely rewritten to more accurately reflect the new data.

45. The mitigation for fisher and lynx habitat loss is equally weak. There is vague reference to "securing of private land habitat for fisher and lynx." (SEIS, page 2-78). This leaves many key questions unanswered! Is this private land currently prime fisher and lynx habitat? Have there been documented cases of fisher and lynx living on this private land? What is the selection process for the purchase of this land? Is it economically based (purchasing the cheapest forested land that can be found) or is it ecologically based (purchasing prime habitat)? The public deserves to know the answers to these questions. Frankly, it is hard to believe that the "securing" of any fragmented private tracts will come near to the value of protecting land adjacent to a Wilderness Area. The same is true for grizzly bear habitat. (S6332)

Response: Mitigation for fisher and lynx are minimal because the loss of their preferred habitat in Alternative V is minimal. Fisher and lynx would benefit from the mitigation for grizzly bears involving replacement habitat. Specifics on this mitigation depend upon the negotiations for grizzly bear mitigation and would not be listed until that was complete. Some mitigation items are considered protected under the Freedom of Information Act and not currently available for public review because the selection of actual lands from the list of potential sites is pre-decisional. The value of the land would be based on how well the site meets the mitigation for which it was intended. For lynx, fisher, and grizzly bear, lower and more productive lands were historically very important habitats before human development. Many wilderness areas do not provide as good quality habitat, except for solitude, as the lower elevation sites. Rugged rock and talus produce little to eat.

46. Page S-18 5th paragraph "All action alternatives ... significant to less than significant ... in the short or long term". Where have ASARCO/USFS/MDEQ determined that significant impacts will not cause a potential [ESA] listing of some USFS sensitive species? Where have "significant" and "less than significant" been defined? In the "short or long-term" - how is this defined and how is ASARCO prepared to deal with this "impact analysis"?(S4832)(S4833)

Response: "Significant" and other terms are from the National and Montana Environmental Policy Acts, and are summarized in the introduction to Chapter 4. The determination of effects, including whether the impacts would trend towards listing under the Endangered Species Act are in each sensitive species' section of Chapter 4. Depending on the impact, design features were incorporated

into Alternative V, or a mitigation plan was developed, to avoid increasing the possibility that any sensitive species would be listed. Sterling would be responsible for its share of these costs.

47. *What is the basis that Alternative I (no action) could have a significant impact on harlequin ducks? Please provide data or an argument thereto. (S4832)(S4833)*

Response: The no action alternative would not necessarily have a significant impact on harlequins, and this is clearly stated in the Chapter 4 effects analysis for sensitive species. However, some important changes to existing conditions could occur if the mine is not approved and some of these situations, such as homesite development near Rock Creek would have potentially significant effects on harlequin ducks. These are listed, along with the argument thereto, in the same section of Chapter 4.

48. *"Indirect effects ... from human development ... would be the most significant unavoidable impacts to most species considered". Which species? Why would slow human development in the area (under no action alternative) produce significant impacts to sensitive species? Any private logging on FS lands should require a sensitive plant survey. Most likely the FS would require some sort of mitigation (via avoidance to the species). Is the FS requiring mitigation for loss of FS sensitive species for this project? If so where is it contained in this SDEIS? (S4832)(S4833)*

Response: All of the wildlife species considered in the effects analysis, whether listed by individual species or groups, would be affected by increased human development. Slow human development in the area would have the same effect as rapid development, except that rapid development would have a reduced time period to recognize and possibly avoid some conflicts. The key term is "possible" because it is rare that growing communities actually have a track record of planning growth to preclude impacts to wildlife such as those listed in Chapter 4. Some impacts are independent of time, and have more to do with choices people make. Some of these are the choices to have livestock or dogs and cats, all of which have major implications to local wildlife.

The Forest Service is mandated to conduct sensitive plant surveys on Forest Service land regardless of who conducts the logging activities. The Forest Service does require mitigation for the loss of sensitive plant species. The discussion of sensitive plant species is found in the Plant Species of Special Concern section in the Biodiversity section of the final EIS.

49. *The last "partial" paragraph: Clarify which mitigation measures Alt V proposed to NOT trend the species towards listing. Where is this stated? ASARCO admits direct and indirect impacts to harlequins - how does this relate to potential "trend to listing"? USFS response needed. (S4832)(S4833)*

Response: Mitigation measures are listed in Chapter 2. Direct and/or indirect impacts to a species or individuals may occur without resulting in a trend towards federal listing of a species. In this case, the conclusion that a trend towards federal listing would or would not occur was based on whether a reduction in range of the harlequin duck would occur for any of the alternatives. With design features and mitigation measures in place under Alternative V, it was determined to be unlikely that a reduction in range would occur as a result of the project.

50. Page S-19 "This level of ... is considered extremely remote." Citation please - have surveys been completed? Where are they in the SDEIS? (S4832)(S4833)

Page 2-122 3rd paragraph "This level of mortality risk ..." Have studies been made to assess if CDA salamander is there? (S4832)(S4833)

Response: "Mortality risk" refers to the risk associated with death on FDR No. 150, in this case. The consideration is from the wildlife biologists working on the project's assessment that vehicle mortality would not be a significant source of mortality for this species provided suitable habitat was present. Baseline surveys were conducted (Farmer and Heath 1987) but no Coeur d'Alene salamanders were recorded in the area. This document is part of the project file at agency offices.

