CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

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CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter presents the results of environmental impact analyses for the various resources introduced in **Chapter 3** of this EIS. **Section 4.1** provides an introduction to the chapter and the definitions for terms used to describe environmental effects. **Sections 4.2** through **4.18** discuss the environmental consequences, the irreversible and irretrievable commitments of resources, and the relationship between short-term uses and long-term productivity of resources for each resource and use brought forward for analysis.

4.1.1 Impact Assessment

The Proposed Action and alternatives outlined in Chapter 2 may cause, either directly or indirectly, changes in the human environment. This EIS assesses and analyzes these potential changes and discloses the effects to the decision-makers and public. This process of disclosure is one of the fundamental aims of NEPA.

Many concepts and terms used when discussing impacts assessment may not be familiar to the average reader. The following sections attempt to clarify some of these concepts.

4.1.1.1 Effects/Impacts

The terms "effect" and "impact" are synonymous under NEPA. Effects may refer to ecological, aesthetic, historical, cultural, economic, social, or health-related phenomena that may be caused by the Proposed Action or any of the alternatives. Effects may be direct, indirect, or cumulative in nature. Cumulative effects are analyzed in **Chapter 5**.

4.1.1.2 Direct and Indirect Effects

A direct effect occurs at the same time and place as the action. Indirect effects are reasonably foreseeable effects that occur later in time or are removed in distance from the action. Direct and indirect effects are discussed in combination under each affected resource.

4.1.1.3 Mitigation for Impacts

Where applicable, mitigation measures are proposed in this document. If residual effects remain after the mitigation is applied, those effects are described as well. Mitigation measures are means to address environmental impacts that are applied in the impact analysis to reduce intensity or eliminate the impacts. To be adequate and effective, CEQ rules (40 CFR 1508.20) require that mitigation measures fit into one of five categories:

1) Avoiding the impact altogether by not taking a certain action or parts of an action;
2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
3) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or

5) Compensating for the impact by replacing or providing substitute resources or environments.

4.1.1.4 Irreversible and Irretrievable Commitment of Resources

An irreversible commitment of resources occurs if the commitment cannot be changed once made. An irreversible commitment of resources occurs when resources are used, consumed, destroyed, or degraded during Project construction and operation and cannot be reused or recovered. It effectively removes the option of future resource use. Irretrievable commitments of resources occur when there are long-term losses of resource production or use. These losses are not permanent and can be reversed in the long term if Project facilities or land uses change.

4.1.1.5 Relationship of Short-term Uses and Long-term Productivity of Resource

The relationship between short-term uses and long-term productivity describes the effects of the short-term use of the resource for the Project, and whether that use is likely to adversely affect the long-term productivity and sustainability of the resource.

4.1.1.6 Significance

The word "significant" has a very particular meaning when used in a NEPA document. Significance is defined by CEQ as a measure of the intensity and context of the effects of a major federal action on, or the importance of that action to, the human environment. Significance is a function of the beneficial and adverse effects of an action on the environment.

Intensity refers to the severity or level of magnitude of impact. Public health and safety, proximity to sensitive areas, level of controversy, unique risks, or potentially precedent-setting effects are all factors to be considered in determining intensity of effect. This EIS will primarily use the terms major, moderate, minor, or negligible in describing the intensity of effects.

Context means that the effect(s) of an action must be analyzed within a framework, or within physical or conceptual limits. Resource disciplines; location, type, or size of area affected (e.g., site-specific, local, regional, national); and affected interests are all elements of context that ultimately determine significance. Both long- and short-term effects are relevant to context.

4.1.1.7 Indicators

An impact indicator is an element or parameter used to determine change (and the intensity of change) in a resource. Working from an established existing condition (i.e., baseline conditions described in **Chapter 3**) an indicator is used to predict or detect change in a resource related to causal effects of the Proposed Action. Use of the term "significant" when referring to effects indicates some threshold for a particular impact indicator has been exceeded.

4.1.1.8 Environmental Effect Categories

The following environmental effect categories (**Table 4.1-1**) are presented to define relative levels of effect intensity and duration and to provide a common language when describing effects. The definitions in the following table are general. Descriptors are specifically defined for certain resources when the general definitions presented in this table are inadequate.

Table 4.1-1 Summary of Terms Used to Describe Effects in the EIS

ATTRIBUTE OF EFFECT		DESCRIPTION
Magnitude (Intensity)	Negligible	No measurable change in current conditions.
	Minor	A small but measurable change in current conditions.
	Moderate	An easily discernible and measurable change in current conditions.
	Major	A large, easily measurable change in current conditions.
Duration	Short-term	Less than10 years.
	Long-term	More than 10 years.

4.1.2 Tiering and Incorporation by Reference

As stated in earlier chapters, this EIS tiers to the 2007 FEIS (BLM and USFS 2007) and uses as much information as possible from that document as applicable to the proposed Project. A CD version of the 2007 FEIS has been included as part of this EIS for ease of reference. Where there are similar impacts to resources as described in Chapter 4 of the 2007 FEIS, that information is generally not repeated in the following sections. Rather, where specific sections of **Chapter 4** are tiered to the 2007 FEIS, the text is incorporated by reference or briefly summarized for some resources, followed by any specific Project-related impacts analysis.

4.2 GEOLOGY, MINERALS, TOPOGRAPHY, AND PALEONTOLOGY

4.2.1 Issues and Indicators

Scoping did not identify any issues related to geology, minerals, topography, and paleontology; however, impacts to these resources are still evaluated in this section.

The primary indicator of impacts to geology, minerals, topography, and paleontology is the total acres of new disturbance and, specific to topography, also includes the acres of disturbance left after reclamation (i.e., overburden dumps and unreclaimed highwalls).

4.2.2 Direct and Indirect Impacts

4.2.2.1 Proposed Action

Panel F Ore Conveyor System

There are no anticipated impacts to the geology, minerals, and topography resources for this component of the Proposed Action as the majority of the Panel F ore conveyor system disturbance would occur within existing disturbance. With only approximately 8 acres of proposed new disturbance, potential impacts to paleontological resources would be negligible.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under the Proposed Action, geology and mineral resources at Panel G would be directly affected by the development of the South and East ODAs through the relocation of overburden from the pit to these expanded ODA locations. This would be a long-term, major, and local impact on

these resources, although the chert temporarily stored in the expanded South ODA would be used as pit backfill.

A GCLL would be placed over approximately 392 acres of seleniferous overburden contained in the pit and the East ODA. The GCLL would be constructed on a maximum 3 horizontal to 1 vertical slope, with slope lengths up to 2,075 feet. The GCLL would be constructed in phases dependent upon mining operations. **Section 2.4.4.2** and **Appendix 2A** provide more specific details on the GCLL design and construction.

Expanding the ODAs would result in modifying approximately 150 acres of existing topography not previously analyzed in the 2007 FEIS. These ODA disturbances would be reclaimed to slopes of 3 horizontal to 1 vertical. Impacts to topography from the ODA expansions are considered to be major for the mining period and moderate when reclamation would blend most of the regraded area with the adjacent terrain.

Effects to paleontological resources could occur from the development of the ODAs and the stormwater features. Geologic units disturbed would be the Rex Chert and Meade Peak members of the Phosphoria Formation, the Dinwoody Formation, and the Wells Formation. Fossils in the geologic units that would be disturbed are likely to be found throughout the region wherever similar units exist and not restricted to the Project Area. Any vertebrate fossils encountered would be managed as described in **Section 2.5**. This is expected to present a negligible impact.

The acid base accounting for Panel G indicates the overburden would not present a significant risk for ARD (**Section 3.2**). There would be no change to the units mined under the Proposed Action; however, the GCLL would reduce infiltration substantially more than that of the approved geologic store and release cover, which may also reduce the potential for acid rock drainage. Therefore, the potential for acid rock drainage would be the same or less than was analyzed in the 2007 FEIS.

4.2.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under this alternative, the approved geologic store and release cover (as described in the 2007 FEIS) would be used to cover approximately 250 acres of seleniferous material on lease. Approximately 143 acres of seleniferous material associated with the East ODA expansion in the lease modification area would be covered by a GCLL as described for the Proposed Action and shown on **Figure 2.6-1**. All other impacts described for geology, minerals, topography, and paleontological resources under the Proposed Action would be the same.

4.2.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under this alternative, the approved geologic store and release cover (as described in the 2007 FEIS) would be used to cover approximately 257 acres of seleniferous overburden on lease. Approximately 138 acres of seleniferous overburden associated with the East ODA expansion in the lease modification area would be covered by GCLL as described for the Proposed Action and shown on **Figure 2.6-2**. All other impacts described for geology, minerals, topography, and paleontological resources under the Proposed Action would be the same. There would be approximately 46 acres less new surface disturbance under this alternative than either the Proposed Action or Alternative 1, as the topsoil stockpile area identified within the proposed lease modification area under the Proposed Action and Alternative 1 would be relocated to the northeastern portion of the open pit.

4.2.2.4 No Action Alternative

Under the No Action Alternative, there would be no direct impacts to geologic, topographic, and paleontological resources in the Project Area beyond those previously described in the 2007 FEIS. The Panel F ore conveyor system would not be constructed, the existing Panel G lease would not be modified, expansion of the South and East ODAs would not occur, and the previously approved geologic store and release cover would be constructed over all areas of seleniferous overburden in Panel G. There would be no change to the mining activities approved by the 2008 RODs; however, the amount of ore recovered from Panel G would be reduced by about half. The ultimate pit analyzed in the 2007 FEIS and approved by the 2008 RODs averaged approximately 500 feet in depth. Mining was to start at the 7,600-foot elevation and proceed down to the 7,100-foot elevation. Under the No Action Alternative, the previously approved ODAs would be at maximum capacity once mining reached the 7,400-foot elevation. At that point, mining would need to commence in the north portion of the second pit, because the only place to put overburden would be back into the southern portion of the pit, thereby abandoning the remaining ore in that pit. Essentially, under the No Action Alternative, no ore would be recovered from the 7,400-foot to the 7,100-foot elevation which equates to approximately 50 percent of the ore reserves in Panel G.

4.2.3 Mitigation Measures

No mitigation measures specific to this Project have been identified; however, all applicable mitigation measures required by the 2008 RODs for the approved mining operations at Panels F and G would apply to the Proposed Action and Action Alternatives.

4.2.4 Unavoidable (Residual) Adverse Impacts

Reclaimed ODAs would present localized, permanent modifications of topography.

4.2.5 Relationship of Short-term Uses and Long-term Productivity

Under the Proposed Action, all of the ore presently determined to be economically recoverable would be mined from Panel G, which would be a short-term use that would reduce long-term productivity for the phosphate resource as it would no longer be available.

4.2.6 Irreversible and Irretrievable Commitment of Resources

Impacts to the local natural topographic conditions under the Proposed Action or Action Alternatives would be irreversible and irretrievable. Reclamation activities would reduce the impacts to local topography by recontouring disturbed sites to mimic local pre-mining conditions as closely as possible. Disturbed areas that are not reclaimed (i.e., stormwater features) would have permanent impacts to topography.

Any loss of paleontological resources that occurred under the Proposed Action or Action Alternatives would be considered irreversible and irretrievable. Paleontological resources recovered by the Agencies would not be lost.

4.3 AIR RESOURCES AND NOISE

4.3.1 Issues and Indicators

The following issues were identified through scoping. Indicators were developed to address the scoping issues.

4.3.1.1 Air Resources

Issue: The Project may affect climate change and overall air impacts related to haul road traffic.

Indicators: Quantities of exhaust, dust, and GHG emissions.

4.3.1.2 Noise

Issue: Noise from the Proposed Action may impact sensitive receptors (i.e., local residents).

Indicators: Estimated noise levels from the ore conveyor system and other mine equipment associated with the Proposed Action.

4.3.2 Air Resources - Direct and Indirect Impacts

4.3.2.1 Proposed Action

An extensive air impacts analysis was conducted as part of the 2007 FEIS (Section 4.2) and is not repeated in this section. This section describes impacts to air resources as a result of the Proposed Action; specifically, the use of an ore conveyor between Panel F and the mill and the expansion of the South and East ODAs.

The majority of emissions that would be generated from the Proposed Action are similar to those described and assessed in the 2007 FEIS and would be from fugitive (dust) and mobile equipment (tailpipe) sources. Emissions from these types of operations are controlled by fugitive dust control plans and, for vehicles, manufacturer's emission standards. Fugitive dust emission standards are based on the State Implementation Plan (SIP), adherence to IDAPA 58.01.01.651, and are regulated based on opacity standards. The air emissions would occur only during active operations and would be completely dispersed or deposited at the conclusion of operations. A large percentage of the fugitive particulate emissions generated from construction of the ODAs and the Panel F ore conveyor system would settle out quickly near their point of generation. The 2007 FEIS described intensity of the air emission impacts from mining in Panels F and G as minor at the site-specific perspective and negligible at the local and regional perspective. This general description of the context and intensity of air emission impacts would be applicable to the Proposed Action.

Also as described in the 2007 FEIS and applicable to the Proposed Action, metal and other potential pollutants (i.e., selenium) that would make up a small percentage of the dust generated would be considered insignificant.

Table 4.3-1 shows the air emissions estimates for all components of the Proposed Action. These emissions are totals for the entire duration of the Proposed Action. Transporting overburden to external ODAs is included in fugitive emissions. The emission assessment included emissions from tailpipes and fugitive dust along the haul/access roads and conveyor. Pollutants from the combustion of fossil fuel from mobile equipment and vehicles were also estimated. A measurable amount of criteria pollutants such as nitrogen oxides (NOx), sulfur dioxide (SO_2), carbon monoxide (CO), and volatile organic compounds (VOCs) would be emitted during operations.

The estimates of controlled emissions (i.e., those with applied BMPs and state-required emission controls) were prepared using standard emission factors (EPA 2003 and USAF 2004).

Table 4.3-1 Total Proposed Action Annual Air Emissions (Tons)

POLLUTANT	CONVEYOR[1,2]	SOUTH AND EAST ODA EXPANSIONS AT PANEL G	GCLL INSTALLATION	TOTAL (TONS)
$PM_{2.5}$	55	244	8	307
PM_{10}	369	1,626	53	2,048
NO_x	0	1,814	0	1,814
SO_2	0	169	0	169
CO	0	948	0	948
VOC	0	160	0	160

[1]The emissions shown here include the ore conveyor system as a whole, meaning all point sources and fugitive sources are aggregated, and the conveyor is assumed to be in operation for up to eight years.

[2]Some pollutants show a value of zero emissions because the ore conveyor would eliminate the need for mobile sources such as haul trucks.

Panel F Ore Conveyor System

There would be several emission points along the proposed ore conveyor system between Panel F and the mill. These include locations of material transfer, crusher and screen operations, and stockpile wind erosion.

Approximately seven material transfer sites are planned outside of an enclosure or transfer tower. Fugitive emissions at those sites were calculated using the methods found in Section 13.2.4-4 of AP42 Compilation of Air Pollutant Emission Factors (AP-42; EPA 2006) and using a wind speed of 10.1 miles per hour (MPH) (NOAA 2013b). All outside material transfers would generate fugitive emissions.

The design capacity for the crusher is 600 tons/hour. Because the moisture content of the ore is greater than the moisture content of facilities operating with wet suppression (identified in footnote b to AP-42 Table 11.19.2-2, EPA 2004), controlled emission factors for tertiary crushing were utilized to determine potential emissions from the crusher. Because crushing occurs within an enclosure, an additional control efficiency of 80 percent was applied to those potential emissions.

The same process was used to determine emissions from screening; however, the Proposed Action design of 2,600,000 tons per year was used as the production factor for determining emissions. For determining emission potential for the screening operation, 8,760 hours and a design rate of 1,200 tons per hour was utilized in the calculation.

To determine fugitive emissions from the additional stockpile acreage, emission factors were taken from Table 11-6 and Table 11-7 in Revision 6 of the Western Regional Air Partnership (WRAP) Fugitive Dust Handbook (Countess Environmental 2006). No additional control efficiency was applied to address the high moisture content of the ore.

Although fugitive emissions and mobile source emissions are not applied toward permitting thresholds, emissions from truck traffic were calculated to determine the air quality benefit from the Panel F ore conveyor system component of the Proposed Action. For haul road emissions due to truck travel, emission factors from AP-42 13.2.2.2 Equation 1a and Table 13.2.2-2 (EPA 2006) were used. **Table 4.3-2** outlines the corresponding emissions for each portion of the conveyor system.

In March 2013, Simplot submitted a Permit Applicability Determination along with an Air Permitting Analysis to IDEQ for the ore conveyor system seeking concurrence that a permit to construct exemption applied. In April 2013, IDEQ issued a concurrence letter to Simplot indicating that the proposed conveyor system meets the permit to construct exemption requirements.

Table 4.3-2 Panel F Ore Conveyor System Component Emissions (Tons)

POLLUTANT	MATERIAL TRANSFER OUTSIDE[1]	MATERIAL TRANSFER TOWER[2]	CRUSHER[3]	SCREENING[4]	STOCKPILE[5]	TOTAL	HAUL TRUCK TRAFFIC REDUCTION[6]
$PM_{2.5}$	3.04	0.024	0.16	0.08	52	55.30	-329.19
PM_{10}	19.92	.16	0.88	1.52	346.56	369.04	-3,092
NO_x	0	0	0	0	0	0	-666.51
SO_2	0	0	0	0	0	0	-0.34
CO	0	0	0	0	0	0	-666.51
VOC	0	0	0	0	0	0	-77.90

Note: Values reflect an operation life for the conveyor of eight years.

[1]AP-42 13.2.4-4 uncontrolled particulate emission factors used are 0.0003 pounds/ton, 4.15E-05 pounds/ton for PM_{10} and $PM_{2.5}$, respectively. The enclosure is assumed to be 80 percent control efficient. The design maximum for each transfer point is 2.6 million tons/year and there are seven transfer points.

[2]AP-42 13.2.4-4 particulate emission factors used are 1.91E-05 pounds/ton, 2.89E-06 pounds/ton for PM_{10} and $PM_{2.5,}$ respectively. The enclosure is assumed to be 80 percent control efficient. The design maximum for each transfer point is 2.6 million tons/year and there are four transfer points.

[3]AP-42 11.19.2-2 tertiary crushing factors used are 5.40E-04 pounds/ton and 1.00E-04 pounds/ton for PM_{10} and $PM_{2.5}$, respectively. The transfer points are enclosed and assume 80 percent control efficiency. The maximum production is 600 tons/hour and operating hours are limited to 3,260 hours/year due to pipeline restrictions.

[4]AP-42 11.19.2-2 controlled screening factors used are 7.40E-04 pounds/ton and 5.00E-05 pounds/ton for PM_{10} and $PM_{2.5}$, respectively. The transfer points are enclosed and assume 80 percent control efficiency. The maximum production is 2.6 million tons/year.

[5]WRAP Fugitive Dust Handbook (Table 11-7) emission factor for PM_{10} is 2.4725 pounds/acre-hour. The background document for Revisions to Fine Fraction ratios used in Table 1 of AP-42, states that 0.15 is the proper ratio between $PM_{10}/PM_{2.5}$. The total area of the stockpile is 4 acres.

[6]It was assumed that six haul trucks would be removed from service which would equate to 234,963 vehicle miles traveled per year. Fugitive emission factors were derived from Table 13.2.2-2 of AP-42. Combustion emissions are based on Cat 5312 manufacturer factors. It is assumed that each haul truck would operate at the maximum 8,760 hours annually and per the manufacturer, consume 40 gallons/hour of diesel fuel.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Table 4.3-3 reflects the air emissions estimates related to the expansion of the South and East ODAs at Panel G. These emissions are totals for the entire duration of the Proposed Action (eight years at full ore production rate for Panel G). Emissions would be generated via haul truck loading, travel, and unloading.

Table 4.3-3 South and East ODAs Expansion Emissions (Tons)

POLLUTANT	PANEL G[1] (TONS)
$PM_{2.5}$	244
PM_{10}	969
NO_x	1,631
SO_2	152
CO	809
VOC	144

[1]$PM_{2.5}$ is estimated to be approximately 15 percent of PM_{10} when loading and unloading overburden. This is consistent with AP-42 Chapter 13, Section 2, Table 4.4 as the aerodynamic particle multipliers are 0.053 and 0.35 for $PM_{2.5}$ and PM_{10}, respectively.

A GCLL would be installed over approximately 392 acres of seleniferous overburden at Panel G. The installation would occur within stages, but a specific schedule is unknown at this time. As a result, worst case annual wind erosion emissions are assumed. All 392 acres are assumed to contribute to particulate emissions.

AP-42, Section 11.9, Western Surface Coal Mining emission factors were used to establish estimates of total suspended particles (TSP). For wind eroded exposed areas, 0.38 tons/acre-year was applied to calculate TSP, which is equivalent to total PM. Aggregate Handling and Storage Piles, AP-42 Section 13.2.4, was used to establish both $PM_{2.5}$ and PM_{10} emission factors from TSP. The appropriate aerodynamic multipliers are 0.35 and 0.053.

Table 4.3-4 identifies the wind erosion particulate emissions associated with the 392 acres of disturbed area prior to installation of the GCLL as calculated from the 2007 FEIS (these estimates are overly conservative because only approximately 170 acres would be disturbed by the Proposed Action).

Table 4.3-4 Wind Erosion Emissions in Panel G (Tons)

POLLUTANT	PANEL G (TONS)
$PM_{2.5}$	5.6
PM_{10}	37.2
NO_x	0
SO_2	0
CO	0
VOC	0
GHGs (CO_2e)	0

Climate Change

Mining activates involve the combustion of diesel and gasoline, which contribute CO_2 to the atmosphere. In Idaho, the total CO_2 emissions from all combustion sources are approximately 37 million metric tons (IDEQ 2008). Mining in Idaho represents less than 1 percent of total CO_2 emissions from industrial sources (IDEQ 2008).

Haul truck operations at the Smoky Canyon Mine require approximately four million gallons of diesel fuel annually and GHG emissions are calculated based on this annual diesel fuel usage. The EPA has a variety of emission factors developed for CO_2 equivalence (CO_2e) for a multitude of activities. A CO_2 emission factor of 10.21 kilogram/gallon for diesel fuel consumption is available on EPA's GHG Emission Factors Hub website (EPA 2011; Table 2: CO_2 Emissions for Transportation Fuels for Road Vehicles, Locomotives, and Aircraft). EPA (2011: Table 5: CH_4 [methane] and N_2O [nitrous oxide] Emissions for Non-highway Vehicles) provides emission factors of 0.58 gram/gallon and 0.26 gram/gallon for methane and nitrous oxide, respectively. The aforementioned factors are representative of diesel construction equipment.

The approximate annual diesel fuel volume of four million gallons equates to 45,332 tons of GHGs (CO_2e) being generated each year. GHG emissions were not estimated for the 2007 FEIS, but the use of the Panel F ore conveyor system would actually reduce the amount of GHGs generated from mining of Panels F and G by reducing the amount of CO_2 by approximately 23,335 tons as a result of not needing six haul trucks to transport ore from Panels F and G all the way to the existing mill.

To date, CO_2 emissions from a facility of this size are not regulated under any Idaho or federal laws or regulations, and no Idaho or federal air quality standard has been developed for this component of atmospheric gas.

As described by BLM (2011), the assessment of GHG emissions and climate change is in its formative phase; therefore, it is not yet possible to know with confidence the net impact to climate, making such analysis uncertain. The lack of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts, and modeling such impacts would be cost-prohibitive. The Agencies have evaluated the existing credible scientific evidence, but information relating to the precise impacts of the Proposed Action on climate change, and of climate change on the Proposed Action, is unavailable. Based on the general information that is available, the Proposed Action's contribution to climate change would be negligible.

4.3.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under Alternative 1, the acreage of disturbance and equipment operation required for the Project would be the same as the Proposed Action; therefore, impacts to air resources and climate change under Alternative 1 would be the same as described under the Proposed Action.

4.3.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under Alternative 2, new surface disturbance from the East ODA expansion and stormwater control features would be approximately 46 acres less than under the Proposed Action. Reducing new surface disturbance by approximately 46 acres would result in slight decreases of total emissions from reduced transportation and equipment operation and potential wind erosion, which would slightly reduce the overall impacts to air resources and climate change from those described for the Proposed Action.

4.3.2.4 No Action Alternative

Under the No Action Alternative, the air emissions from the Proposed Action or Action Alternatives would not occur and the existing air emissions and generation of GHGs from the Smoky Canyon Mine and approved mining at Panels F and G would continue until the mine shut down and reclamation activities ceased. The potential decrease in emissions from reduced haul truck traffic as a result of the Panel F ore conveyor system would not occur. The 50 percent

reduction in the amount of ore mined under the No Action Alternative at Panel G from that approved by the 2008 RODs would also potentially reduce some of the emission estimates for mining activities at Panel G presented in the 2007 FEIS. For example, reducing the amount of phosphate ore mined and not expanding the South and East ODAs at Panel G would decrease total combustion emissions for equipment operation and the amount of disturbed acreage subject to potential wind erosion.

4.3.3 Noise Resources - Direct and Indirect Impacts

As described in Section 4.2.2 of the 2007 FEIS, an extensive noise impacts analysis was conducted. To predict noise levels associated with the proposed mining activities in Panels F and G under the 2007 FEIS, noise level measurements were made at the existing Smoky Canyon Mine and at the potential human receptor areas along the Crow Creek Valley. For the Proposed Action, similar types of noise sources would be applicable and are shown in **Table 4.3-5**. In addition, the crusher proposed at the north end of Panel F as part of the ore conveyor system would have a measured sound level of approximately 106 dBA inside the enclosure and closest to the crusher, but the noise level decreases to approximately 95 dBA when outside of the crusher enclosure (personal communication with Dave Nichalson, Project Engineer, Simplot).

Table 4.3-5 Measured Sound Levels for Applicable Noise Sources

SOURCE	LEQ[1] (DBA)	LMAX[2] (DBA)	DESCRIPTION
Access Road Traffic	47.4	66.6	120 feet from edge of road
Open Pit Mining	81.7	85.9	130 feet from drill
Haul Truck Traffic	70.4	87.5	120 feet from haul truck
Conveyor	70.0	71.1	40 feet from conveyor

[1] 15-minute timeframe

[2] Peak instantaneous sound level

For the 2007 FEIS, noise impacts at specific locations along Crow Creek were estimated in general accordance with procedures of the International Organization for Standardization (ISO) Standard 9613-2. Noise impacts on residences in Crow Creek Valley were determined for specific locations that were closest to the noise sources.

4.3.3.1 Proposed Action

Panel F Ore Conveyor System

Noise from open pit mining in Panel F and the associated haul truck traffic would continue under the Proposed Action; however, haul truck traffic between Panel F and the mill would be reduced due to implementation of the ore conveyor system. Noise from the overall ore conveyor system would be generated by equipment stockpiling ore, the crusher situated at the north end of Panel F, and the drives and rotating equipment (idlers) along the length of the conveyor. According to information provided by FMC Technologies (a manufacturer of conveyor systems), the noise generated by the drives is expected to be approximately 85 dBA. Noise level along the length of the conveyor is expected to be less than 55 dBA. Because (1) the conveyor would not be situated any closer to the residences along Crow Creek than the approved haul road, (2) the noise from ongoing mining operations would be ongoing in addition to that of the proposed crusher and

conveyor system, and (3) operation of the crusher and ore conveyor system is anticipated to only occur an average of three per week, no noticeable noise effects are anticipated at current residences along the Crow Creek Road.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Even with the additional disturbance associated with the East ODA expansion, the closest point between the Panel G mining area and the Crow Creek Road (approximately 1.3 miles) is essentially the same as analyzed for the 2007 FEIS. The analysis conducted for the 2007 FEIS is applicable and determined to be sufficient for the Proposed Action. That analysis predicted that intervening ridges would screen all of the Panel G mining area from straight-line mining noise exposure to current residences along Crow Creek, and that most of the mining operations would be conducted within a below-grade open pit that would itself provide topographic screening between the mining activities and Crow Creek Valley. The East ODA would be constructed throughout the life of Panel G. When activities are occurring at the highest elevations within the Project Area, there could be straight-line noise exposure to persons along Crow Creek Road. As described in the 2007 FEIS, the maximum predicted noise level from the Panel G mining activity at the mouth of Nate Canyon was 50.2 dBA compared to a baseline condition of approximately 36 to 39 dBA. Geometric divergence, atmospheric and ground absorption, a 20-foot high screen (ridge topography), and noise reflection were taken into account in this calculation. While this prediction is an increase of over 14 dBA from existing conditions, the EPA (1981) describes 50 dBA as "quiet suburban or rural community, not located near industrial activity." Furthermore, foliage attenuation was not included in the calculation and would be expected to reduce the noise impact below what was predicted.

The proposed GCLL would be constructed in the same areas as those analyzed for the approved geologic store and release cover. Noise from construction of the associated stormwater features on 10.6 acres adjacent to Panel G would be negligible. Therefore, the proposed actions on Panel G are not anticipated to introduce any increased noise from what was analyzed in the 2007 FEIS.

4.3.3.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under Alternative 1, the acreage of disturbance and equipment operation required for the Project would be the same as the Proposed Action; therefore, impacts from noise under Alternative 1 would be the same as described under the Proposed Action.

4.3.3.3 Alternative 2: Reduced East ODA with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

There would be approximately 46 acres less surface disturbance under Alternative 2 than for the Proposed Action, but the same amount of equipment operation would occur for these alternatives. This is because the volume of overburden material handled would be unchanged but the placement (i.e., surface disturbance) would be shifted from the East ODA to the pit. This would result in the noise from equipment being further away from sensitive receptors, which may slightly reduce the overall noise impacts from those described for the Proposed Action.

4.3.3.4 No Action Alternative

Under the No Action Alternative, noise associated specifically with the Proposed Action or Action Alternatives would not occur and noise impacts from approved and ongoing mining activities in Panels F and G would continue. There would be a 50 percent reduction in the amount of ore mined compared to that approved by the 2008 RODs, but this would not change the impacts to noise.

4.3.4 Mitigation Measures

No mitigation measures for air resources and noise impacts specific to this Project have been identified. However, all applicable mitigation measures required by the 2008 RODs for the approved mining operations at Panels F and G would apply to the Proposed Action or Action Alternatives.

4.3.5 Unavoidable (Residual) Adverse Impacts

4.3.5.1 Air

All the emissions estimates included in this analysis for the Project assume typical control practices, EPMs, and BMPs would be employed. Following cessation of all operations, air pollutant levels would promptly drop and return the local air quality to background conditions by dispersion of air pollutants or settling of the particulate matter.

4.3.5.2 Noise

When mining activity ceases, mining noise in the Project Area specific to the Project would be reduced to low levels associated with reclamation work and then cease altogether. There would be no long-term residual adverse impacts on the environment from noise generated by the Proposed Action.

4.3.6 Relationship of Short-term Uses and Long-term Productivity

Air emissions and the generation of GHGs, during Proposed Action operations would be short-term impacts and uses of the environment, but these uses would not affect the long-term productivity, since when mining ceases, air quality would return to natural conditions. Long-term productivity of the land in the Project Area would not be affected by the mining air emissions and generation of GHGs.

Mining noise would affect the area immediately adjacent to the mine operations and have a lesser effect on residents along Crow Creek, and only during the times the residences are using

their seasonal homes. When the mining is completed, the mining noise would cease. Long-term productivity of the land in the Project Area would not be affected by the mining noise.

4.3.7 Irreversible and Irretrievable Commitment of Resources

There would be no irreversible or irretrievable commitments of resources due to air emissions, GHGs, or noise generated from the Proposed Action.

4.4 WATER RESOURCES

4.4.1 Issues and Indicators

The following issue was identified through scoping. Indicators were developed to address the scoping issue.

Issue: The GCLL may cause changes to the quantity and quality of surface water or groundwater in the Project Area and within the Crow Creek watershed area.

Indicators:

- Changes in the volume and timing in surface runoff water caused by the operations;
- Changes in the amount of groundwater recharge caused by the operations;
- Increases in flows, runoff, suspended sediment, turbidity, and COPCs in downgradient streams, ponds, and other surface waters, with regards to applicable surface water quality standards; and,
- Increases in concentrations of COPCs in groundwater under and down gradient of pit backfills and overburden fills, with regards to applicable groundwater quality standards.

4.4.2 Direct and Indirect Impacts

Compared to conditions predicted in the 2007 FEIS, the Panel G aspects of the Proposed Action would alter groundwater and surface waters in some specific ways. These are discussed in the following sections. Water resource effects that would not be different under the Proposed Action Panel G modifications compared to what were predicted in the approved 2007 FEIS are not assessed further in this EIS. As applicable, discussions on impacts to water resources from this Project are tiered to the 2007 FEIS.

4.4.2.1 Proposed Action

Panel F Ore Conveyor System

The construction and use of an ore conveyance system between Panel F and the existing mill would have no more than a negligible effect on surface water quantity or quality, compared to the conditions predicted in the approved 2007 FEIS. Construction of the Panel F ore conveyor system would disturb approximately 8 acres (1.3 acres on existing leases and 6.8 acres off lease, in an area where an SUA would be required) for access routes. This disturbance would be considered long-term as these access routes would not be fully reclaimed in case needed for maintenance purposes and access in the future. The proposed conveyor would generally follow the existing haul road, thus the majority of the route would be within or immediately adjacent to presently disturbed areas. Because the conveyor would cross creeks on the existing road

crossings, there would be no further changes to existing creek crossings. There would be no new creek crossings as a result of the conveyance system. In sum, new sources of disturbed-area runoff and sediments would be negligible. Stormwater runoff and entrained sediments would continue to be managed as part of the approved stormwater management plan, which would retain the same effectiveness as was described in the 2007 FEIS.

At the northern terminus of the ore conveyance system, an ore stockpile and crusher would be placed on previously disturbed ground associated with Panel F and would require a new runoff containment pond. Based upon the design and management considerations for the pond, as described in **Section 2.4.1.2**, there would be no release of runoff or sediments outside of this area. Thus, there would be a negligible effect on surface water resources from this aspect of the conveyor system.