51. Page 2-120 last paragraph "Lack of available suitable habitat does not appear to be limiting to fishers." So there's no need for suitable habitat? Rephrase. "All action alternatives were determined to potentially impact individuals but not trend the species towards federal listing ..." Have cumulative impacts been discussed? Noranda's proposal? Activities in Troy Mine area? On-going logging? Dam re-licensing. ICBEMP? (S4832)(S4833)

Response: Recovery of fishers does not appear to be limited by habitat. In other words, there is more suitable habitat available than individual animals to occupy it fully. The wording has been changed to clarify the meaning.

Cumulative effects including those mentioned were considered for the species analyzed, and the effects analysis is in Chapter 4. Those projects considered to have cumulative effects on the species analyzed are included in the cumulative effects section. Cumulative impacts were considered in the determination of effects for each sensitive species, and noted if it was pertinent.

BIO-403 Management Indicator Species

1. *It is home to a 114 head herd of elk, who use it for calving grounds, along with summer and winter range, that could be displaced for 35 years. The EIS needs to justify the loss of elk winter range. (S3293) (S6613)*

Response: The effects to the elk herd in the project area is disclosed in the effects analysis, Chapter 4. The term “decrease in effectiveness” refers in part to the topic that you mention, i.e., that elk would be displaced. The justification of this loss would be part of the rationale for the decision when a decision is made. Such a rationale would likely be based on the legal factors discussed in Chapter 1, Purpose and Need.

2. *Justify the potential loss of mountain goats, an indicator species, and what this indicates for the Rock Creek ecosystem. (F1)(S4364)(S4393)(S4891)(S4912) (S5051)(S5088) (S5555) (S5763)*

Response: Mountain goats are an indicator of alpine habitat. It would follow that if the health of the alpine habitat (at least for mountain goats) was reduced then the mountain goat herd would be significantly impacted.

3. *I want proof that this will not risk the extinction of the mountain goat and local elk herds. (S4431)*

Response: Extinction refers to the species as a whole. Both mountain goats and elk are common animals globally, and are in no danger of extinction either from the effects of the project or cumulatively. The risk of local extirpation would more likely be a localized result. However, Chapter 4 documents there would be some impacts to both species but does not predict any localized extinction or “extirpation.” Please refer to this analysis. “Proof” that extirpation would not occur would be impossible to secure, but the professional wildlife biologists analyzing the effects did not foresee this as a likely result.

4. *I cannot see how the mine and it's associated exhaust vents will cause anything but harm to the goats and sheep. (S5122)*

Response: The effects of both the mine and the ventilation adit on mountain goats are disclosed in Chapter 4, Biodiversity. Bighorn sheep were not identified as an issue for the mine project.

5. *The project does not adequately address the loss of mountain goats. (S5777)*

Response: The effects analysis addresses the effects of the project on mountain goats. The analysis is designed to provide the public and decision-maker with adequate information to make an informed decision. The most important factors influencing the decision are included in the analysis. Other issues, particularly the impact of the mine on grizzly bears, are considered more overriding than the effects on mountain goats.

6. *Page 2-123, paragraph 4 - The discussion on mountain goats here and elsewhere in the document speculates about “potential” impacts that “could” affect goats. However, there is no documentation, data or backup for this speculation. Asarco's experience at the Troy mine and observations of goats at Glacier National Park indicate that these animals are not necessarily impacted by disturbance such as a mine. (S5)*

Response: In addition to the citations noted in the mountain goat account in the effects analysis, there is site-specific evidence that mountain goats were displaced during the exploration for the current project. Mountain goats did not return to stable numbers until recently (see Chapter 3, Biodiversity, in the EIS). As noted in Chapter 4, Biodiversity, some goats do habituate to human presence, including noise, but caution must be used when comparing a non-hunted goat population such as occurs at a national park, with a hunted population in the Cabinets. There is no “proof” that the mine would cause impacts, in the same way that there is no “proof” that there would be no

impacts. The analysis assumes that some of the same effects that have been shown in other similar situations would result in similar results for this project.

7. *Page 4-107, paragraph 3 - The conclusion that Asarco should be required to do mitigation for legal harvest of mountain goats is not appropriate. The "increased legal harvest" is apparently predicted based on the untenable indirect impact/population effect previously discussed. This section should be revised. (S5)*

Response: In the author's professional opinion, as well as those familiar with the area and with mountain goat management (cited in the effects analysis), an increased legal harvest is one of the likely effects of both the increase in human population as a result of the mine, and the improved road into mountain goat habitat. If this is the case, then it is reasonable for Sterling to share in the mitigation, along with the state agencies whose responsibility it is to manage harvest levels. However, the Montana Department of Fish, Wildlife, and Parks would only be able to authorize this enforcement position if the state legislature approved additional full time equivalent positions, or the agency had an authorized but unfilled slot available.