There would be no additional impact to groundwater quantity or quality as a result of the construction and use of an ore conveyance system between Panel F and the existing mill, including the related ore stockpile and crusher, beyond the groundwater conditions predicted in the approved 2007 FEIS. The conveyance system ground disturbance would not contact seleniferous materials, nor would it alter groundwater recharge areas. The ore stockpile and associated containment pond would be lined, thus any seepage and or runoff from ore that may contain COPCs would not infiltrate or reach groundwater. Therefore, there would be no effect on groundwater resources from the Panel F ore conveyor system.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Groundwater Quantity. As the 2007 FEIS and various supporting reports described in some detail, the portion of the Panel G area that occurs within the Meade Peak member of the Phosphoria Formation does not naturally provide recharge to the underlying Wells Formation aquifer. With the Panel G mine development described in the 2007 FEIS, opening the Panel G mine pit through the Meade Peak rock essentially removes the aquitard and artificially allows recharge to occur within that specific area. In addition, the external ODAs associated with Panel G were predicted to alter natural groundwater recharge rates within their localized areas due to the nature of those materials. Thus, the amount of infiltration was an important aspect of the 2007 FEIS. The predicted rate of recharge for these areas varied among the alternatives that were analyzed in the 2007 FEIS, depending upon several factors including infiltration at the surface and percolation through the materials. For example, the approved geologic store and release cover that was ultimately approved was estimated to have a net percolation rate ranging from 0.6 to 0.7 inches/year.

The 2007 FEIS assessed the combined net effects to groundwater recharge as a result of all aspects of Panel G activities, including the approved geologic store and release cover that would be placed atop seleniferous portions of both the pit backfill and the external overburden fills (2007 FEIS, Section 4.3.1). The quantity of recharge via the seleniferous overburden is important because percolation through the fills may leach COPCs and, even once mixed with the underlying Wells Formation groundwater, the leachate may still contain elevated COPC concentrations as described in the 2007 FEIS. Therefore, the difference between the approved geologic store and release cover and the GCLL cover is most appropriately evaluated in terms of reduction of infiltration (i.e., reduction in infiltration leads to a reduction of recharge and contaminant loading to the groundwater in the Wells Formation aquifer).

The proposed Panel G component of the Proposed Action would change infiltration, and thus, groundwater recharge, (see **Section 4.4.1**) characteristics compared to the approved Panel G M&RP in two relevant ways as described in the following sections. The implications to groundwater quality are then discussed in the following subsection.

First, the proposed GCLL cover would reduce deep percolation through the seleniferous overburden, compared to rates predicted for the approved geologic store and release cover that was analyzed in the 2007 FEIS. OKC (2013) assessed the reduction in percolation rates through the overburden under the GCLL design; the predicted rate over the predominant aspect is 0.29 inches/year. This is approximately 41 percent of the approved geologic store and release cover.

Second, as noted in **Chapter 2,** the areal extent of seleniferous overburden in Panel G would increase under the Proposed Action compared to what was analyzed in the 2007 FEIS. Specifically, the GCLL would cover approximately 392 acres, compared to the approximately 366 acres to be covered by the geologic store and release cover analyzed in the groundwater model for the 2007 FEIS. This difference of 26 acres is a seven percent increase in the amount of previously analyzed seleniferous overburden storage.

This small increase in area would partially offset the reduced percolation rate. Since area and rate can be combined by multiplication to determine the volume of recharge per time unit, the net effect of the two can be calculated by multiplying the two percentages. Thus, the annual recharge through the proposed GCLL would be approximately 44 percent of the volume of potentially selenium bearing recharge to the Wells Formation groundwater through the approved geologic store and release cover. The implication of this reduced volume on groundwater quality is discussed in the following paragraphs. Assuming that the calculation of area times infiltration rate is reflective of the recharge volume, the reduction is derived from a comparison of about 21.3 acre-feet/year under the geologic store and release cover versus about 9.5 acre feet/year under the proposed GCLL, or a reduction of about 11.8 acre-feet.

The reduced recharge due to the GCLL cover (compared to the approved cover) would not be expected to have more than a negligible effect on the amount of groundwater storage within the localized area of the Wells Formation aquifer. To some degree, precipitation that falls on the GCLL and is hindered from percolation through the fills would be redirected to the infiltration and/or stormwater basins via the drainage system included in the cover above the GCLL. These storage areas would in turn serve to provide a measure of recharge to the same general area of the aquifer where the reduction would occur, without the accompanying potential selenium loading.

This reduction in recharge, if it directly reduced flow in lower Deer Creek, Books Spring, and lower Crow Creek, (which is not likely because groundwater also flows to these locations from other directions) would result in a reduction in surface water flow of less than 0.2 percent, which would be a negligible, long-term impact.

Groundwater Quality. Components of the Proposed Action with the potential to impact groundwater quality are the increased seleniferous footprint and use of a GCLL instead of the approved geologic store and release cover. The 2007 FEIS found that the approved geologic store and release cover design resulted in COPC concentrations well below applicable groundwater standards everywhere in the model domain, even without considering attenuation. This included all observation points associated with locations under the mine development and down gradient of the lease boundaries, including at groundwater discharge points. However, as

described in the 2007 FEIS and supporting documents, groundwater flow paths are such that the Panel G area overlies the portion of the Wells Formation aquifer that discharges at lower Deer Creek and Books Spring, as well as within a gaining reach of Crow Creek. Groundwater recharge in the Panel G area would not flow towards or discharge at South Sage Creek Springs (located further to the north). As a result, there is no need to reanalyze any of the 2007 FEIS conclusions for the South Sage Creek Springs discharge location. Thus, the following groundwater quality discussion focuses only on the portion of the model domain in Deer Creek and south of Deer Creek. Further, the FEIS determined that selenium was the only COPC that required detailed evaluation in the groundwater impact analysis, based upon results from the previous DEIS impact assessment.

The 2007 FEIS (Figures 4.3-8 through 4.3-11) predicted peak selenium concentrations in groundwater at the modeled Point D (located immediately east of Panel G) ranging from 0.0152 mg/L to 0.0134 mg/L, assuming the Agency-preferred selenium attenuation range of 15 to 25 percent. These predicted concentrations are well below the applicable groundwater standard of 0.05 mg/L. They are based upon a groundwater transport model that estimates, among other inputs, a selenium load from percolation through the seleniferous overburden that would mix with and become diluted by Wells Formation groundwater beneath and down gradient of Panel G. Loading is a reflection of: (1) the estimated selenium concentration in the leachate from overburden characterization and (2) an estimated volume of leachate caused by net recharge through the overburden cover. In other words, the basic formula for calculating contaminant loading to underlying groundwater is:

contaminant loading = infiltration × contaminant concentration × surface area

And, volume of leachate is the product of infiltration and surface area. Thus, a reduction in either component would result in the affected groundwater having a reduced selenium concentration.

As noted previously, the proposed GCLL cover would allow approximately 44 percent of the recharge volume that was predicted for the approved geologic store and release cover. Assuming that the selenium concentration of the recharge would remain the same as predicted for the 2007 FEIS (a reasonable assumption because that analysis did not vary pore water chemistry with alternative) and that all else remains the same, one would expect the same percentage effect on contaminant loading, and thus on final concentration in groundwater after mixing. Because this somewhat simplifies the original analysis that was done for the 2007 FEIS, in part by not calculating pore volumes and resultant changes in selenium concentration over time, the reduced selenium concentration in the groundwater is not quantified here. However, it is clear that this represents a significant, improved effect over the 2007 FEIS in regard to groundwater quality beneath and down gradient of Panel G, including locations where groundwater discharges to the surface. The magnitude of this effect is likely to be long-term and minor to moderate.

Surface Water Quantity. The 2007 FEIS found that disturbances associated with approved mining in Panels F and G would not cause the total amount of land in a hydrologically disturbed condition to rise above 30 percent in any of the affected HUC 5 or HUC 6 watersheds. As described in the 2007 FEIS, this cutoff percentage is relevant because the RFP uses this indicator as a guideline for assessing proposed projects on NFS lands. While the Proposed Action would incrementally increase the disturbed area associated with Panel G by up to 161 additional acres, the total amount of land in a hydrologically disturbed condition in any of the affected watersheds would remain well below 30 percent. This is described in Table 4.3-21 in the 2007 FEIS,

showing that the percent of HUC 170401050705 (the potentially affected HUC for this Project) in a hydrologically disturbed condition was six percent. Adding an additional 161 acres of disturbance within this watershed would add less than one percent to this overall total disturbed condition, thus keeping the disturbed condition well below the 30 percent. This would represent a negligible effect to the relevant HUC watersheds compared to the approved Panel G actions.

The 2007 FEIS assessed impacts to surface water quantity due to runoff reduction, baseflow reduction, and peak flow alterations. Only the first two would potentially change compared to the effects for the approved Panel G operations. First, under the Proposed Action, precipitation falling within the Panel G pit boundary and the ODA footprint would infiltrate toward or to groundwater (under the constraints dictated by the GCLL as previously described) or would be collected and conveyed to containment ponds. As with the approved Panel G actions, these ponds would be designed to contain the expected runoff from events up to and including the 100-year, 24-hour precipitation, with the effect that areas draining to these ponds are withdrawn from the contributing watershed area of a given stream. Compared to the approved plan, the Proposed Action would result in a greater disturbance area that would have runoff directed to ponds, thus potentially incrementally reducing runoff that reaches Deer Creek and the Wells Canyon drainage and intermittent stream. As analyzed in the 2007 FEIS, Deer Creek's reduction in contributing area was estimated to be 245 acres and the Wells Canyon drainage reduction was estimated to be 220 acres, which represented six and 12 percent of the watershed areas, respectively, for these streams. With the Proposed Action, Deer Creek's contributing area reduction would increase by about 65 acres and Wells Canyon by about 85 acres, changing the overall percentages to about 8 and 17 percent, respectively. These incremental increases would likely result in a minor to moderate change in stormwater runoff flows in these two stream channels.

Perhaps more important are potential longer term changes in the baseflows for these streams. One way which baseflow reduction may occur is from disruptions to springs. The 2007 FEIS disclosed that mining the Panel G pit would physically obliterate one spring (SP-UTDC-800) and likely reduce or eliminate flow to another spring (SP-UTDC-700) by decreasing the uphill recharge area in the Rex Chert member (see Figure 3.6-1 in the 2007 FEIS). This would not change under the Proposed Action. Quantity impacts to two very small additional springs (SP-UTWC-300 and SP-UTSFDC-500) that would be covered by the South ODA were considered in the 2007 FEIS to be impossible to predict; that assessment remains with the Proposed Action. However, their contributions to stream flows appear to be negligible. Combined, the consequences to baseflows in Deer Creek as a result of effects to these four springs do not change with the Proposed Action. This was previously determined to be minor, local, and long-term.

The 2007 FEIS described that discharge of groundwater from the Wells Formation aquifer supports flow in lower Deer Creek, Books Spring, lower Wells Canyon, a spring at Stewart Ranch, Crow Creek above SW-CC-500, and Clear Creek. As shown by Figure 3.3-9 of the 2007 FEIS, Clear Creek, the Stewart Ranch spring, and Wells Canyon are not downgradient of Panel G, so would not be affected by mining there. Lower Deer Creek, Books Spring, and lower Crow Creek are downgradient of Panel G and could be affected by the mining. As described in the 2007 FEIS, the total baseline groundwater discharge to these specific locations was 5.6 cubic feet per second. This equates to approximately 4,054 acre feet/year.

The currently approved geologic store and release cover for Panel G would have a maximum infiltration rate of approximately 0.7 inches per year and, as analyzed by the groundwater model used for the 2007 FEIS, would cover 366 acres. This would allow an infiltration rate of 21.3 acre feet/year. The proposed GCLL would have a maximum estimated infiltration rate of 0.29 inches per year and would cover 392 acres. This would allow an infiltration rate of 9.48 acre feet/year for a recharge reduction of 11.8 acre feet/year. This reduction in recharge, if it directly reduced flow in lower Deer Creek, Books Spring, and lower Crow Creek, (which is not likely because groundwater also flows to these locations from other directions) would be a reduction in flow of less than 0.3 percent, which would be a negligible, long-term impact.

In addition, baseflow reduction may change due to long-term topographic alteration as well as the previously described changes in infiltration capacities. In particular, upon reclamation, a portion of the disturbed area would drain toward the pit bottom and infiltrate into the footwall limestone. The effect of this would alter which direction this infiltrated water would drain (i.e., north towards Deer Creek or south towards Wells Canyon). The Proposed Action would reduce the area contributing to Deer Creek by almost 200 acres, and would increase the area contributing to Wells Canyon by about 33 acres, compared to the approved reclamation configuration. While not all of the water infiltrated necessarily supports baseflows, the proportional net change to baseflows would likely be negligible.

Surface Water Quality. The reduction in selenium loading to groundwater would also have implications to surface water quality in lower Deer Creek, Crow Creek east of Panel G, and Books Spring. For the approved geologic store and release cover analyzed in the 2007 FEIS, the concentration of selenium in affected groundwater discharging at the surface would comply with State surface water standards that are protective of aquatic life, even before mixing with the unaffected flows. After mixing, estimated selenium concentrations at the mouth of Deer Creek ranged from 0.0028 mg/L to 0.0025 mg/L (for the analysis of the summer/fall season while irrigation withdrawals were occurring), assuming the Agency-preferred selenium attenuation range of 15 to 25 percent. Under the same conditions, peak selenium concentrations in Crow Creek immediately downstream of Deer Creek were predicted to range from 0.0015 mg/L to 0.0014 mg/L and Books Spring was predicted to have a peak selenium concentration of 0.0019 mg/L at 15 percent attenuation and a concentration of 0.0017 mg/L at 25 percent attenuation. These values are well below the relevant aquatic criterion for selenium (0.005 mg/L). For the proposed GCLL with reduced loading the criterion would continue to be met, with selenium concentrations predicted to be even further beneath the criterion. This effect would also retain a greater assimilative capacity for selenium in Deer and Crow Creek compared to the approved 2007 FEIS alternative.

As previously described, the reduced groundwater selenium concentrations under the Proposed Action are not quantified; thus, neither are the predicted surface water concentrations. However, it is clear that the Proposed Action effect on selenium concentrations in Deer and Crow Creek near Deer Creek represents a measurable (improved) effect over the 2007 FEIS. The magnitude of this effect is likely to be long-term and minor to moderate.

Another potential source of surface water quality impacts from Panel G disturbances would be due to release of eroded sediments into stream channels. The Proposed Action calls for a continuation of stormwater management via numerous sediment containment ponds designed to capture up to and including a 100-year, 24-hour storm event. As discussed in the 2007 FEIS,

releases do occur from the mine's stormwater ponds at times (as allowed under the relevant stormwater permit), but these isolated instances of sediment contributions are not expected to be problematic for overall water quality at the watershed scale. Under the Proposed Action, there would be additional disturbances that could generate sediments, but there would also be additional sediment ponds designed and positioned to capture runoff bearing those sediments (see **Chapter 2**). Further, Simplot actively evaluates stormwater management features and upgrades them as needed. Overall, the Proposed Action, compared to the approved Panel G mine, would have no additional surface water quality impacts due to sediment releases.

4.4.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Groundwater Quantity. Alternative 1 would have the same areal extent of seleniferous overburden as the Proposed Action, but two types of covers would be used. Of the total 392 acres that would be covered, 250 acres would receive the approved geologic store and release cover that was approved under the 2007 FEIS and the remaining 143 acres would be covered by the GCLL as described under the Proposed Action. The net result would be an annual recharge volume of 18 acre-feet/year, or almost double the recharge through the cover, compared to the Proposed Action condition (9.5 acre-feet). More recharge (an increase of 8.5 acre-feet) would result in more groundwater flow (approximately 0.2 percent) to lower Deer Creek, Books Spring, and lower Crow Creek, compared to the Proposed Action.

Groundwater Quality. As noted previously, Alternative 1 would result in approximately double the recharge volume that was predicted for the Proposed Action. It would have the same level of effect on contaminant loading, and thus on final concentrations in groundwater after mixing. Compared to the Proposed Action, this represents a long-term, moderate decrease in groundwater quality beneath and down gradient of Panel G, including locations where groundwater discharges to the surface.

Surface Water Quantity. Effects to surface water quantity would be essentially the same under this alternative as they would be under the Proposed Action. The Proposed Action would have the potential to reduce flow in lower Deer Creek, Books Spring, and lower Crow Creek by less than 0.3 percent; under Alternative 1, flow may increase by about 0.2 percent. The resultant changes in flow would be long-term, negligible impacts in both cases.

Surface Water Quality. The selenium criterion would continue to be met in both Deer Creek and Crow Creek near Deer Creek under this alternative, but concentrations are predicted to be slightly greater than they would be under the Proposed Action.

Regarding surface water quality impacts from the potential release of eroded sediments into stream channels, impacts under this alternative would be identical to those described under the Proposed Action.

4.4.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Groundwater Quantity. This alternative would consist of 3 more acres of seleniferous fill than the Proposed Action, with a similar proportion of the two different cover designs as for Alternative 1. The net result would be almost double the annual recharge through the cover, compared to the Proposed Action. More recharge (an increase of approximately 9.0 acre-feet) would potentially result in more groundwater inflow (approximately 0.2 percent) to lower Deer Creek, Books Spring, and lower Crow Creek as compared to the Proposed Action. This is essentially the same effect on groundwater quantity as for Alternative 1.

Groundwater Quality. As noted previously, Alternative 2 would result in approximately double the recharge volume that was predicted for the Proposed Action. It would have the same level of effect on contaminant loading, and thus on final concentrations in groundwater after mixing. Compared to the Proposed Action, this represents a long-term, moderate decrease in groundwater quality beneath and down gradient of Panel G, including locations where groundwater discharges to the surface. This is essentially the same as for Alternative 1.

Surface Water Quantity. Effects to surface water quantity would be essentially the same under this alternative as they would be under the Proposed Action. Under the Proposed Action there would be the potential to reduce flow in lower Deer Creek, Books Spring, and lower Crow Creek by less than 0.3 percent, and under Alternative 2 flow may increase by about 0.2 percent. The resultant changes would be negligible impacts to flow in both cases.