8. *In order to adequately assess the proposal's impacts on big game populations, the Forest Service must: collect baseline data on current mountain goat and mule deer populations, identify specific elk calving grounds, identify goat kidding grounds and mineral licks within the proposed project area, analyze the effect of increased road density and resulting fragmentation of big game habitat, analyze the potential effect on big game populations of year-round, increased access and possible over harvest, analyze the proposal's impacts on security, calving and kidding areas, analyze the proposal's impacts on seasonal use of habitat, since operations would occur year round. (S161)*

Response: Baseline data was collected for mountain goat populations (estimates of population size), and it is collected biennially by the Montana Department of Fish, Wildlife, and Parks (FWP). It is also part of the mitigation package to monitor mountain goat populations more closely than is currently being done. The most important use areas for goats were identified and considered as part of the effects analysis in Chapter 4. Some of this is documented in Chapter 3, Biodiversity, and some is background information from consultation with local FWP personnel familiar with the history and habitat use by goats in the vicinity.

Mule deer population data was not considered an issue in the EIS based on the known use areas, particularly winter range. Elk calving grounds were not specifically identified, but were not considered to be a major issue, partly because other mitigation for grizzly bears would cover some of the concerns for elk habitat as well.

The effects of the increased road density and fragmentation were noted in the wildlife in general and elk sections in the effects analysis. The year-round access was noted as an impact, particularly in regards to increased access and overharvest for mountain goats. Monitoring and mitigation were identified to address these concerns. While the concern was primarily noted for mountain goats, one of the mitigation features, an increased law enforcement presence for wildlife, is appropriate to address the concerns for other species as well.

The project's effects on big game security is analogous to security needs for grizzly bears. This issue is addressed in detail in the grizzly bear account in Chapter 4, Threatened and Endangered Species and the Biological Assessment (see Appendix B). The mitigation designed for grizzly bears would also mitigate some of the concerns for big game as well, as noted in Chapter 4 of the EIS.

The project's effects on seasonal habitat has been noted in several of the big game sections in Chapter 4. Refer to the discussions on mountain goat, mule deer, white-tailed deer, elk, and moose.

9. *The Forest Service is required to monitor and manage its indicator species, such as mountain goat. How accurate are current estimates of the goat population? What type of monitoring is presently done by the Forest Service? Does it rely solely on periodic flyovers by MFWP?*

The project may result in an increased mortality of goats from hunting and poaching due to increased use of the area. Goats will largely be impacted by disturbance of their habitat, resulting in indirect and cumulative impacts. How will these impacts to the goat population be mitigated? On page 4-107 it is stated that ASARCO will fund increased monitoring of goat numbers, and that if problems are seen, hunting restrictions or other stop-gap measures may be required. What if disturbance is the main problem, causing the goats to abandon the area? On page 3-65 it is noted that goat use of St. Paul and Chicago Peaks was much reduced during mineral exploration activities. Would the operation of the mine be altered if goats are being impacted enough to leave the area? (S6312)

Response: The primary monitoring effort for mountain goats is a biennial flight by the Montana Department of Fish, Wildlife, and Parks. The Forest Service also keeps an atlas of incidental sightings which is useful for information on kidding areas and licks, and high use areas.

The impacts you mention are noted in the EIS, however, the wildlife biologists analyzing the effects disagree that disturbance from the mine operation is the main impact. The mitigation plan is designed to address the primary issues. If abandonment occurred, this would be detected with increased monitoring. The results of the monitoring would enable decisions to be made to correct the situation. Some aspects of mine operation would potentially be open to alteration in the event of goats being impacted more than expected, but the intent of the EIS and mitigation is to identify primary impacts and solutions prior to this occurrence.

10. *Loss of OG forest habitat or mature forest habitat would impact the Pileated Woodpecker. Fragmentation is especially problematic for this species given their relatively large territory size. Pileated Woodpeckers show high nest and roosting tree fidelity which may indicate that suitable snags are a limiting factor for them. What are current snag densities on the Kootenai National Forest? How much suitable habitat would be lost -OG and mature forest? How many snags would be lost? How many pairs of Pileated Woodpeckers are found in the project area? Will any monitoring of population size be required? What mitigation measures, if any, are planned? (S6312)*

Response: The loss of old growth habitat and its effect on pileated woodpeckers was noted in the effects analysis for Alternatives II, III, and IV. However, the loss of old growth is essentially zero, particularly if "effectiveness" is considered, for Alternative V (see Chapter 4). This means that for pileated woodpeckers their preferred habitat is essentially unchanged from existing conditions. Pileated woodpeckers also use mature forest, which comprises up to 85% of Compartment 711. Although it is unknown how many snags would be lost in the habitat removed for mill facilities, it can be assumed that snag habitat on all 480 acres lost in Alternative V would no longer be suitable for snag dependent species.

The number of pileated woodpeckers in the project area is not known, nor is it data that warrants the great expense of acquisition. The assumption is that if habitat needs are met, insofar as they are known from research, then populations will follow. By the same token, the wildlife biologists working on the project do not consider monitoring of populations, or mitigation, warranted because of the lack of impacts expected to this species. A Forest Service region-wide long-term bird monitoring project is ongoing, which would assist in detecting long-term large-scale trends but not impacts from the project itself.

11. *Please justify the potential loss of other species. For instance, mountain goats, an indicator species, could experience a significant loss in population viability from the impacts of the mine. What does this indicate for the ecosystem at large? Also, elk winter range would be lost and the Rock Creek herd will potentially be displaced for decades. Not only should you justify this significant effect on wildlife, but also consider how this will affect hunting demand and opportunity. (S177)*

Response: The potential loss of any species must be weighed by the decision-maker as part of the legal concerns as described in Chapter 1.

A significant loss in mountain goat population viability is not an expected impact under Alternative V (see Chapter 4, Biodiversity). This is not the same as saying there would be no impacts to mountain goats from the project. The cumulative effects of this impact is noted in Chapter 4, where the impacts are considered on a broader scale.

Elk winter range is considered in the effects analysis, Chapter 4. The effects on hunting demand and opportunity is considered in Chapter 4, Recreation.

12. *Page S-20 4th paragraph "Alternative V would not ... affect pileated woodpecker habitat." Has ASARCO done a stand analysis for suitable snags? (S4832)(S4833)*

Response: The analysis assumes that pileated woodpeckers are primarily associated with, and affected by, loss in old growth habitat. They are also considered by the Kootenai National Forest Plan as indicator species for old growth. They are known to use other age classes of forest. The analysis assumes that since old growth is the most important age class for this species, if it is protected then pileated woodpeckers should maintain their current status in the Compartment. A stand analysis for snags was not done for this project, because the habitat loss from mine facilities would be more complete than a simple loss of snags.

13. *Page 2-123 under "Mtn Goats", 4th paragraph Impacts to herds, - this is admitted. No other comment? (S4832)(S4833)*

Response: Chapter 2 is a summary statement. Please see Chapter 4, Biodiversity, for greater detail.

14. *Page 2-78, Statement about current monitoring levels not allowing wildlife biologists to detect trends in a timely fashion are indicative of poor baseline studies. (S614)*

Response: It is a fact of life that monitoring any wildlife species in sufficient detail to identify population trends that can be detected over time is very expensive, and usually is not done unless there is a reason to believe it is needed. It does not necessarily follow that this is indicative of poor baseline studies, since baseline studies are designed to meet an objective. In this project's case, the baseline study was not designed to provide information for monitoring, although it can be used for that in many cases, but rather to determine an overview of the flora and fauna of the project area.

BIO-404 Vegetation

There were no comments submitted for this category

BIO-405 Plant Species of Special Concern

1. Page 3-52, paragraph 3 – There appears to be some confusion and overlap between USFS sensitive species and MTNHP species of special concern. The discussion should clarify the terms and identify what authority the various agencies have over these categories on both public and private land. (S5)

Response: The text of the Plant Species of Special Concern section in the Biodiversity section of the EIS has been rewritten trying to clarify the confusion and overlap raised by the commentator. The state has no legal authority to mandate mitigation for the loss of sensitive plant species listed by the Montana Natural Heritage Program but impacts on public or private lands may be minimized under authority of the Montana Environmental Protection Act. The Kootenai National Forest has a mandate to mitigate impacts to sensitive plant species under the National Forest Management Act.

2. Page 3-52, last paragraph –The first sentence is confusing. Continued listing of clarkia because it “may be found” in the future seems illogical. In the next paragraph it is confusing to use “species of concern” in reference to weeds. (S5)

Response: The Plant Species of Special Concern section in Chapter 3, Biodiversity, has been altered to address the comment about common clarkia. The reason that the agencies concluded that common clarkia may be found in the future is that the plant is a little annual species that could easily be overlooked. It is quite possible that during final design work on the disturbance site around the paste facility it may be found.

3. Page 2-123, 2nd full paragraph "All action alternatives would disturb or eliminate ... plant species of special concern". Has Steve Shelly approved of this "elimination"? (S4832)(S4833)

Response: Steve Shelley, the Region 1 Forest Service sensitive plant specialist, would certainly be informed if any Forest Service sensitive plant species would be disturbed in the project area.

4. Page 3-52, 4th and 7th paragraph *Botrychium* species located and then not located? These plants are extremely difficult to find (see). What was the amount of time spent searching suitable habitat? David Wagner (University of Oregon) states "*Botrychiums* are generally gregarious, so when the first plant is found, one should crawl around on hands and knees to search for more plants ...". What was the level of plant survey here? (S4832)(S4833)

Response: The agencies reviewed the work conducted by the applicant's consultants in the search for *Botrychium* spp. in 1996. The level of survey was typical for sensitive plant surveys conducted by botanists doing sensitive plant studies. Before any disturbance occurs in the area where the wavy moonworts were found in 1995, they would be searched for again to ensure they would not be disturbed and would be avoided if possible.