Surface Water Quality. The selenium criterion would continue to be met in both Deer Creek and Crow Creek near Deer Creek under this alternative, but concentrations are predicted to be somewhat greater than they would be under the Proposed Action and slightly more than Alternative 1.

Regarding surface water quality impacts from the potential release of eroded sediments into stream channels, impacts under this alternative would be identical to those described under the Proposed Action.

4.4.2.4 No Action Alternative

Under the No Action Alternative, impacts to water resources would not occur as a result of the Proposed Action. The previously approved M&RP for Panels F and G would continue to be implemented and the approved geologic store and release cover would be constructed on areas containing seleniferous overburden. While there would be a 50 percent reduction in the amount of ore mined under the No Action Alternative from that approved by the 2008 RODs, this would not change impacts to water resources.

4.4.3 Mitigation Measures

All applicable mitigation measures required by the 2008 RODs for the approved mining operations at Panels F and G would apply to the Proposed Action or Action Alternatives. In addition, the following mitigation measures specific to the Project would apply: 1) a more detailed GCLL design and construction plan would need to be developed that would be reviewed and approved by the Agencies before implementation; 2) a third party quality control inspector satisfactory to the Agencies would need to be employed by Simplot to ensure that the GCLL is built as proposed; and 3) a detailed Agency-approved GCLL construction and operation monitoring plan would need to be prepared, developed, and then implemented. This plan would include monitoring of construction to provide data showing the cover was built in accordance to agency-approved plans and specifications. It would also include monitoring of the performance of the GCLL to provide data showing the GCLL is functioning as designed.

4.4.4 Unavoidable (Residual) Adverse Impacts

4.4.4.1 Groundwater

Unavoidable adverse effects to groundwater would be impacts to water quality. As previously described, infiltration of precipitation through seleniferous overburden has the potential to affect groundwater quality by releasing selenium and other COPCs into the groundwater regime, thus residual effects would remain after reclamation actions have been completed. Use of the proposed GCLL is expected to reduce infiltration to an even greater extent than the previously approved store and release cover. No exceedances of groundwater quality protection standards would be expected due to the Proposed Action or Action Alternatives.

4.4.4.2 Surface Water

The unavoidable adverse effects to groundwater would result in the same sort of impacts to surface water quality. These impacts, caused by groundwater contributions of selenium and other COPCs to surface waters, would be residual even after reclamation. However, no exceedances of surface water quality protection standards would be expected due to the Proposed Action or Action Alternatives.

4.4.5 Relationship of Short-term Uses and Long-term Productivity

Some short-term use of surface and groundwater resources would occur from mining operations. Seepage of infiltration through seleniferous overburden and contribution of COPCs to groundwater downgradient of the areas containing seleniferous overburden would result in long-term water quality impacts of this groundwater. No exceedances of groundwater quality protection standards are expected due to the Proposed Action or Action Alternatives, and the GCLL should reduce infiltration and increase protection of the groundwater resources. Where the contaminated groundwater discharges to the surface environment, the contaminants would be transferred from the subsurface to the surface environment for long periods of time. No exceedances of surface water quality standards from the Proposed Action or Action Alternatives are expected. Over many centuries, these concentrations are expected to decrease.

4.4.6 Irreversible and Irretrievable Commitment of Resources

4.4.6.1 Groundwater

There are no impacts to groundwater quantity as a result of the Proposed Action or Action Alternatives that would be irreversible or irretrievable. As described in the 2007 FEIS, irretrievable changes in groundwater quality under and downgradient of ODAs that contain seleniferous material would occur because of the long-term infiltration of water through those seleniferous materials. However, the GCLL should reduce these potential irretrievable impacts, and peak concentrations of COPCs within affected areas of the aquifer are expected to comply with applicable groundwater protection standards.

4.4.6.2 Surface Water

As described for the 2007 FEIS, for practical purposes, streams that are negatively impacted by COPCs in groundwater discharges would be irreversible commitments of these resources. However, the GCLL should reduce these potential irretrievable impacts, and peak concentrations of COPCs within affected areas of surface water are expected to comply with applicable surface water protection standards.

4.5 SOILS

4.5.1 Issues and Indicators

The following issue was identified through scoping. An indicators was developed to address the scoping issue.

Issue: The Proposed Action may affect soil resources in the Project Area.

Indicator: Acres of soil disturbed, where suitable soil would be salvaged and used as growth material for reclamation, along with associated additional soil impacts (i.e., physical changes, productivity, soil loss through erosion effects, and mobilization of selenium).

4.5.2 Direct and Indirect Impacts

Direct and indirect impacts to soil resources from the Proposed Action would be similar to those described in the 2007 FEIS. The Proposed Action would result in an additional 170 acres of disturbance from what was analyzed in the 2007 FEIS.

The 2007 FEIS (Section 4.2.2) provides detailed descriptions of impacts to soil resources that may occur specific to this Proposed Action, but on a much smaller scale compared to the original Panels F and G project. These potential additional impacts thoroughly described in the 2007 FEIS are briefly summarized as follows:

1) Soil salvage: topsoil/growth medium would be salvaged for reclamation purposes and stockpiles placed on stable landforms would be protected from erosional forces. Soil salvage would be based on suitability criteria as described in **Table 3.5-3**. A summary of the approximate in-situ topsoil/growth medium volumes for mapped soil units in the Project Area is presented in **Table 3.5-4**. The actual total volume of available growth medium resources may be slightly different than estimated, due to variable site conditions

2) Physical changes to soil resources: such as through mixing during salvage operations, disturbance to microbiotic soil crusts, and compaction and crushing of soil.

3) Productivity: production and fertility of the stockpiled growth medium would be directly affected by mixing and compaction of the soils during salvage operations and all disturbed soils would be ameliorated to meet soil quality standards and guidelines.

4) Soil loss: a portion of the soils within the Project Area would be physically lost during salvage and replacement operations through mechanical and erosion effects, although measures would be implemented for sediment and erosion control to reduce soil loss and sedimentation that could be caused by sheet and gully erosion from drainage and surface runoff.

5) Water erosion: potential for water erosion would be increased after soil salvage operations due to the removal of the vegetative cover and the loss of soil structure. Erosion of topsoil/growth medium after redistribution on regraded sites during the final stages of reclamation would also have a greater potential until the soil is stabilized by successful revegetation.

6) Wind erosion: wind erosion hazard is expected to be low to moderate due to the characteristic soil features, such as the high percentage of coarse fragments throughout the soil profile.

7) Selenium mobilization: the reclamation seed mix would not include vegetation species considered to be selenium accumulator plants. EPMs and BMPs outlined in the 2007 FEIS, plus the proposed GCLL for this Project are designed to reduce potential impacts from selenium mobilization to negligible levels.

Indirect impacts related to soil resources include water quality degradation related to erosion or selenium in sediment, potential elevated selenium content of vegetation on reclaimed areas, and reduced viability of vegetation related to soil fertility factors.

Indirect impacts related to the selenium content of plant growth medium within the Project Area are possible, but would be greatly reduced by using cover materials with low selenium concentrations.

With implementation of growth medium salvage and reuse practices, soil conservation measures, EPMs and BMPs, and other proposed operating procedures as approved and described in the 2007 FEIS, the impacts to this resource under the Proposed Action would be site-specific, long-term, and moderate.

4.5.2.1 Proposed Action

Panel F Ore Conveyor System

The Panel F ore conveyor system would result in new surface disturbance of approximately 8 acres, since the majority of the conveyor system would be constructed within previously mined out areas within Panel F and within the existing haul road. Growth medium would salvaged from disturbed areas and eventually used for reclamation.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Expansion of the South and East ODAs and development of the stormwater features would result in the new disturbance of approximately 161 acres of soil resources. This represents an approximate 12 percent increase in the total amount of soil disturbance analyzed and approved in the 2007 FEIS. Growth medium salvaged from these areas would be placed in a stockpile and eventually used for reclamation.

4.5.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under Alternative 1, the acreage of disturbance required for the Project would be the same as the Proposed Action. The use of a mixed cover instead of only a GCLL would not change impacts to soils. Therefore, impacts to soils under Alternative 1 would be the same as described under the Proposed Action.

4.5.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under Alternative 2, new surface disturbance from the East ODA expansion and stormwater control features would be approximately 46 acres less than under the Proposed Action. Reducing new surface disturbance by approximately 46 acres would result in slightly less overall impacts to soil resources compared to the Proposed Action or Alternative 1, but the types of impacts to soils would be the same as previously described.

4.5.2.4 No Action Alternative

Under the No Action Alternative, no new disturbance to soil resources specific to the Project would occur. The previously approved M&RP for Panels F and G would continue to be implemented. There would be a 50 percent reduction in the amount of ore mined compared to that approved by the 2008 RODs, but this would not change the impacts to soil resources because the amount of surface disturbance would remain the same.

4.5.3 Mitigation Measures

No additional mitigation measures for soil resources specific to this Project have been identified; however, all applicable mitigation measures required by the 2008 RODs for the approved mining operations at Panels F and G would apply to the Proposed Action or Action Alternatives. In addition, the Proposed Action or Action Alternatives would incorporate updated United States

Department of Agriculture (USDA) guidelines (2013b) for determining topsoil suitable for reclamation on any areas approved for new surface disturbance for this Project.

4.5.4 Unavoidable (Residual) Adverse Impacts

Native soil conditions would be lost on the disturbed areas due to the breakdown of soil structure, adverse effects to microorganisms, and discontinuation of natural soil development as a result of salvage operations. Soils salvaged and utilized in reclamation would initially demonstrate a decrease in infiltration and percolation rates, decrease in available water holding capacity, and loss of organic matter. These effects would be reversed by natural soil development over time. Successful reclamation of disturbed areas would expedite these natural processes and create an environment suitable for long-term vegetation establishment.

4.5.5 Relationship of Short-term Uses and Long-term Productivity

Soils would be disturbed in the short-term during mining operations and reclamation of disturbed areas would return the disturbed soil to long-term productivity by being utilized as growth medium in reseeded areas, while the unreclaimed stormwater features areas would be permanently eliminated from potential long-term productivity.

4.5.6 Irreversible and Irretrievable Commitment of Resources

Unreclaimed areas of soil disturbance for associated stormwater features would produce an irreversible commitment of soil resources disturbed by these features. An irretrievable commitment of resources includes the disturbance of soil resources with implementation of the Proposed Action or Action Alternatives.

4.6 VEGETATION

4.6.1 Issues and Indicators

Although no issues for vegetation resources were identified from scoping that were within the scope of this Project, potential impacts to vegetation communities, TEPC plant species, and noxious weeds are discussed in the following sections.

The primary indicator for these issues is the acres of new disturbance within existing vegetation cover types.

4.6.2 Direct and Indirect Impacts

4.6.2.1 Proposed Action

As described in **Section 3.6**, seven vegetation cover types would be impacted by the Proposed Action. This direct impact from vegetation removal would be predominately long-term and within mainly aspen and aspen/conifer vegetation cover types. This represents an approximate 12 percent increase in the total amount of vegetation resources analyzed and approved for disturbance in the 2007 FEIS.

Most species to be used for revegetation would be similar to those now existing in the area, although upon regeneration the exact composition of reclaimed vegetation communities would be different as they follow a unique succession process. Only shallow-rooting species (i.e.,

rooting within the depth of the cover soil/material above the GCLL) would be used on the GCLL. Reclamation seed mixes would be reviewed and approved by the USFS.

Indirect impacts to vegetation may occur via competition with noxious weeds and/or selenium accumulation, particularly for invasive plants located on top of temporarily uncovered seleniferous ODAs. These impacts, if they occurred, would be short-term, site-specific, and negligible to moderate. Applicable EPMs described in the 2007 FEIS (Section 2.5.4) have been designed to minimize the potential for these impacts to occur. Using engineered covers on areas of seleniferous overburden should minimize the potential selenium accumulation for reclamation vegetation. See following "Selenium Issues with Vegetation" section for further discussion.

Special Status Plant Species

No TEPC plant species are known or expected to occur in the Project Area based upon previous surveys and suitable habitat requirements, therefore there would be no impacts to these species.

Noxious Weeds

Potential indirect impacts from the Proposed Action would include an increase in disturbed soils (approximately 170 acres), approximately 12 percent more than what was analyzed and approved in the 2007 FEIS. Disturbed areas are susceptible to weed invasion. The 2007 FEIS describes EPMs designed to minimize the potential for the establishment of noxious weeds, such as treating any noxious weeds upon initial discovery. Because the Proposed Action would implement these EPMs, impacts from noxious weeds would be site-specific, short-term, and minor.

Selenium Issues with Vegetation

As discussed in the 2007 FEIS, a potential indirect impact exists from the increased uptake of selenium by plants growing on reclaimed areas. However, the Proposed Action would utilize selenium control measures such as the use of a GCLL over seleniferous overburden to greatly reduce this potential indirect impact. Separation of the vegetation roots from the seleniferous overburden by the GCLL would help prevent selenium uptake in vegetation. As a result, the potential indirect impact of selenium accumulation in future vegetation communities growing on the reclaimed areas would be minimal. If accumulation were to occur, the impact to vegetation itself would be local, long-term, and negligible.

Panel F Ore Conveyor System

The Panel F ore conveyor system would result in new surface disturbance of approximately 8 acres, since the majority of the conveyor system would be constructed within previously mined out areas within Panel F and the existing haul road. All new disturbance would occur within the aspen vegetation cover type. The access roads used to construct the conveyor system in previously undisturbed areas would be reclaimed, using an approved USFS seed mix, leaving approximately 1.3 acres of long-term disturbance from the conveyor support structures.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Expansion of the South and East ODAs and development of the stormwater features would result in the new disturbance of approximately 161 acres of vegetation resources. This represents an approximate 12 percent increase in the total amount of vegetation resources disturbance analyzed

and approved in the 2007 FEIS. The majority of disturbance would occur within the aspen (92.5 acres), aspen/conifer (33.5 acres), and subalpine fir (22.7 acres) vegetation cover types.

These disturbance areas would be reclaimed as approved and analyzed in the 2007 FEIS, with the exception of 10.6 acres of stormwater features that would be maintained free of vegetation to ensure functionality for their intended use.

Installation of a GCLL over the portions of the pit and East ODA that contain seleniferous overburden would reduce the potential for selenium accumulation by plants growing on these reclaimed areas. Shallow-rooting species would be used for reclamation on the GCLL to reduce the potential for selenium uptake and root penetration of the GCLL cover system. The GCLL cover system includes a synthetic layer which strengthens the cover against penetration. The installation of a drain layer associated with the GCLL (see **Appendix 2A**) is specifically designed to transport water during high runoff periods. GCLLs are also considered to provide enhanced resistance to penetration by plant roots by providing an extra layer of protection in addition to its self-sealing qualities (OKC 2009; EPA 2001).

Areas disturbed by this Proposed Action and not covered by the GCLL would be reclaimed with the USFS-approved seed mix for Panels F and G.

4.6.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under Alternative 1, impacts to vegetation resources would be the same as described under the Proposed Action, with the exception that approximately 143 acres (approximately 250 acres less than the Proposed Action) would be covered by the GCLL, which would only be seeded and reclaimed by shallow-rooting species; and approximately 250 acres on lease would receive a geologic store and release cover, on which revegetation would include islands of diversity containing deeper rooted species (see Section 2.6 of the 2007 FEIS). Having islands of diversity planted on the geologic store and release cover, unlike the Proposed Action, would eventually result in having a more naturalized vegetation community than that described for the Proposed Action.

4.6.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under Alternative 2, there would be a reduction of approximately 46 acres in impacts to vegetation resources compared to the Proposed Action, mainly within the aspen and aspen/conifer vegetation communities. Approximately 138 acres (approximately 254 acres less

than the Proposed Action) would be covered by the GCLL, which would only be seeded and reclaimed by shallow-rooting species. Approximately 257 acres would receive a geologic store and release cover, on which revegetation would include islands of diversity containing deeper rooted species (see Section 2.6 of the 2007 FEIS). Having islands of diversity planted on the geologic store and release cover, unlike the Proposed Action, would eventually result in having a more naturalized vegetation community than that described for the Proposed Action and just slightly more than Alternative 1.

4.6.2.4 No Action Alternative

Under the No Action Alternative, the removal of vegetation specific to the Proposed Action or Action Alternatives would not occur. Mining in Panels F and G would continue under the previously approved M&RP. There would be a 50 percent reduction in the amount of ore mined under the No Action Alternative from that approved by the 2008 RODs, but this would not change the amount of disturbance approved by the RODs, or associated impacts to vegetation resources.

4.6.3 Mitigation Measures

No additional mitigation measures for vegetation specific to this Project have been identified. However, applicable mitigation measures required by the 2008 RODs for the approved mining operations at Panels F and G would apply to the Proposed Action or Action Alternatives. These would include vegetation monitoring to determine reclamation success and concentrations of selenium and other COPCs, using the most adapted and genetically appropriate plant material available for all seeding and planting activities, and continuing the current program of monitoring and controlling noxious weeds.

4.6.4 Unavoidable (Residual) Adverse Impacts

Disturbed areas would constitute an unavoidable adverse impact to vegetation resources. When vegetation encroaches naturally into disturbed or newly reclaimed areas, it is likely that some colonizing species would be noxious weeds. These areas would remain susceptible until reclamation vegetation becomes established. The longer a site is disturbed, the longer the window of opportunity and space for noxious weed seeds to invade and establish relative to sites that are reclaimed.

4.6.5 Relationship of Short-term Uses and Long-term Productivity

The Project would implement ground-disturbing activities that would produce short- and long-term effects to vegetation. The areas covered by the GCLL would result in the long-term productivity impacts for timber resources as only shallow rooting grasses, forbs, and shrubs would be allowed to establish on the GCLL.

4.6.6 Irreversible and Irretrievable Commitment of Resources

The Project would result in the removal of up to 170 acres of currently undisturbed vegetation, and this loss of timber would be an irreversible commitment of resources. Areas would be reclaimed by reseeding and replanting deep-rooted vegetation on all areas not covered by the GCLL. Areas covered by the GCLL would be seeded with only shallow-rooting species, and deep-rooting species would unlikely be successful in naturally reestablishing within those areas.

Conifer forests outside of the GCLL would not recover to their current stature and complexity for at least 200 years as described in the 2007 FEIS.

The permanent stormwater features associated with the GCLL (a total of 10.6 acres) would represent an irretrievable loss of vegetation.

4.7 WETLANDS

4.7.1 Issues and Indicators

The following issue was identified through scoping. An indicator was developed to address the scoping issue.

Issue: The Proposed Action may impact wetlands and Waters of the U.S. (WOUS).

Indicator: The number of wetland acres and lengths of WOUS disturbed.

4.7.2 Direct and Indirect Impacts

4.7.2.1 Proposed Action

Panel F Ore Conveyor System

No WOUS, including wetlands, were identified within the Project Area for the Panel F ore conveyor system, thus there would be no impacts. The conveyor would cross over the three perennial creeks along and within the disturbed footprint of the existing haul road and thus there would be no impacts to these creeks.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

One small wetland would be impacted in the Panel G area. The wetland is a narrow feature, measuring 30 feet long by three feet wide (average width), associated with the Wells Canyon drainage. This negligible impact would occur from construction of an access road for stormwater features, whereby a culvert would likely be installed to prevent an impediment to seasonal surface water flow in the drainage. The existing Corps permit for the Panel G mining area would be amended to include this additional 0.002-acre of wetland impact or an applicable nationwide permit would be obtained.

4.7.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

The Project footprint and disturbance acreage under Alternative 1 would be the same as the Proposed Action, thus impacts to wetlands would be the same as described under the Proposed Action.

4.7.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Despite the fact that both the lease modification area and disturbance acreage would be less under Alternative 2 compared to the Proposed Action or Alternative 1, impacts to wetlands would be the same as described for those alternatives.

4.7.2.4 No Action Alternative

Under the No Action Alternative, impacts to the wetland in the Panel G area, associated with the Wells Canyon drainage, would not occur. The previously approved M&RP for Panels F and G would continue to be implemented. There would be a 50 percent reduction in the amount of ore mined compared to that approved by the 2008 RODs; however, this would not change the impacts to wetland resources.

4.7.3 Mitigation Measures

Impacts to jurisdictional waters, including WOUS and wetlands, would be avoided or minimized to the extent possible by design. EPMs and BMPs that would be used to minimize impacts to wetlands and WOUS include the construction of surface runoff management ditches, culverts, settling ponds and sediment traps. Management practices would follow Simplot's Smoky Canyon Mine SWPPP. Simplot would submit a permit application to the Corps for dredge or fill activities associated with the Proposed Action or Action Alternatives.

4.7.4 Unavoidable (Residual) Adverse Impacts

Unavoidable adverse impacts are those that would continue after implementation of mitigation measures and/or final reclamation. The small impacted wetland at the Panel G area could potentially be re-established and restored through reclamation activities at the end of the useful life of the access road.

4.7.5 Relationship of Short-term Uses and Long-term Productivity

A small wetland would be impacted by the Proposed Action in the short- and long-term, which would result in impacts to the long-term productivity of the impacted wetland area.

4.7.6 Irreversible and Irretrievable Commitment of Resources

The small wetland disturbed by the access road to the stormwater features would be irreversible because the stormwater features associated with the GCLL are permanent and would not be reclaimed. The function of the impacted wetland would be irretrievably lost.

4.8 WILDLIFE

4.8.1 Issues and Indicators

The following issue was identified through scoping. An indicator was developed to specifically address that issue.

Issue: The proposed conveyor may impact wildlife movement.

Indicator: Number of conveyor crossings.

In addition, the following indicators were used to evaluate other impacts to wildlife:

- Compliance with the applicable species-specific RFP standards and guidelines;
- Acres of different wildlife habitats physically disturbed;
- Acres of disturbance and the proximity of disturbance to high value habitats such as: TEPC species habitats, crucial and or high value big game ranges, wetlands, and seep and spring areas;
- Increased uptake of COPCs by wildlife in disturbed and reclaimed areas; and,
- Increase in mining-related noise levels in wildlife habitat.

4.8.2 Direct and Indirect Impacts

4.8.2.1 Proposed Action

As described in **Section 4.6**, the Proposed Action would disturb approximately 170 acres in a variety of habitats that are currently utilized by TEPC species and other wildlife. However, all disturbances would be within or immediately adjacent to currently approved or ongoing mining activities associated with Panels F and G as analyzed in the 2007 FEIS. The Panel F ore conveyor system would disturb approximately 8 acres of aspen habitat, within or immediately adjacent to mining activities, for conveyor maintenance access roads and conveyor support bents. The Proposed Action at the Panel G area would disturb approximately 161 acres of wildlife habitat within or immediately adjacent to mining activities including approximately 150 acres of forest, 6 acres of mountain snowberry and sagebrush, and 5 acres of forbs. The Panel G portion of the Project would also disturb 0.002-acre of wetlands habitat, which includes approximately 30 feet of intermittent channel in the Wells Canyon drainage that is also an AIZ. Impacts to wetlands are addressed in **Section 4.7** and impacts to AIZs are addressed in **Section 4.9**.

The disturbance of forest would occur within potential habitat for the following TEPC and other wildlife species (described in the following sections): gray wolf, wolverine, boreal owl, flammulated owl, great gray owl and other raptors, goshawk, northern three-toed woodpecker and other woodpeckers, sharp-tailed grouse (winter foraging areas), and other upland game birds. The disturbance of shrub communities would reduce marginal habitat for the sharp-tailed grouse and greater sage-grouse. Depending on the slope of the disturbed area, disturbances could pose physical barriers to larger mammals. All wildlife crossing over the conveyor at the three crossing locations along the existing haul road would be at risk from vehicle collisions and potentially predators due to the need to funnel the wildlife to one of the three crossing locations. In general, habitat disturbances from mining would displace individuals into adjacent suitable habitat, where

increased population densities may lead to adverse populations effects (decreased reproductive rates, increased mortality), depending on the species.

All vegetation would be removed from acres disturbed by the Proposed Action and eventually reclaimed. Only shallow rooting grasses and forbs would be used to seed the 392 acres covered by the GCLL (see **Section 4.6**). Plant species that would be used in reclamation would be similar to those now existing in the area, although the exact composition of reclaimed communities would be different as they follow a unique succession process. After native bunch grasses and forbs are seeded initially, other native forbs, shrubs, and trees would be seeded or planted in clusters in areas not covered by the GCLL and where they would be most likely to establish. Over the long term and where allowed to do so, forest and mountain brush species may also encroach naturally into reclaimed areas.

The goal under Management Prescription 8.2.2(g) to, "…design final reclamation that promotes long-term diversity in vegetation and wildlife habitat…" (USFS 2003a) would be met through the use of native seed mixes in reclamation. The use of shallow-rooting species with low rates of selenium uptake would be used as much as possible to minimize selenium contamination of reclamation vegetation and subsequent exposure of wildlife to selenium.

Losses in forb/graminoid habitats would be short-term. Disturbances in other habitats (i.e., conifer and aspen forest, mixed forest/brush, and shrub communities) would constitute long-term habitat losses, as these habitat types would not be allowed to reestablish on the area covered by the GCLL.

4.8.2.2 Proposed Action (all components combined)

The term "analysis area" is used to refer to the Study Area identified in the 2007 FEIS, which includes the Project Area, and is the same for all species. This analysis area was identified and used for this Project for the following reasons: 1) it encompasses all proposed new surface disturbance for the Project; 2) it provides a minimum buffer of one mile from all proposed new surface disturbance; and 3) it was the same analysis area used in the 2007 FEIS for which applicable information is incorporated by reference into this EIS.

Threatened, Endangered, Proposed, Candidate, and Sensitive Wildlife Species; and Management Indicator Species

Canada Lynx (Threatened). Habitat suitable for lynx in the analysis area, while not continuous enough for resident lynx, could provide linkage habitat between the Greater Yellowstone Ecosystem and the high Uinta Mountains, even though the Project Area is situated either within or immediately adjacent to approved mining activity. Potential prey species for the lynx would tend to be displaced from the Project Area as well as areas already impacted by existing mining activities. Moving lynx prefer undisturbed forest, thus approximately 158 acres of disturbed forest within or immediately adjacent to existing mining activities may impede east-west lynx movement across the Project Area for the long term. RFP standards and guidelines for this species would be met. In the event that lynx should pass through the Project Area during mining activities, noise and increased human presence may cause lynx and their prey species to alter their normal movement patterns, although lynx appear to be relatively tolerant of humans (Ruediger et al. 2000). RFP standards and guidelines designed to maintain linkage habitat are related to vegetation (**Section 4.6**) and lands management (**Section 4.11**); these involve the maintenance of forest diversity in species composition and age class as well as the improvement

of habitat connectivity for wildlife (USFS 2003a). Movement north and south within adjacent areas would still be possible through undisturbed aspen and conifer forest to the west and shrub-steppe to the east of Proposed Action activities. Overall, impacts to transient lynx and their prey species would be site-specific, short-term, and minor. A preliminary determination has been made that the Project May Affect, but is Not Likely to Adversely Affect Canada lynx.

Greater Sage-Grouse (Candidate, Sensitive, and MIS). All greater sage-grouse individuals observed during baseline surveys were outside the Project Area, and no active or historic sage-grouse leks within 10 miles of the Project Area were identified. Some suitable habitat (6.8 acres of mountain snowberry and sagebrush and 5.8 acres of forb/graminoid habitat) for sage-grouse would be eliminated for at least the short term, which includes brood rearing habitat (high-elevation sagebrush). This reduction would result in negligible decreases in adjacent and undisturbed sagebrush and forb/graminoid habitat, similar to the impacts described in the 2007 FEIS. The Proposed Action would be in compliance with the RFP guideline (USFS 2003a) recommending disturbances not exceed more than 20 percent of the sagebrush in an early seral stage within 10 miles of a lek (Connelly et al. 2000). Any sage-grouse individuals in the Project Area would be displaced, and noise or increased human presence may cause moderate impacts to birds in the vicinity for the duration of the Project.

Overall, a loss of viability for sage-grouse is not expected because the Project Area is not within 10 miles of any known leks and the very limited amount of sagebrush habitat impacted by the Proposed Action is not suitable for nesting or brood rearing. Impacts to sage-grouse are thus expected to be site-specific, short- to long-term, and negligible to minor, depending on how many individuals may be displaced. If the greater sage-grouse species is listed, the preliminary and appropriate determination of effect would be that the Project May Affect, but is Not Likely to Adversely Affect as a Candidate species.

North American Wolverine (Proposed and Sensitive). No known North American wolverine home ranges overlap the Project Area, and no known or expected den sites occur within the Project Area. The Proposed Action would thus comply with the RFP guideline for wolverine (USFS 2003a). Potential habitat for wolverines within the proposed disturbance area (approximately 158 acres of forest, 22 acres being subalpine fir) would be eliminated immediately adjacent to currently approved mining activities, thus preventing colonization in the immediate vicinity of the Project Area for the long term. Because wolverines prefer remote habitat (Magoun et al. 2005), the Proposed Action would also decrease the suitability of surrounding, undisturbed forest that exists adjacent to the Project Area over the short term. Should wolverines travel through the area during Project activities, displacement due to human disturbance would have a moderate impact on these individuals. Potential prey species for wolverines would also be displaced from the Project Area. Overall, potential impacts to wolverines and their prey species would be site-specific, short- to long-term, and negligible to minor, based upon the relative small amount of disturbance specific to the Proposed Action. A preliminary determination has been made that the Project would Not Likely Jeopardize the Continued Existence of wolverines.

Bald Eagle (Sensitive). No bald eagle nests occur within 2.5 miles of the Project Area; therefore, the Proposed Action is thus in compliance with RFP standards and guidelines related to bald eagle nest management (USFS 2003a). The Proposed Action is also in compliance with the RFP guideline regarding winter foraging and roosting habitat (USFS 2003a) because

activities would not occur near the heavily used Crow Creek wintering area. The Proposed Action would result in the removal of 158 acres of forest, including potential roost trees located away from Crow Creek; however, large roost trees are not a limiting factor in the area, and bald eagles would still have many roost trees in adjacent forest available to them. Project-related noise and activities have the potential to displace wintering bald eagles into adjacent suitable habitat. Some potential prey such as fish and carrion would not be affected by the Proposed Action, while other prey species (e.g., rabbits, grouse) may be displaced from the Project Area. Overall, impacts to bald eagles are expected to be site-specific, short-term, and negligible.

Boreal Owl (Sensitive). The Project Area does not provide preferred habitat (e.g., mature spruce-fir forest) for boreal owls, nor was the species detected in the analysis area during baseline surveys conducted for the 2007 FEIS and this Project. Marginal unoccupied habitat for boreal owls within the Project Area (approximately 56 acres, including subalpine fir and aspen/conifer) would be reduced for the long term, leaving adjacent subalpine fir and Douglas-fir habitats undisturbed.

The RFP guideline regarding boreal owl habitat calls for maintaining 40 percent of the forested acres in mature or old age classes within a 3,600-acre area around nest sites (USFS 2003a). Boreal owl habitat impacts from the Proposed Action would be similar to those described in the 2007 FEIS; therefore, the RFP guideline would easily be met, especially when considering this much smaller and specific Proposed Action. Surveys for active boreal owl nests would be conducted prior to initiation of Project activities. If a nest were discovered, the CTNF would consult with the BLM, the proponent, and others as appropriate to determine the feasibility of rescheduling the activity until the birds have fledged. Indirect impacts to boreal owls via reduction of marginal habitat and a loss of available prey species within the Project Area would be site-specific, long-term, and negligible to minor.

Columbian Sharp-Tailed Grouse (Sensitive and MIS). No Columbian sharp-tailed grouse were observed during baseline surveys of the analysis area, and there are no known leks within ten miles of the Project Area (RFP guideline is two miles) (USFS 2003a). It is known that sharp-tailed grouse do not tend to move very far away from their leks over the course of a year (Apa 1998 in USFS 2003a).

The Proposed Action would comply with RFP standards and guidelines for this species (USFS 2003a), including the maintenance of the 80 percent winter forage recommended by Ulliman et al. (1998). Potential marginal habitat (6 acres of mountain snowberry and sagebrush and 5 acres of forb/graminoid habitat) for sharp-tailed grouse would be eliminated for the short term, but that amount does not represent an appreciable decrease in sagebrush habitat within the analysis area for this Project. Potential winter foraging habitat for this species (approximately 100 acres of aspen) would be absent for the long term. However, more than 90 percent of the aspen in the analysis area would remain undisturbed, thus meeting the recommendation of the Idaho Sharp-tailed Grouse Conservation Plan (Ulliman et al. 1998) for winter habitat. The majority of suitable habitat for sharp-tailed grouse identified in the analysis area, along the Deer and Crow Creek drainages, would not be disturbed.

Regarding population viability, there has been no evidence of a downward trend in sharp-tailed grouse numbers in the last two decades. A loss of viability due to the Project would not be expected because RFP standards and guidelines for this species would be met and winter forage would be available to support populations outside of the Project Area (if they occurred).

Due to the lack of data indicating species presence and the absence of known leks within 10 miles, potential impacts from the Proposed Action would be related to the loss of sharp-tailed grouse habitat. These would be site-specific, short- to long-term, and negligible to minor.

Flammulated Owl (Sensitive). Although no flammulated owl nests were found during baseline surveys, call responses were heard in the analysis area at the northern portion of Panel F in 2003 and near Panel G in 2013 (JBR 2013c). The Proposed Action would eliminate approximately 158 acres of forest within or immediately adjacent to existing mining activities for the long term. Individuals, if they occurred within or in close proximity to the Project Area, may be displaced into suitable adjacent habitat as a result of the Proposed Action. Suitable prey species for flammulated owls would also likely be displaced from the Project Area.

The RFP guideline regarding flammulated owl habitat, which recommends against timber harvest activities within a 30-acre area around known nest sites (USFS 2003a), would not be met if nests occur in the Project Area. However, as described in Section 4.7.1.1.1 of the 2007 FEIS, large percentages of habitat (greater than 80 percent of the aspen, aspen/conifer, and Douglas-fir) would remain undisturbed in the analysis area. Because these acres would be available for displaced birds, a loss of viability for this species is not expected. Surveys for active flammulated owl nests would be conducted prior to initiation of Project activities. If a nest were discovered, the CTNF would consult with the BLM, the proponent, and others as appropriate to determine the feasibility of rescheduling the activity until the birds have fledged. Impacts to flammulated owls inhabiting the Project Area would be site-specific, long-term, and negligible to minor specific to the Proposed Action.