BIO-406 Old Growth

1. Throughout the document, the numbers and science associated with Effective Old Growth has been completely changed. Please explain these new methods. How has Alternative V managed to increase effectiveness? Through road closures? Through purchased lands? Is private old growth available for purchase? Why isn't this significant change, and associated change in projected impacts, clearly outlined in the document? This discrepancy is not simply regarding the new preferred alternative, but instead old growth effectiveness has been refigured for all alternatives. If purchased lands account for these new figures, this should clearly be marked as mitigation instead of a change in actual project scope. (S6342)(S2117)

Response: Many comments were received on the draft on the difficulty in understanding the old growth accounts, particularly the difference between Forest Plan old growth (MA13) and "effective" old growth. The supplemental EIS attempted to clarify the two types, as well as correct several errors. The existing condition for "effective" old growth was lacking, which confused the accounts, because it implied that the numbers for MA13 were the appropriate baseline. This was not the case because roads and openings currently exist that would change the "effectiveness" as defined in the EIS. Another major change in numbers occurred because of the transition to geographic information systems from paper maps. This created inevitable modifications in numbers, some greater and some fewer. One major advantage in GIS over paper maps is increased accuracy that once data has been input, more analyses can be run with fewer subsequent number changes due to errors.

The increase in effective old growth comes from the obliteration of a small spur road. This is stated in Chapter 4, Biodiversity, account for Alternative V in the effective old growth section. Since old growth was not being reduced in Alternative V, purchase of lands for mitigation was not considered warranted.

2. Page 2-120: The EPA is concerned about the projected decline in habitat for wildlife, including old growth habitat, and habitat for sensitive animal species (e.g., harlequin duck, fisher, lynx, wolverine) and T&E species (grizzly bear, bull trout). (S146)

Response: The effects analysis discloses that habitat loss for some species will occur in all action alternatives. Alternative V minimizes the habitat loss, including for old growth. Please refer to the effective old growth section in Chapter 4, Biodiversity, for details. For general information on specific species, refer to that specific part of Chapter 4, Biodiversity, which addresses the species in question.

3. Page 3-55, paragraph 6 - Projected impacts to "old-growth dependent" species appears to be overstated, particularly in regard to pileated woodpeckers. The interpretation that pileated woodpeckers are currently limited by amounts of old growth within the study area are not supported by baseline or other scientific studies. Features associated with these types of old growth that are important to old growth dependent species are not adequately documented. (S5)

Response: Pileated woodpeckers were recorded as present and breeding in the baseline study. It is unknown whether the breeding attempts were successful. The assumption that old growth dependent species are habitat limited within the compartment are based on recommendations for minimum proportions of old growth in a given area, according to the Kootenai Forest Plan. It is also assumed that if habitat meets the old growth definition, then it has the features most important to old growth dependent species, including snags and dead and down woody material.

4. Page 3-56, paragraph 4, last line - The statement that "7% of the drainage is..." (if it is based on the map on page 3-58) does not seem to take into account the entire basin drainage area. What is "biological minimum?" In

the next paragraph the statement that "The ability of Rock Creek drainage to sustain... is unlikely." is not backed up with any data. (S5)

Response: Percentages are based on Compartment 711, as stated in the Table 4-36, titled "Changes to Effective Old Growth Habitat by Alternative" (Chapter 4). The biological minimum refers to the Forest Plan standard of 10% of a planning area in old growth. The statement that Rock Creek is unlikely to sustain viable local populations is based on this assumption in the Forest Plan.

5. Page 3-58 - This old growth map seems to stop at the wilderness boundary. The earlier discussion talks about the "Rock Creek drainage." Why isn't wilderness old growth included in the overall evaluation of the drainage basin. (S5)

Response: The old growth affected in the action alternatives was all in Compartment 711, so that is a reasonable area for alternative comparison. The Kootenai Forest Plan considers only those lands below 5,500' elevation for determination of MA13 lands.

6. Both the original DEIS and the Supplemental DEIS state that old growth habitat is limited in the area studied. The stands are also fragmented and unlikely over time to sustain viable populations of old growth dependent species. The mine will have minimal effects on old growth stands. (S25)

Response: Alternative V would have minimal effects on old growth. But because the stands are fragmented and unlikely to sustain viable local populations in the existing condition, it was considered important not to exacerbate the situation with further loss of old growth.

7. Information on old growth (OG) is woefully lacking in the SEIS. The Forest Service's OG accounting system is described on pg. 3-55. Even after reading paragraphs 3 & 4 under Old Growth Ecosystems several times, it is not entirely clear how this accounting system works. Either a given stand is an OG stand or it is not. Granted, some stands of OG can be perceived to be of a higher quality than others due to age of trees, amount of downed woody material, number of standing dead, size and shape of the stand, surrounding landscape, etc. It seems that in an attempt to meet the quota of 10% OG, the KNF is designating stands as OG that may not meet the criteria of OG, but are the closest thing to OG that can be found. We believe that these Replacement OG stands are being lumped in with true oldgrowth and being designated as MA 13. (S6312)(S2117)

Response: There are two types of old growth analyzed in the EIS. One is the Forest Plan standard for MA13. The other is "effective" old growth, for which there are no standards or guidelines. The concept of effective old growth is used as an attempt to quantify the impact of patch size, fragmentation, and other variables that contribute to the ability of a stand to function to its fullest potential. An attempt was made in the supplemental EIS to ensure that the terminology was clearly differentiated to clarify this complex and non-standardized concept.