Great Gray Owl (Sensitive). The Proposed Action would eliminate approximately 158 acres of forest habitat within or immediately adjacent to existing mining activities for the long term. Individuals may be displaced into suitable adjacent habitat as a result of the Proposed Action. The RFP guideline regarding great gray owl habitat calls for maintaining 40 percent of the forested acres in mature or old age classes within a 1,600-acre area around nest sites (USFS 2003a). As described and analyzed in Section 4.7.1.1.1 of the 2007 FEIS, following the Project-specific activities, there would be a large percentage of the forested acres in the mature-forest habitat evaluation area and the RFP guideline for this species would be met. Surveys for active great gray owl nests would be conducted prior to initiation of Project activities. If a nest were discovered, the CTNF would consult with the BLM, the proponent, and others as appropriate to determine the feasibility of rescheduling the activity until the birds have fledged. Impacts to great gray owls would be site-specific, short- to long-term, and negligible to minor.

Northern Goshawk (Sensitive and MIS). The Proposed Action would eliminate approximately 158 acres of forest habitat within or immediately adjacent to existing mining activities for the long term. As indicated in **Section 3.8.2.9**, no active nests have been discovered in the analysis area and no observations or callbacks were heard during surveys of the Study Area in 2013 (JBR 2013c); however, suitable habitat is present and individuals, if they were to occur within or in close proximity to the Project Area, could be displaced into suitable adjacent habitat as a result of the Proposed Action. The Project Area represents a small portion of suitable nesting, post-fledging, and foraging habitat available in the analysis area and adjacent to the Project Area.

RFP standards and guidelines for the northern goshawk only apply to areas within active and historical nesting territories. As no nests were observed within the analysis area during surveys

conducted for the 2007 FEIS and this Project, the forest habitat standards and guidelines are not applicable for the northern goshawk for this Project and thus are not discussed further.

Surveys of the Project Area for active goshawk nests would be conducted prior to initiation of Project activities. If nests were discovered, the CTNF would consult with the BLM, the proponent, and others as appropriate to determine the feasibility of rescheduling the activity until the birds have fledged.

As described in the 2007 FEIS (Section 4.7.1.1.1) regarding population viability, there has been no hard evidence of a significant decline in goshawk populations in recent decades, although declines are expected in some areas due to habitat alterations (e.g., mining and logging projects). As fluctuations of nest occupancy and breeding rates on the CTNF appear to be normal and the northern goshawk is not on either the USFWS (2008) or Idaho (IWJV 2005) species list of concern, a loss of viability for northern goshawk in southeastern Idaho is not expected.

The Proposed Action would eliminate potential nesting and foraging habitat for goshawk and cause their prey species to be displaced from areas to be disturbed for the long term (within forest habitat). Areas that could be used for foraging would be eliminated for the short term. Overall, impacts to goshawk are expected to be site-specific, long-term, and minor to moderate.

Peregrine Falcon (Sensitive). Neither peregrine falcon individuals nor suitable habitat for this species is known to occur within the analysis area. The closest known peregrine falcon nests occur over 20 miles from the Project Area, well outside the analysis area, thus the Proposed Action would comply with RFP standards and guidelines for this species (USFS 2003a). Because Project-related activities would be over 20 miles away from known eyries (RFP guideline is two miles), timing restrictions or other EPMs would not be needed to limit human disturbance to peregrine falcons. No egg shell thinning chemicals would be associated with the Project.

Northern Three-Toed Woodpecker (Sensitive). Based on findings from baseline surveys of the Project Area (**Section 3.8.2.11**), it is likely that northern three-toed woodpecker individuals may be displaced into suitable adjacent habitat as a result of the Proposed Action. Approximately 158 acres within or immediately adjacent to existing mining activities would be cleared of mature vegetation and snags, resulting in the long term elimination of suitable habitat for this species. The Project Area would be managed under RFP Management Prescription 8.2.2(g), which states snag habitat for woodpeckers shall not be a management consideration; thus RFP standards and guidelines for this species would be met (USFS 2003a). Surveys for northern three-toed woodpeckers would be conducted, in conjunction with northern goshawk surveys, prior to initiation of Project activities. If a nest were discovered, the CTNF would consult with the BLM, the proponent, and others as appropriate to determine the feasibility of rescheduling the activity until the birds have fledged. Impacts to three-toed woodpeckers would be site-specific, short- to long-term, and negligible to minor.

Gray Wolf (Sensitive). The Project Area, even though situated either within or immediately adjacent to existing mining activities, contains suitable habitat for the gray wolf and its prey; however, wolves are known only as transient visitors to the area. The analysis area does not contain any known den or rendezvous sites, thus the Proposed Action is in compliance with RFP standards that restrict human disturbances within one mile of such areas (USFS 2003a). In the event that wolves should pass through the Project Area during mining-related activities, noise and increased human presence may cause wolves to alter their normal movement patterns, as they tend to avoid such disturbances (Thurber et al. 1994). Corridors of undisturbed habitat

adjacent to the Project Area and outside the immediate vicinity of approved mining activities would provide alternate routes and would allow wolves to circumvent Project-related noise and activity. Similar to the those described in the 2007 FEIS, impacts to transient wolves and their prey species would be site-specific (limited to the 170-acre area of disturbance), short-term (for the duration of the Proposed Action), and negligible to minor.

Spotted Bat (Sensitive). The Project Area does not provide suitable habitat (i.e., canyon walls and cliffs) for spotted bats, nor was the species detected during baseline surveys. The Proposed Action does not include activities that would change previously-approved high walls. The Proposed Action would thus have no impact on this species and the RFP guideline under Prescription 8.2.2(g) pertaining to ledges on hanging walls is not applicable for this Project.

Townsend's Big-Eared Bat (Sensitive). The Proposed Action would not affect any known big-eared bat populations or maternity colonies, and the species was not detected during baseline surveys. Preferred habitat for big-eared bats such as caves was not found in the Project Area, and the possibility that caves or other potential roost or hibernacula sites exist in the area is low. Any undetected caves that might exist within the Project Area would be lost or made unsuitable for roosting during Project activities. The availability of prey species and the limited amount of habitat suitable for foraging and roosting (i.e., snags) in the Project Area would be reduced or eliminated.

Boreal (Western) Toad (Sensitive). The closest known location of boreal toads is in Sage Meadows, which is about three miles north of Panel G and about two miles from the Panel F conveyor system area, and the Project Area is outside the previously identified, approximately 450-acre area within the reported potential western toad migration distance (1.5 miles); therefore, there are no anticipated impacts from the Proposed Action to boreal toads.

Migratory Land Birds

The Proposed Action would affect migratory birds, including neotropical landbirds, by eliminating approximately 170 acres of suitable habitat in the long term, approximately 140 of which are Priority A habitats identified in the Coordinated Implementation Plan for Bird Conservation in Idaho (IWJV 2005). No riparian habitats and only a trace (0.002-acre) of non-riverine wetland habitat types occur within the Project Area. Habitat losses to aspen could affect the warbling vireo, which is a high priority species. Regarding other high priority migratory birds, the loss of aspen/conifer and subalpine fir in the Project Area (approximately 56 total acres) could affect Williamson's sapsucker by reducing the amount of preferred habitat for this species.

Most habitat reductions specific to the Proposed Action do not represent appreciable decreases in habitat within the overall Study Area evaluated in the 2007 FEIS. However, the Proposed Action would not meet the no net loss of Priority A habitats objective of the PIF Idaho BCP in the short term due to the disturbance of a trace amount of non-riverine wetland, plus sagebrush and aspen habitats. The habitat area avoided by some migratory birds may be the larger analysis area, rather than the 170-acre Project Area, if Project-related noise makes adjacent areas unattractive for nesting. An unknown number of active nests would be inadvertently and unintentionally destroyed by timber harvest and ground-clearing activities despite planning measures that would attempt to minimize these impacts through the timing of disturbance and pre-disturbance Project surveys. Impacts to migratory birds, including neotropical landbirds, would be site-specific (e.g.,

loss of an active nest), short-term (one year during actual ground clearing activities), and minor to moderate from this Proposed Action.

Big Game

In general, big game species (mule deer, elk, and moose) roam through most portions of the Project Area year round. The Proposed Action would remove approximately 170 acres of vegetation, within or immediately adjacent to existing mining activities, that currently provides big game with space to move, thermal and hiding cover, and foraging areas. Project activities would displace big game individuals into adjacent suitable habitat. After the Project is completed, the reclaimed habitat would provide elk and mule deer forage. No winter range or critical winter range habitat for mule deer, elk, or moose occurs in the Project Area. No breeding areas for big game would be disturbed by the Proposed Action.

Corridors of undisturbed habitat adjacent to the Project Area would provide routes for big game individuals to circumvent Project disturbances. Diversions from preferred routes in winter during active mining operations, if longer in length than preferred routes, may stress the energy reserves of some individuals. Movements of big game individuals are most likely to be hindered during periods of high snowfall (Merrill et al. 1994), if at all, and movement throughout all seasons may already be impacted due to the existing mining activities in the area.

The Panel F ore conveyor system, where constructed outside of existing mining disturbance, would be on support bents that would easily allow big game passage underneath the conveyor. Where the conveyor is constructed within or immediately adjacent to the existing haul road, the low clearance of the conveyor system would render it impassable for big game except at three crossing locations (see **Figure 2.4-1**). These crossings may allow big game using the area to successfully pass through these areas on a regular basis; however, due to the lack of site specific data on big game movement patterns in the area (**Section 3.8**), the actual locations of the crossings would be arbitrary and it is unknown if these crossings would actually be used. In addition, if and when big game use these crossings, it may make them more vulnerable to the risk of haul road vehicle collisions and to predators, as the big game would be funneled into one of these specific crossing locations.

Blockage along most of the conveyor route, or the hesitation of big game to use the crossings, may force some big game individuals to generally circumvent the active mine area between the north end of Panel F and the mill. The guideline under Prescription 8.2.2(g) pertaining to the accommodation of big game migration would be met because corridors of undisturbed habitat in adjacent areas to the Project Area would be within a reasonable distance for big game to safely circumvent Project-related disturbance. Overall, impacts to big game are expected to be site-specific, short- to long-term, and minor.

Other Wildlife Species

Predators. The Proposed Action would eliminate approximately 170 acres of habitat for predators, within or immediately adjacent to existing mining activities for the long term. Larger predators (e.g., mountain lions, black bears, bobcats, and coyotes) using the Project Area would be displaced, potentially causing adverse population effects (e.g., decreased reproductive rates, increased mortality) in adjacent habitat, depending on the predator species, its behavior, and relative population densities. Ground-clearing activities would likely displace or kill all or most smaller (or slow-moving) predators (e.g., long-tailed weasels). Noise and increased human

presence would cause minor, short-term impacts to predator individuals forced to alter their normal movement patterns. Prey availability and foraging would be reduced for the short term by the loss of habitat and loss of prey individuals during ground-clearing activities. Impacts to predators would be site-specific, short-term, and negligible to minor from this Proposed Action.

Bats. Bats that happen to be using the Project Area would be displaced. Any bats roosting just outside the Project Area are likely to be affected by noise and increased human presence for the duration of the Project. Snag roosting habitat in the Project Area and limited foraging habitat for bats along the Wells Canyon drainage would be eliminated for the long term. Impacts to bats in the Project Area would be site-specific, short-term, and negligible to minor.

Raptors. Any raptor species likely using the Project Area rely on undisturbed, mature forest stands for nesting. The Proposed Action would eliminate approximately 158 acres of forest habitat within or immediately adjacent to ongoing and/or currently approved mining for the long term. Due to noise and increased human presence, undisturbed forest adjacent to the Project Area may also be unsuitable to nesting raptors for the short term. Habitat that supports the prey base for many raptors, such as sagebrush (4.5 acres) and forb communities (3.6 acres) would be eliminated for the short term. Raptor surveys would be conducted prior to nesting season and if nests were found, nests would be removed to discourage return to the area of ground-clearing activities. Any raptors in the Project Area would be displaced, and any unknown nests could be destroyed despite surveys prior to ground-clearing activities. Scheduling of timber harvest and ground clearing would minimize activity during nesting season. Impacts to raptors within the Project Area are expected to be site-specific, short-term, and negligible to minor.

Upland Game Birds. Greater sage-grouse (candidate, sensitive, MIS species) and Columbian sharp-tailed grouse (Sensitive and MIS) have previously been discussed. Regarding blue grouse and ruffed grouse (forest species), approximately 158 acres of the potential suitable forest habitat would be eliminated for the long term. Eggs and pre-fledged game birds would be susceptible to direct impacts (mortality) from ground-clearing activities. Fledglings and mature birds in the Project Area would be displaced, and noise or increased human presence may cause moderate stress to birds in the vicinity of the Project Area for the short term, depending on the sensitivity of the nesting raptors. Any blue or ruffed grouse individuals displaced by Project activities may cause increased mortality or decreased reproductive rates in adjacent populations, depending on the behavior, relative population densities, and the size and juxtaposition of suitable habitat and established territories. Impacts to upland game birds are expected to be site-specific, short-term, and negligible to minor, depending on how many individuals are displaced, injured, or killed.

Amphibians and Reptiles. Ground clearing activities could cause direct impacts (injury, mortality, or displacement) to any amphibians or reptiles within the Project Area. The Proposed Action would eliminate 0.002-acre of wetland habitat and no riparian habitat. No perennial streams occur in the Project Area. A culvert would likely be installed at the wetland area within the Wells Canyon drainage, allowing passage of amphibians in this area if they are present. Impacts to amphibians and reptiles would be site-specific, short-term, and negligible due to the limited habitat to be impacted.

Selenium Issues with Wildlife. Selenium poisoning is most common in animals that consume seleniferous vegetation directly. The possibility of selenium accumulation by herbivores (e.g., big game) would thus exist if individuals routinely consume vegetation containing elevated

levels of selenium. Higher-level bioaccumulation would be possible in larger predators (i.e., gray wolf) that consume these herbivores.

According to an assessment by NewFields (2005), risk from selenium in vegetation in the Smoky Canyon Mine area appears to be primarily restricted to sections of ODAs that are not fully reclaimed or were reclaimed prior to more recently developed reclamation practices that involve covering seleniferous overburden with a cover of low-selenium chert and topsoil. The Proposed Action would include the construction of a GCLL over approximately 392 acres of seleniferous overburden within the Panel G pit and the East ODA. Any potential selenium uptake by vegetation growing on top of the GCLL would be reduced to an even greater extent as compared to the No Action Alternative. The reclaimed vegetation community would be comprised of grasses and forbs, eventually providing foraging areas for a variety of wildlife resources. Potential impacts of selenium issues with wildlife would be site-specific, potentially long-term, and negligible to minor for this Proposed Action.

As described in **Section 4.4**, the potential for increasing selenium levels in adjacent perennial streams to the Project Area is not anticipated from this Proposed Action. In fact, the Proposed Action is anticipated to reduce potential impacts compared to those predicted in the 2007 FEIS. Any potential for increasing selenium levels in riparian and wetland areas adjacent to the Project Area would be controlled by the implementation of approved EPMs as discussed in the 2007 FEIS, or by those specific to the Proposed Action (e.g., GCLL).

4.8.2.3 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

The design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, thus impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Because the Project footprint and acreage of disturbance under Alternative 1 would be the same as the Proposed Action, impacts to wildlife resources would be the same. Use of a mixed cover would not be expected to change impacts to wildlife resources from those described under the Proposed Action.

4.8.2.4 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

The design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, so impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Impacts to wildlife resources under Alternative 2 would be the same as those described for the Proposed Action, with the exception that approximately 46 acres of habitat impacts would not occur. Use of a mixed cover would not be expected to change impacts to wildlife resources from those described under the Proposed Action.

4.8.2.5 No Action Alternative

Impacts to wildlife under the No Action Alternative would be the same as those described in the 2007 FEIS for mining activities approved by the 2008 RODs. Mining in Panels F and G would continue under the previously approved M&RP. There would be a 50 percent reduction in the amount of ore mined under the No Action Alternative from the amount approved by the 2008 RODs; however, this would not change the impacts to wildlife.

4.8.3 Mitigation Measures

No mitigation measures for wildlife specific to this Proposed Action have been identified. However, all EPMs and applicable mitigation measures required by the 2008 RODs for the approved mining operations at Panels F and G would apply to the Proposed Action, including:

- Minimizing the possibility of unintentional take of migratory birds by harvesting timber incrementally as areas to be impacted by this Proposed Action need to be cleared.
- Performing surveys for raptor nests, and other migratory birds to the maximum extent possible, (with emphasis on sensitive species: northern goshawk, flammulated owls, boreal owls, and great gray owls) before the initiation of ground-disturbing activities. If an active nest were discovered, the CTNF would consult with the BLM, the proponent, and others as appropriate to determine the feasibility of rescheduling the activity until the birds have fledged.

4.8.4 Unavoidable (Residual) Adverse Impacts

The potential destruction of undiscovered active bird nests under the Proposed Action or Action Alternatives would be unavoidable; however, the potential for this unavoidable impact would be greatly reduced by EPMs that include migratory bird nest surveys prior to any ground disturbing activities.

4.8.5 Relationship of Short-term Uses and Long-term Productivity

The Proposed Action would implement ground-disturbing activities that would produce short- and long-term effects to wildlife and TEPC species. Species that depend on mid- and late-seral forested vegetation that occurs within the Project Area would be displaced and the long-term productivity of this habitat would be impacted, especially those areas covered by the GCLL.

4.8.6 Irreversible and Irretrievable Commitment of Resources

Habitat disturbances may be irreversible if, following reclamation and time, vegetation does not return to its current state. Disturbed mature forest in particular may potentially be both irreversible and an irretrievable commitment of mature forest resources if these areas do not reestablish, especially since only grass and forbs would be allowed on the GCLL.