Replacement old growth is designated as MA13. It is not old growth, by definition, but it is being managed as old growth for the future because fewer acres of old growth occur in the compartment than are available to meet Forest Plan standards today. The intent of this is to designate enough stands within the compartment so that over time they will meet standards. If these stands were not designated MA13 and managed for old growth over time, then they would be open to other forms of management, including timber harvest. The designation ensures that the stands most likely to provide good old growth habitat in the shortest amount of time would be managed consistently with the need to provide old growth habitat not only for today but for tomorrow as well.

The acres of old growth that meet Forest Plan old growth definitions do not include replacement old growth. Please review Table 3-29, titled "Summary of Existing Old Growth (OG) and Replacement

Old Growth (ROG) Acreage Designated as MA13 in Timber Compartment 711" (Chapter 3), for details on the percentage of the compartment in old growth and replacement old growth.

8. *If we understand what is being stated in par. 7 on pg. 4-101, then an argument is being used that the loss of one acre of OG is not really of concern because what has been designated as OG here is not really effective OG, but rather Replacement OG? Or is it saying that the loss of one acre is from an effective OG stand that for one reason or another (e.g. shape or size) is not functioning as a high quality effective OG stand? If it is true OG and not Replacement OG, then the loss of one acre is of real concern whether it is a high quality stand or not. Given that the Forest is below minimum standards for OG, the loss of even this one acre is a significant impact. (S6312) (S2117)*

Response: Replacement old growth is not an issue in this case; replacement old growth refers to those stands managed under MA13 that do not yet meet Forest Plan standards for old growth. This paragraph refers to *effective* old growth. The paragraph has been clarified to indicate that the amount of direct loss of trees (ie Forest Plan old growth) is in a location that minimizes its impact. This is because the trees are already along a road, which means their effectiveness is reduced under existing conditions.

It is the opinion of the professional wildlife biologists analyzing the project effects that the loss of 0.4 acre of old growth is not significant, and essentially unmeasurable from a biodiversity perspective. Please see the revised section for details.

9. *Surprisingly, Alternative V is supposed to create an acre of old-growth. Page 4-102 states that closure of a short spur road accounts for the gain of this acre. This is does not pass the straight face test. (S6312)*

Response: The closure of a spur road does not cause trees to grow larger and older spontaneously, unfortunately. The gain is in *effectiveness* of the stand, based on the concept that a road adjacent or through a stand reduces its functionality for old growth dependent species.

10. *Please provide a map that shows the affected OG stands. Why is there such a big difference between Alternative IV and Alternative V in terms of impacted OG? (S6312)(S2117)*

Response: The affected stands can be seen by overlaying the alternative maps with the old growth map. Alternative IV and V have differences in impacted old growth because of soil borrow sites and utility corridor location.

11. *The road improvements up to the exploration adit which will widen Chicago Peak Road will cause fragmentation and direct loss of OG. This does not appear to be accounted for. Was it factored into the calculations of impacted OG? (S6312)(S2117)*

Response: Yes.

12. *It should be noted that ASARCO has added to the cumulative impacts of loss of OG and fragmentation by their recent harvest activities of OG Cedar/Hemlock in the Rock Creek drainage. (S6312)(S2117)*

Page 2-97 Timber Sales. I was under the impression the Rock Creek drainage was to be removed from the Timber Base for the duration of the proposed mine. And that no sales were to be considered during the time of mine operations.

And it has been Asarco's private timber lands that have been brutally logged during the past few years. This ownership and poor logging practices should be noted in the SDEIS, especially as Asarco completely destroyed the Old Growth characteristics of hundreds of acres of valuable and irreplaceable bottom land cedar habitat in the

Rock Creek drainage further reducing and compromising already biologically limited old growth habitat..These acres could have been used as mitigation for their proposed project. (S471)

Response: Sterling has a right to harvest timber on their lands. The acres logged by Sterling could have made high quality and effective mitigation for some of the impacts anticipated by the mine. Retention of standing trees on the recently harvested stands along Rock Creek would have decreased the impacts of fragmentation and travel corridor loss. The loss of old growth on private lands is noted in the Biodiversity Cumulative Effects section of Chapter 4, and specifically for Sterling lands in other sections of Chapter 4.

The portion of the project area that would be redesignated as Management Area 31 will not be managed for timber for the life of the project. However, the Rock Creek Drainage as a whole will not be pulled out of the Forest timber base. Any future sale would be analyzed with consideration of ongoing mine impacts as well as any other existing or proposed Forest Service or private activities.

13. Page 4-3 Why were the errata corrections from the DEIS not included in the Old Growth section (and in numerous other places)? And why was Table 4-1 changed? The original table was much more useful in depicting the loss of Old Growth. I strongly recommend that the original table be reincluded. This new table does not show at all the losses the project will cause even though that is the title of the table. (S471)

DEIS page 4-4/SDEIS page 4-3. New Table 4-1. This table has been completely redone. The errata sheet gives a replacement table for the DEIS, but the table that appears in the SDEIS has completely different data. (S3462)

Response: Table 4-1 which you refer to in the draft EIS was in fact included in the supplemental EIS in its entirety (Table 4-2) with the added inclusion of the proposed changes to Management Area allocations for Alternative V. Table 4-2 is also included in the final EIS.