4.9 FISHERIES AND AQUATICS

4.9.1 Issues and Indicators

The following issue was identified through scoping. Indicators were developed to address the scoping issue.

Issue: Deer Creek and Crow Creek are important strongholds for the YCT, and the Project may affect these creeks and YCT.

Indicators:

- Acres of AIZs to be affected compared to amount of undisturbed AIZs in the Project Area;
- Quantities of suspended sediment and COPCs in fishery resources in the area, with emphasis on compliance with applicable aquatic life water quality standards; and
- Compliance with the applicable RFP standards and guidelines.

4.9.2 Direct and Indirect Impacts

4.9.2.1 Proposed Action

As indicated in **Section 3.9.1**, there are no fish-bearing streams within the Project Area; however, effects to fisheries and aquatics outside the Project Area would result from impacts to water quality from COPCs and sedimentation.

Panel F Ore Conveyor System

As described in **Section 4.4.2.1**, the construction and use of an ore conveyance system between Panel F and the existing mill would have no more than a negligible effect on surface water quality. Therefore, no or negligible impacts to intermittent and perennials stream channels or potentially suitable habitat for fisheries, amphibians, or aquatic resources would occur from the Panel F ore conveyor system, and thus no impacts to these resources are expected. Further, as shown on **Figure 3.9-1**, no AIZs would be impacted by this component of the Proposed Action as all stream crossings between the north end of Panel F and the mill already exist and the conveyor would be constructed within those already constructed existing haul road crossings.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

As described in **Section 4.4**, either no or negligible short- and long-term impacts to the qualities and quantities of surface water and groundwater from the Proposed Action are anticipated. In fact, the GCLL is anticipated to reduce long-term impacts to the quality of potentially impacted water resources (i.e., Crow Creek and Deer Creek) from COPCs compared to the currently approved mine plan for Panel G. As described in **Section 4.4.2.1**, the Proposed Action, compared to the approved Panel G mine plan, would have no additional surface water quality impacts due to sediment releases. Thus, no impacts to YCT are expected from the Proposed Action.

As shown on **Figure 3.9-1**, AIZs would be impacted by components of the Proposed Action in and around the Panel G area. Approximately 8.5 acres of AIZs (including 0.002-acre of wetlands located within an AIZ) associated with intermittent channels/drainages would be impacted by the development of expanded ODAs and permanent stormwater features within the AIZ. Although management emphasis is to restore and maintain the health of AIZs, RFP guidelines provide for phosphate mineral development by allowing new structures, support facilities, or roads to be constructed in AIZs where no alternative exists, as long as impacts to AIZs are avoided or minimized to the extent possible (USFS 2003a).

Due to the nature of the intermittent channels/drainages (i.e., very small and narrow) where the AIZ impacts would occur and the distance from the AIZ impacts to perennial streams (greater than one mile upstream of a perennial stream), these impacts would be site-specific, long-term, and negligible to minor.

4.9.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

The substitution of a geologic store and release cover for approximately 250 acres under Alternative 1 that would receive a GCLL under the Proposed Action would not affect the ability to meet water quality standards (**Section 4.4**), so no associated impacts to fisheries and aquatics would be anticipated. Because there would be no change in disturbance location or acreage, or impacts to water quality, impacts to fisheries and aquatics under Alternative 1 would be the same as described under the Proposed Action.

4.9.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

The design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, thus impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

As described in **Section 4.4**, under Alternative 2, substitution of a geologic store and release cover for approximately 257 acres that would receive a GCLL under the Proposed Action would not affect the ability to meet water quality standards, and no additional impacts to fisheries and aquatics would be anticipated.

As a result of the reduced East ODA expansion, Alternative 2 would result in approximately 46 less acres of disturbance, including 1.8 acres less disturbance to AIZs. The location of the disturbance would be within the footprint of the Proposed Action. Overall, impacts to fisheries and aquatics under Alternative 2 would generally be the same as described for the Proposed Action.

4.9.2.4 No Action Alternative

Under the No Action Alternative, there would be no impacts to water resources or AIZs specifically from the Project. Impacts to fisheries and aquatics under the No Action Alternative would be the same as those described in the 2007 FEIS. Mining in Panels F and G would continue under the previously approved M&RP. There would be a 50 percent reduction in the amount of ore mined under the No Action Alternative from that approved by the 2008 RODs; however, this would not change the impacts to fisheries and aquatics.

4.9.3 Mitigation Measures

No additional mitigation measures for fisheries and aquatics specific to this Project have been identified. All applicable mitigation measures required by the 2008 RODs for the approved mining operations at Panels F and G would apply to the Proposed Action or Action Alternatives.

4.9.4 Unavoidable (Residual) Adverse Impacts

Any residual impacts remaining after reclamation and mitigation would be considered unavoidable impacts. AIZs impacted by expanded ODAs and stormwater features in the Panel G portion of the Project would be permanently impacted, resulting in unavoidable adverse impacts to AIZs.

4.9.5 Relationship of Short-term Uses and Long-term Productivity

Portions of AIZs in the Project Area would be impacted by expanded ODAs and stormwater features in order to facilitate short-term uses associated with Project-related activities at Panel G. Long-term productivity of the AIZs would be affected by the permanent nature of the ODAs and stormwater features. However, short-term uses associated with the Project are not anticipated to produce any long-term productivity issues related to YCT or their associated aquatic resources.

4.9.6 Irreversible and Irretrievable Commitment of Resources

Over the long term, selenium impacts as a result of the currently approved M&RP, plus those impacts associated with the Project, would be irretrievable in that affected water resources may be contaminated for a period of time, although still meeting water quality standards, before selenium levels eventually begin to decrease. In addition, intermittent stream channels and AIZs disturbed by the Project would result in irreversible effects because, even if they are reclaimed in some cases, they would not be likely to have the structure and function as they had originally. The Project is not expected to result in any irreversible and irretrievable commitment of resources to the YCT.

4.10 GRAZING

4.10.1 Issues and Indicators

Scoping did not identify any issues related to grazing; however, impacts are still evaluated in this section.

The primary indicators of impacts to grazing from the Project would be:

- Acres of suitable livestock foraging areas to be disturbed and the length of time livestock would be excluded from the mining areas, compared to undisturbed acres of grazing allotments in the Project Area;
- Effects of livestock grazing relocation from directly impacted allotments to alternative allotments during the Project;
- Estimated concentrations of COPCs in grazing water sources; and
- Change in suitable grazing acreage caused by increased COPCs in reclamation vegetation.

4.10.2 Direct and Indirect Impacts

Where Project disturbances are proposed on land that is currently considered suitable for livestock grazing, the land would be unsuitable for grazing during the time period the disturbance is occurring and during reclamation. The RFP (USFS 2003a) requires that operations replace any surface water sources that are lost due to their mining activities; however, there are no water sources that would be impacted by the Project. The GCLL and EPMs associated with the Project are expected to minimize or eliminate vegetation uptake of selenium uptake. For these reasons, the predicted loss of suitable acres for grazing and, as a result, direct AUM losses, would be confined to the disturbed area footprints. Once disturbed areas have been reclaimed and their rangeland capability restored (as determined by the CTNF via restoration criteria), they would again be suitable for livestock grazing.

Section 3.9 of the 2007 FEIS describes how grazing suitability is determined by the CTNF and how suitability determinations are then used in grazing management as one of several components in determining whether, when, and how a given area is grazed. The actual or projected level of suitability does not imply that the CTNF is bound to any level, or type, of grazing on lands discussed in this EIS. The RFP (USFS 2003a) recognizes that the suitability of a given area can change over time and/or with management decisions based on multiple land uses that include mining, thus a reduction in suitable acres for grazing due to the Project would not be in direct conflict with the RFP.

The Project would remove vegetation within existing grazing allotments. Reclamation would occur as described in **Section 2.4.8.** Reclaimed areas containing established native bunch grasses and forbs and meeting rangeland capability criteria (e.g., over 60 percent ground cover, over 200 pounds of forage per acre; Maxim 2004i) would be suitable for grazing. The exact composition of vegetation communities after reclamation would not resemble their original state as they follow a unique succession process. Grasses would be over-represented initially, and as a result, relatively more fodder may be available for livestock grazing after reclamation than before mining. Because of specific reclamation treatments and cover requirements for ODAs, elevated selenium levels in forage on reclaimed sites are not anticipated.

The removal of vegetation for the Project would make these areas temporarily unsuitable for grazing. A variety of grazing management options are available to the USFS to respond to decreased grazing areas on affected allotments caused by mining. The feasibility of relocating animals to alternate (i.e., unused or shared) allotments during mining to compensate for lost acreage would be determined on a case-by-case basis once a final decision on the Project is made. Other options include reducing stocking rates on affected allotments for the duration of the Project and reclamation or temporarily closing affected allotments. The indirect impact to grazing resources from the temporary loss of acreage within allotments would be both long-term (i.e., in forest, mixed forest/brush, and shrub communities, which take longer to regenerate) and short-term (i.e., for grasses and forbs), site-specific, and negligible to minor specific to this Project.

Indirect AUM losses represent restricted access or blocked AUMs. Undisturbed lease areas are not fenced and are technically available for grazing; however, cattle and sheep tend to avoid these areas due to proximity to noise and activity associated with mining.

4.10.2.1 Proposed Action

Given the limited amount of disturbance associated with the Proposed Action, all disturbance areas are assumed to be suitable. **Table 4.10-1** shows the disturbance (and thus loss of suitable rangeland) and AUM losses by allotment for components of the Proposed Action. Direct losses of AUMs represent AUMs within the actual disturbance area that would be destroyed and unavailable for grazing until after vegetation reestablished post-reclamation.

Table 4.10-1 Reduction in Suitable Acres and AUM Losses due to Components of the Proposed Action

PROPOSED ACTION	ALLOTMENT	DISTURBED AREA (ACRES) IN ALLOTMENT	DIRECT AUM LOSS	PERCENTAGE OF TOTAL ALLOTMENT ACREAGE & STOCKING RATE
Panel F Conveyor System	Sage Valley C&H Allotment	4.5	3	Cattle – 0.5
			16	Sheep – 0.4
	Manning Creek S&G Allotment	3.6	1	Cattle – 0.1
			7	Sheep - <0.1
	Total	8.1	4	Cattle – 0.2
			23	Sheep – 0.2
Panel G New Disturbance	Deer Creek S&G Allotment	61.3	14	Cattle – 4.2
			125	Sheep – 2.5
	Wells Canyon S&G Allotment	100.3	40	Cattle – 6.2
			139	Sheep – 4.4
	Total	161.6	54	Cattle – 5.2
			264	Sheep – 3.4

Panel F Ore Conveyor System

Assuming the affected allotments are routinely grazed at the maximum stocking rate (**Table 3.10-1**), the Panel F ore conveyor system would result in a minor impact to grazing due to reduction in suitable acreage and direct loss of AUMs as a result of the Project for the life of the conveyor. Should the reduced AUMs be shifted to another allotment, it would result in a minor increase in the impacts of grazing on that allotment; however, that shift could only be accomplished if the gaining allotment were presently stocked below the authorized stocking rate, and could accommodate additional animals. If the affected allotments have not been routinely grazed at the maximum stocking rate, or if reductions in the stocking rate would not be enforced, there would be no impact to grazing lease holders. Upon completion of reclamation, when revegetation efforts are complete and forage is matured, use of the allotment reduced by the Project would be restored.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Assuming the affected allotments are routinely grazed at the maximum stocking rate (**Table 3.10-1**), the Panel G portion of the Project would result in a minor to moderate impact to grazing due to reduction in suitable acreage and direct loss of AUMs. Should the reduced AUMs be shifted to another allotment, it would result in a minor to moderate increase in the impacts of grazing on that allotment; however, that shift could only be accomplished if the gaining

allotment were presently stocked below the authorized stocking rate, and could accommodate additional animals. If the affected allotments have not been routinely grazed at the maximum stocking rate, or if reductions in the stocking rate would not be enforced, there would be no impact to grazing lease holders.

Once reclamation and revegetation efforts are complete and forage is matured, use of the allotments reduced by the Project would be restored, with the exception of the 10.6 acres of permanent stormwater control features. Livestock would be prevented from grazing on reclaimed mine disturbances until these areas are accepted for grazing management by the CNF. Areas of timber removed as a result of the Project would initially be reseeded, which may expand the suitable acreage within the grazing allotments; however, natural invasion of trees may reduce this area over time. The portion of the allotments covered by the GCLL would never be allowed to reforest, therefore areas previously vegetated with timber would be permanently converted to grasses and forbs, and the amount of suitable acreage within the grazing allotment would be permanently increased.

4.10.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under Alternative 1, impacts to grazing would be the same as described under the Proposed Action except with respect to impacts from the GCLL. The size of the area that would be covered by the GCLL under Alternative 1 would be approximately 143 acres; 250 acres smaller than under the Proposed Action. This acreage would instead be covered by a geologic store and release cover, revegetated with deeper rooted species, so that in the long term, the amount of forage would not be increased as much as under the Proposed Action.

4.10.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Impacts to grazing under Alternative 2 would be similar to those described for the Proposed Action, except the overall disturbance to grazing allotments would be less and the proportions of the mixed cover would be different. There would be 46 acres less disturbance associated with the East ODA and this would reduce the adverse impacts to the Deer Creek allotment. Approximately 16 acres within the allotment would be newly disturbed under Alternative 2, which would result in a direct AUM loss of four cattle and eight sheep, and less than one percent of the total allotment acreage and stocking rate.

Similar to Alternative 1, impacts to grazing would be the same as described under the Proposed Action, except the impacts from the GCLL. Under Alternative 2, the size of the area that would be covered by the GCLL would be 138 acres; 254 acres smaller than under the Proposed Action. This acreage would be covered by a geologic store and release cover, and because it could be revegetated with deeper rooted species, in the long term, the amount of forage would not be increased as much as under the Proposed Action.

4.10.2.4 No Action Alternative

Impacts to grazing under the No Action Alternative would be the same as those described in the 2007 FEIS for mining activities approved by the 2008 RODs. Mining in Panels F and G would continue under the previously approved M&RP. There would be a 50 percent reduction in the amount of ore mined under the No Action Alternative from that approved by the 2008 RODs; however, this would not change the impacts to grazing.

4.10.3 Mitigation Measures

Simplot would be required to prevent livestock grazing on active and reclaimed mine disturbances until these areas are accepted for grazing management by the CTNF. This would be done by periodic coordination between Simplot and the permittee to identify exclusion areas and discuss additional measures that may be needed, such as fencing or bilingual signs. Simplot would also collaborate annually with the permittee to share mining progress plans and to discuss and resolve any potential access issues.

4.10.4 Unavoidable (Residual) Adverse Impacts

Compared to the No Action Alternative, the amount of disturbed area would increase under any of the Action Alternatives. Disturbed areas would be susceptible for colonization by noxious weeds. Noxious weed invasions would adversely impact the quality of reclaimed sites for grazing.

4.10.5 Relationship of Short-term Uses and Long-term Productivity

The Project would implement ground-disturbing activities that would reduce short-term uses of grazing resources. After establishment of vegetation communities on the disturbed areas, long-term productivity impacts to grazing resources would be eliminated and potentially enhanced under all Action Alternatives.

4.10.6 Irreversible and Irretrievable Commitment of Resources

All areas disturbed under the Project would be reclaimed as described in **Section 2.4.8**. Grazing losses during the period of time that Project disturbances and reclamation prevent grazing in portions of the grazing allotments would be irretrievable. Once reclamation is complete and vegetation communities are reestablished, there would be no irreversible or irretrievable commitment of grazing resources.

4.11 RECREATION AND LAND USE

4.11.1 Issues and Indicators

Scoping did not identify any issues related to recreation and land use; however, impacts to these resources are still evaluated in this section.

The primary indicators of impacts to recreation and land use would be:

- Number of acres temporarily closed to public use;
- Acres of recreational areas temporarily blocked from public access;
- Changes in acreages of management prescriptions;
- Amount of disturbance within management prescriptions;
- Disturbance acreage within areas of suitable timber, and the length of disturbance; and,
- Disturbance acreage affecting ASQ.

The following indicators were used for analysis of impacts to recreation in the 2007 FEIS, but were not used for analysis in this EIS because the specific recreational resources would not be impacted by the Project:

- Number of recreational access points temporarily closed to public use;
- Predicted use of recreational vehicles on reclaimed area or roads with consideration of methods used to prevent OHV and All Terrain Vehicle (ATV) use; and
- Locations or primary access roads blocked or closed by Project-related activities.

4.11.2 Direct and Indirect Impacts

4.11.2.1 Recreation

Proposed Action

The temporary loss of recreation access would generally be the areas disturbed under the Proposed Action. No developed campgrounds or recreation areas, and no trails or access routes that could be used for recreation would be directly affected by the Proposed Action. Consequently, there would be no direct impacts to developed recreation. Direct impacts to dispersed recreation that would result from temporarily reduced acreage available for recreation and indirect impacts to surrounding areas would be localized, negligible to minor, and last for the duration of mining and reclamation activities.