14. Page 4-81 Table 4-19 I have not been able to figure out this table's correlation to the above mentioned Table 4-1. The numbers do not jive in any readily apparent manner. (S471)

Response: The two tables represent the difference in two types of approaches to analysis of effects on old growth, as explained in the biodiversity, effective old growth, section of Chapter 4. Table 4-1 titled "Changes to Old Growth (MA 13) by Alternative" represents Forest Plan old growth, and Table 4-36 titled "Changes to Effective Old Growth Habitat by Alternative" represents effective old growth (Chapter 4 of the EIS). The numbers are not the same because they are measuring different aspects of effects on old growth. A footnote was placed under each table in the final EIS to explain the difference between the two tables.

15. Page 2-126. Paragraph on old growth. The only reason given for the resemblance of Alt. V to Alt. I is road closures, resultant larger stands, and therefore effectiveness. This should have been spelled out in more detail if agencies wanted anyone to understand it. (S3462)

Response: The road closure is the only reason, thus more detail would provide no greater information.

16. DEIS page 2-118/SDEIS page 2-105. Issue 5: Both bullets are new to the SDEIS. In the SDEIS they now read: "Directly impact 0 to 28 acres of old growth (all action alternatives)." and "Change habitat effectiveness from existing condition. Effectiveness would be reduced by 19 to 94 acres (alternatives II through IV), or increased by 1 acre (Alternative V)"

The DEIS reads: "destroy 91 to 208 (depending on the alternative) acres of old growth and reduce habitat quality and effectiveness as well as biological diversity (all action alternatives)."

According to the errata sheet it should read: "eliminate or reduce effectiveness of 91 to 208 acres of old growth (depending on the alternative) further reducing the percentage of old growth below biological levels recommended for long-term maintenance of old growth-associated species (all action alternatives)." (S3462)

Response: The changes reflect edits to clarify the impacts (including to clarify the distinction of Forest Plan old growth and effective old growth), and to include the effects from Alternative V. The errata sheet refers only to the draft EIS, and does not apply to subsequent changes in the supplemental and final EISs that make the errata irrelevant or redundant.

17. *DEIS page 2-125/SDEIS page 2-114. Table 2-18, Old Growth Ecosystems under title. Delete the phrase: "(does not include replacement growth)" (S3462)*

Response: The numbers in Table 2-23 referring to old growth do not include the Forest Plan Management Area 13 lands designated as Replacement Old Growth.

18. *DEIS page 2-125/SDEIS page 2-114. Table 2-18, Old Growth Ecosystems under Alternative I, 2nd paragraph. The word "viable" was deleted from the sentence. But the paragraph as a whole was changed. (S3462)*

Response: "Viable" was used inappropriately in the original draft EIS, and was the subject of an errata change. The paragraph was changed to clarify the meaning.

19. *DEIS page 4-84. 5th full paragraph, 4th sentence. This section has been rewritten for the SDEIS, but the phrase "(such as replacement old growth)" has been incorporated. (S3462)*

Response: The phrase has been added to clarify the meaning of the section.

20. *DEIS page 4-84, last paragraph, 4th sentence. This material has been completely rewritten for the SDEIS. (S3462)*

Response: The section has been revised to clarify meaning and incorporate the newest analysis for these species.

21. *DEIS page 4-84, footnote. Footnote does not appear in the SDEIS. (S3462)*

Response: The footnote information was incorporated into the effective old growth section of Chapter 4.

22. *DEIS page 4-85/SDEIS page 4-81 Table 4-19. The word "EFFECTIVE" was inserted before "OLD GROWTH (OG)." (S3462)*

Response: As the result of several public comments, many edits in the supplemental EIS were designed to clarify the distinction between Forest Plan old growth and effective old growth and to reduce the confusion about these terms.

23. *DEIS page 4-100/SDEIS page 4-99. The DEIS reads: "Effective Old Growth Habitat. Alternative IV would result in an effective loss of 91 acres of oldgrowth habitat, a 9.3 percent reduction in compartment 711. The percentage of old growth habitat in Rock Creek Compartment would decline to 6.4 percent, below the recommended 8 to 10 percent needed to support old-growth-dependent species." "Impacts to effective old growth habitat under Alternative IV would be significant." The correction is: Add the following sentence to the end of the paragraph: "Effects would be similar to those that would occur under Alternative II."*

The SDEIS has been completely rewritten. It now reads: "Effective Old Growth Habitat. Alternative IV would result in the direct loss of 11 acres of old growth habitat, and an additional loss of effectiveness of 19 acres. The percentage of effective old growth habitat in Rock Creek Compartment would decline to 6.0 percent. Impacts to old growth habitat under Alternative IV would be moderate." (S3462)

Response: The edits resulted from greater precision and accuracy in GIS mapping and defining effective old growth, and importantly, from determining what the baseline amount of effective old growth is currently. This information was lacking in the draft EIS, which made comparisons between existing condition and alternatives impossible.

24. Page S-21 5th paragraph "A potentially significant decline in species diversity ..." (Only Alternative I does not meet this statement). (S4832)(S4833)

Response: A complete quotation of the sentence you quote would continue, "could result under the action alternatives that reduce old growth." Alternative V does not reduce old growth, nor does Alternative I, no action.

25. Page 2-123 under "Pileated Woodpecker" Alt V "affects" no old growth. Pileateds do not only use old growth. (S4832)(S4833)

Response: Pileated woodpeckers use other habitats as well, including mature stands or snags in stands of smaller trees. However, as an old growth indicator species, it is assumed that old growth is the most important habitat component, and if it is maintained then it is likely that there is adequate habitat to maintain local populations. As noted in the analysis, pileated woodpeckers do occur in the compartment, but there may not be adequate old growth habitat to maintain them.

26. Compare maps 2-81 and 3-58. The "Lower Rock Creek Wetland Mitigation Site" just happens to be an OG stand. Losing an OG stand to gain a wetland site is not acceptable. Another mitigation site needs to be acquired. (S2117)

Response: Alternative V does not include this mitigation site, because of the impact to old growth.

27. If there are any Black Cottonwood stands in the project area, they should be protected due to their importance to wildlife. Where in the SDEIS is the occurrence and distribution of important wildlife habitat types, such as Black Cottonwood Bottomland shown? (S2117)

Response: The occurrence and distribution of the cover types is not mapped in the EIS, however, Table 3-28 titled "Representative Plant Species by Dominant Vegetation Type and Lifeform Class" (Chapter 3) describes dominant vegetation type and lifeform class. Black cottonwood bottomland does not comprise enough of the landbase of the study area to be included on the table, but is recognized as important habitat as a component of riparian habitat. This table and the information in the baseline wildlife study were used to analyze important wildlife habitat types. Riparian species, including black cottonwoods, are indeed important to wildlife and have been considered in the Chapter 4 analysis, Wetlands and Non-wetland Waters of the U.S. Impacts to these habitats would be carefully reviewed especially at proposed bridge crossings.

28. The SDEIS does not sufficiently discuss impacts to old growth forests. The SDEIS accounting system is not clear, and as applied appears subject to improper interpretation or application. The SDEIS must further consider the amount of old growth and then the impacts the mine will have on those stands. (S2034)

Response: Compartment 711 in which the Rock Creek Project is located has 1575 acres of old growth (old growth and replacement old growth) of which only 1 acre is expected to be removed under Alternative V. The discussion of impacts to old growth may be found in the final EIS in Chapter 4, in both the Forest Plan section as well as in the Biodiversity section. The system used for accounting for the acreage of old growth were taken from the forest Geographical Information System which represents the computer tabulations of the acreage in Compartment 711. The computer delineation of the project was overlaid on the old growth layer to determine the acreage impacted under each alternative. This method allows for the consistent tabulation of acreage

impacted between the four action alternatives. This is a state of the art methodology for mapping acreage be for old growth or other resources.

BIO-407 Noxious Weeds

1. Page S-18 4th paragraph - "Habitat would ...disturbed sites ..." ASARCO should emphasize that no noxious weeds will be introduced. How do they plan to keep them out? See comment on page 3-53.

Page 3-53 1st full paragraph "Under the Montana ... unlawful to allow noxious weeds ..." See page 4-83, 2nd paragraph states "The spread of weeds is unavoidable ..." Allowing them to spread is violation of law. (See page 1-15, "No authority exists for FS to deny ASARCO "unless its plan ... violates laws"). This (page 4-83) could be considered admission of law violation. As simple as this may seem, given this admission by ASARCO, wouldn't it be contradictory for the FS to permit the activity.

Page 4-78 1st paragraph "In addition, the ...project ...increased rate of noxious weed spread ..." According to MT law, this would be a violation of the law. See comment under 3-53, 1st paragraph. (S4832)(S4833)

Response: Sterling would have to control weeds according to its weed management plan approved by Sanders County. The plan would detail how the applicant would limit weed invasion into disturbed areas. The plan would use methods approved for other land management activities within the county.

2. Page 4-83 2nd paragraph - Increased spread of weeds under any action Alternative is admitted. (S4832)(S4833)

Response: The agencies have concluded that noxious weeds would spread under all alternatives including the no-action alternative.

3. Appendix B Bull Trout Section Pg 8 last paragraph "The disturbed soil ... ". Spread of noxious weeds is not allowed under MT law (see page 3-53). "... spread from vehicles ...". Perhaps all vehicles should be washed down every day. Resultant wash water considered environmental waste. Pg 9, 1st incomplete paragraph "The spread of noxious ... sediment loading ...". The effects of one environmental feature on others is becoming apparent. How intertwined are these environmental processes not identified in the SDEIS? (S4832)(S4833)

Response: Prohibited or not, noxious weeds continue to expand their range in Montana. The mitigations applied to this project (principally revegetation of disturbed soils) should minimize the noxious weed problems from the proposed project in Rock Creek to a significant degree.

The weed control plan to be developed by Sterling and approved by Sanders County and the agencies would address measures to reduce the risk of noxious weed spread. Washing vehicles is one method commonly used to reduce seed spread. The individual methods approved will be negotiated with the Sanders County Weed Board and the agencies. The agencies have tried to portray in the final EIS just how intertwined the environmental processes are in these environmental analyses.