Temporary restrictions of recreational uses and indirect impacts to surrounding areas may cause some recreationists to abandon the affected areas in search of more remote recreation opportunities. The areas directly affected by the Proposed Action are contiguous with either areas currently being mined or approved for mining; therefore, the quality of the recreation experience on lands that would be directly affected by the Proposed Action is presently reduced by existing adjacent mining activity. The quality of the recreation experience on lands adjacent to the Project Area would be indirectly affected by noise (see impacts analysis in **Section 4.3**) and visual impacts (see impacts analysis in **Section 4.13**). Noise and activity associated with the

Proposed Action may disperse wildlife, particularly big game, from lands surrounding the Project Area, affecting the quality or availability of hunting. Considering the overall recreation resource of the area, the impact to recreation from the Proposed Action would be minor.

After reclamation, the area would be expected to provide the same types of recreation use as is currently available with quality of experience slightly degraded in comparison to the experience prior to mining activities due to reduced naturalness of the area. The overall long-term impact to recreation from the Proposed Action would be minor.

Panel F Ore Conveyor System. The SUA for the existing haul road leaving the north end of Lease IDI-27512 and going on to Lease IDI-012890 (see **Figure 2.4-1**) creates an "island" of public land between the haul road SUA and the lease boundaries that is effectively surrounded by mine-related activity and development. The conveyor system and the majority of the off-lease and off-existing SUA short- and long-term disturbance would cross this island. Recreational use of the island is unlikely due to the adjacent active mine site and haul road; therefore, it is not anticipated that this portion of the conveyor system would affect recreation.

The SUA that would be issued for the portion of the conveyor system southeast of this island would create another island surrounded by mining-related development and activity. The area disturbed by the conveyor system and the island it would create would total approximately 3.2 acres currently designated ROS class SPM. Because of the proximity to mining-related activity and development, the recreational experience in this area is already diminished as previously described; therefore, impacts from the restriction of this area from the recreation land base would be negligible.

The remainder of the ore conveyor system would be along the existing haul road; thus there would be no impact to recreation in these areas from the conveyor system.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features. In the vicinity of Panel G, the ODA expansions and stormwater control features would disturb a total of approximately 161 acres on- and off-lease, which would remove these areas from the recreation land base for the duration of the Proposed Action. Of the disturbance area, approximately 27 acres would be RN and 134 acres would be SPM. Given the surrounding available recreation resources, impacts from temporary restriction of these areas from the recreation land base would be minor.

Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System. Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features. Short-term impacts to recreation under Alternative 1 would be the same as described under the Proposed Action because the lease modification and expansion disturbance acreage would be the same. Under Alternative 1, the area covered by a GCLL would be reduced by substituting a geologic store and release cover on approximately 250 acres of seleniferous overburden. Areas covered by a GCLL would never reforest and would always appear different from the surrounding areas of natural vegetation. The geologic store and release cover would eventually host a more diverse vegetation community, including trees and shrubs, and would ultimately blend in better with

surrounding areas. As such, the recreational value of these areas in the long term would be higher than those covered by the GCLL.

Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System. Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features. Short-term impacts to recreation under Alternative 2 would be similar to that described under the Proposed Action. Although the area of lease modification would be 40 acres less under Alternative 2 compared to the Proposed Action or Alternative 1, however, the lease modification itself would not preclude recreation within the area. Disturbance associated with expansion of the East ODA would be 46 acres less than the other Action Alternatives, resulting in fewer acres temporarily unavailable for recreational use. Furthermore, those 46 acres would not show the long-term effects of disturbance that may impact the recreational quality of the lands.

4.11.2.2 Land Use

Proposed Action

Panel F Ore Conveyor System. Under the Proposed Action, the ore conveyor system would cross lands designated as RFP Management Prescription 5.2, Vegetation Management. The area that would be impacted by the conveyor system contains suitable timber, and suitable timber within Prescription 5.2 contributes to ASQ. Suitable timber, a portion of which contributes to the ASQ, would be cleared for temporary (short-term) construction access and for the conveyor system route (long-term). **Table 4.11-1** details conveyor system disturbance to the management prescription, suitable timber, and the ASQ.

Table 4.11-1 Panel F Ore Conveyor System Disturbance by Management Prescription, Suitable Timber, and ASQ

	DISTURBANCE ON EXISTING LEASE (ACRES)		DISTURBANCE OFF LEASE – SUA REQUIRED (ACRES)		TOTAL ACREAGE DISTURBANCE (ACRES)	
	S/T*	L/T*	S/T	L/T	S/T	L/T
Suitable Aspen-Conifer Timber	1.3	0.4	6.8	0.9	8.1	1.3
Management Prescription 5.2 and Aspen-Conifer Timber Contributing to ASQ	N/A		6.8	0.9	6.8	0.9

*S/T = short term; L/T = long term.

Because of the extremely small amount of acreage impacted, the Proposed Action would have a negligible impact to Prescription 5.2, aspen-conifer suitable timber, and to the ASQ.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features. Under the Proposed Action, the ODA expansion areas and stormwater control features would cross lands managed under Prescription 6.2, Rangeland Vegetation Management, and disturb suitable timber; however, suitable timber within Prescription 6.2 does not contribute to ASQ. The Proposed Action would convert the lease modification area from Prescription 6.2 to Prescription 8.2. Suitable timber would be cleared for ODA expansion and stormwater control features. As described in **Section 2.4.8**, reforestation of reclaimed surfaces would not be implemented in areas covered by the GCLL. Therefore, the GCLL would have a long-term impact on suitable timber, and that area could not contribute to the ASQ. **Table 4.11-2** details lease expansion impacts as well as ODA expansions and stormwater control feature disturbance to suitable timber.

Table 4.11-2 Proposed Action Panel G Disturbance by Management Prescription, Suitable Timber, and ASQ

	DISTURBANCE ON EXISTING LEASE (ACRES)	LEASE EXPANSION AREA (ACRES)	DISTURBANCE OFF LEASE (ACRES)[1]	TOTAL DISTURBANCE (ACRES)
Reduction in Management Prescription 6.2	N/A	280	N/A	280
Suitable Aspen Timber	39.8	38.7	0	78.5
Suitable Aspen-Conifer Timber	0	5.1	0	5.1
Suitable Conifer Timber	<0.1	45.4	0	45.4
Elimination of Potential Future Contribution to ASQ by the Area Covered by the GCLL	392		0	392

Because of the relatively small amount of acreage impacted, the Proposed Action would have a long-term minor impact on Management Prescription 6.2, suitable timber, and to the ASQ.

Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System. Because the design of and disturbance the from Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features. Impacts to land use under Alternative 1 would be similar to that described under the Proposed Action. The lease modification area, ODAs expansion disturbance, changes to management prescriptions, and impacts to ASQ would be the same as described for the Proposed Action. Under Alternative 1, the area covered by a GCLL would be reduced by substituting a geologic store and release cover on approximately 250 acres of seleniferous overburden. Use of a geologic store and release cover would result in less of a long-term adverse impact on suitable timber because the reseeding and planting islands of diversity may eventually lead to growth of suitable timber, whereas the area covered by the GCLL would never be allowed to reforest.

Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System. Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features. Impacts to land use under Alternative 2 would be similar to that described under the Proposed Action. Under Alternative 2, the lease modification area would be 40 acres less than that under the other Action Alternatives, so that fewer acres would be converted from Prescription 6.2 to Prescription 8.2. Disturbance associated with expansion of the East ODA would be 46 acres less than the other Action Alternatives, resulting in fewer acres subject to adverse impacts to suitable timber and ASQ (**Table 4.11-3**).

Use of a geologic store and release cover on approximately 257 acres under Alternative 2 would result in fewer acres that would be covered by a GCLL, which would cause less of a long-term adverse impact on suitable timber because the reseeding and planting islands of diversity may eventually lead to growth of suitable timber, whereas the area covered by the GCLL would never be allowed to reforest.

Table 4.11-3 Alternative 2 Panel G Disturbance by Management Prescription, Suitable Timber, and ASQ

	DISTURBANCE ON EXISTING LEASE (ACRES)	LEASE EXPANSION AREA (ACRES)	DISTURBANCE OFF LEASE (ACRES)	TOTAL DISTURBANCE (ACRES)
Reduction in Management Prescription 6.2	N/A	240	0.93	240
Suitable Aspen Timber	39.8	37.3	0	77.1
Suitable Aspen-Conifer	0	4.0	0	4.0
Suitable Conifer Timber	<0.1	3.4	0	3.4
Elimination of Potential Future Contribution to ASQ by the Area Covered by the GCLL		138		

4.11.2.3 No Action Alternative

Impacts to recreation and land use under the No Action Alternative would be the same as those described in the 2007 FEIS for mining activities approved by the 2008 RODs. Mining in Panels F and G would continue under the previously approved M&RP. There would be a 50 percent reduction in the amount of ore mined under the No Action Alternative from the amount approved by the 2008 RODs; however, this would not change the impacts to recreation and land use.

4.11.3 Mitigation Measures

No mitigation measures have been identified for recreation and land use for this specific Project.

4.11.4 Unavoidable (Residual) Adverse Impacts

Under any of the Action Alternatives, residual adverse impacts to recreation and land use would include the temporary loss of dispersed recreation and other current land uses on the area disturbed by the proposed Project activities. These land uses would largely be re-established on these areas following cessation of Project activities (with exception of reestablishment of timber on areas covered by the GCLL; see **Sections 4.11.5** and **4.11.6**).

4.11.5 Relationship of Short-term Uses and Long-term Productivity

Short-term impacts to areas used for recreation activities and various lands uses would occur due to the Project. In the long term, once reclamation is established, the area would be expected to provide the same types of recreation and land uses as are currently available. Long-term timber productivity would be adversely affected on the disturbed areas because reclamation would not restore the forest condition that existed prior to mining, and the area covered by the GCLL would not be reforested. These factors would result in permanent impacts to suitable timber and ASQ. Long-term productivity of grazing land use may be expanded in areas covered by the GCLL.

4.11.6 Irreversible and Irretrievable Commitment of Resources

The conversion of NFS lands to uses associated with mining would temporarily restrict recreational uses of the disturbed area and may cause some recreationists (e.g., hunters who have chosen a particular area year after year to camp or hunt) to abandon the area in search of other remote recreation opportunities. Grazing land use would be temporarily reduced on the lands disturbed by the mining but grazing productivity would eventually be restored after reclamation, and may be expanded into areas covered by the GCLL. Timber productivity would be irretrievably committed on the disturbed areas due to the long time required to re-establish the forest baseline conditions, and would be irretrievably lost in areas covered by the GCLL.

4.12 INVENTORIED ROADLESS AREAS

4.12.1 Issues and Indicators

The following issue was identified through scoping. Indicators were developed to address the scoping issue.

Issue: The Project would impact IRAs and a full analysis of potential effects needs to be conducted.

Indicators:

- Acres of new disturbance within IRAs;
- Compliance with the Idaho Roadless Rule; and
- Impacts to IRA attributes and characteristics.

4.12.2 Direct and Indirect Impacts

4.12.2.1 Proposed Action

The Proposed Action would disturb lands in the SCRA and the MPRA. These disturbances would result in both short- and long-term impacts ranging in intensity from negligible to minor depending upon the roadless and/or wilderness attribute being impacted, as discussed in the following sections. The majority of the proposed disturbance would be reclaimed following mining activities (see **Section 2.4.8**). Many of the roadless attributes are also resources that have been described in this EIS in separate sections regardless of whether the resource is located within an IRA. These include: air (**Section 4.3**), water (**Section 4.4**), soils (**Section 4.5**), diversity of plant and animal communities, including wildlife and fish and threatened, endangered, sensitive, and rare species occurrence/habitat (**Sections 4.6, 4.8**, and **4.9**), recreation (**Section 4.11**), visual and aesthetics (**Section 4.13**), and traditional cultural properties and sacred sites (**Sections 4.14**). Impacts to the SCRA and MPRA are quantified in **Table 4.11-1**.

The USFS RCRA (36 CFR Part 294) currently applies to USFS actions in IRAs. The RACR prohibits a USFS responsible official from approving road construction and reconstruction and the cutting, sale, or removal of timber in IRAs except when the responsible official determines certain circumstances apply. (Refer to Section 1.3.2 of the 2007 FEIS where circumstances are listed.)

Table 4.12-1 Acres of Disturbance by the Proposed Action within the SCRA and MPRA

PROPOSED ACTION	ACRES OF DISTURBANCE				PERCENT OF TOTAL IRA (SCRA = 12,710 ACRES) (MPRA = 44,585 ACRES)
	ON LEASE	LEASE MODIFICATION AREA	OFF LEASE	TOTAL	
SCRA: Panel F Ore Conveyor System (New Disturbance)	1.3	N/A	0	1.3	<0.1
SCRA: Panel G East ODA Expansion and Stormwater Control Features	22.7	52.4	<0.1	75.2	0.6
SCRA: Panel G GCLL	320		0	320	2.5
MPRA: Panel G South ODA Expansion and Stormwater Control Features	19.4	0	0	19.4	<0.1
MPRA: Panel G GCLL	0	0	0	0	0

Panel F Ore Conveyor System

The proposed Panel F ore conveyor system would be located within the SCRA, disturbing approximately 1.3 acres. **Appendix 4A** contains IRA worksheets that detail anticipated impacts to the wilderness attributes including recreation opportunities, special features, and manageability. Because only 1.3 acres of the SCRA would be impacted by the Panel F portion of the Project, wilderness attributes and roadless characteristics would be minimally impacted.

Compliance with Idaho Roadless Rule

Within the Project Area, the SCRA is designated as General Forest Theme. Phosphate mining is an allowable use under this theme, where the lands are expected to provide a variety of goods and services as well as a broad range of recreational opportunities, and conservation of natural resources. The Project Area would not be available for recreation, grazing, or timber production during the Proposed Action. Upon completion of active mining and reclamation, the Project Area would again be available for multiple uses under the General Forest Theme.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Sage Creek Roadless Area

Compliance with Idaho Roadless Rule

Compliance with the Idaho Roadless Rule would be the same as previously described for the Panel F portion of the Project.

Impacts to Wilderness Attributes

Appendix 4A contains IRA worksheets that detail anticipated impacts to the wilderness attributes including recreation opportunities, special features, and manageability. The ground disturbance, changes to vegetation communities, noise, visual disturbances created by the Project would impact all of these attributes except for special features and manageability. This is because there are no special features in the IRA portion of the Project Area, and the Proposed Action would not affect manageability of the IRA because it would neither bisect or otherwise fragment the IRA into smaller pieces that would not meet the IRA size criteria (5,000 acres or more), nor reduce access to the IRA. The affected attributes would be degraded during Project activities and return to a stable condition post-reclamation.

The Proposed Action would affect the Project Area suitability for wilderness designation due to the noticeably modified nature of the area after reclamation and the requirement to maintain the area covered by the GCLL free of trees. Overall impacts to the wilderness attributes of the SCRA within the Project Area would be short- and long-term and minor because of the relatively small portion of the IRAs affected by the Project.

Impacts to Roadless Characteristics

Appendix 4A contains IRA worksheets that detail anticipated impacts to the roadless characteristics of soil, water, air resources, sources of public drinking water, diversity of plant and animal communities, habitat for TEPC species and species dependent on large undisturbed areas of land, primitive and semi-primitive classes of recreation, reference landscapes for research study or interpretation, landscape character and integrity, traditional cultural properties and sacred sites, and other locally unique characteristics. The Project would impact all of these characteristics except sources of public drinking water, reference landscapes, and traditional

cultural properties and sacred sites. The impacts to these characteristics are analyzed in detail in other sections of this chapter of this EIS. Soil and air resources would be degraded during the Proposed Action, but would be stable after reclamation. Water resources would be stable to improving post-reclamation due to implementation of the GCLL and its effect on selenium concentrations in Deer and Crow creeks. While affected, all other attributes were judged to be stable. Because of the relatively small proportion of the SCRA that would be impacted by the Project, the overall impacts to the roadless characteristics of the SCRA within the Project Area would be short-term and minor. Overall long-term impacts to roadless characteristics were judged to be negligible because most characteristics would be stable after reclamation.

Meade Peak Roadless Area

Compliance with Idaho Roadless Rule

The only portion of the Project Area within the MPRA is the South ODA expansion. That area is designated as General Forest Theme. Compliance with the Idaho Roadless Rule for the MPRA would be the same as previously described for the SCRA.

Impacts to Wilderness Attributes

Appendix 4A contains IRA worksheets that detail anticipated impacts to the wilderness attributes of recreation opportunities, special features, and manageability. Impacts to the wilderness attributes of the MPRA would be the same as previously described for the SCRA, except the GCLL would not be used on lands within the MPRA. Overall impacts to the wilderness attributes of the MPRA within the Project Area would be short- and long-term and minor because of the relatively small portion of the IRA affected by the Proposed Action.

Impacts to Roadless Characteristics

Appendix 4A contains IRA worksheets that detail anticipated impacts to the roadless characteristics of soil, water, air resources, sources of public drinking water, diversity of plant and animal communities, habitat for TES and species dependent on large undisturbed areas of land, primitive and semi-primitive classes of recreation, reference landscapes for research study or interpretation, landscape character and integrity, traditional cultural properties and sacred sites, and other locally unique characteristics. Because of the relatively small proportion of the MPRA that would be affected by the Proposed Action, the overall impacts to the roadless characteristics of the MPRA within the Project Area would be short-term and minor. The overall long-term impacts to roadless characteristics were judged to be negligible because most would be stable after reclamation.

4.12.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Disturbance acreage within the SCRA and MPRA would be the same under Alternative 1 as under the Proposed Action; however, the mixed cover would reduce the amount of GCLL within the SCRA (**Table 4.12-2**).

Table 4.12-2 Alternative 1 Acres of Disturbance within the SCRA and MPRA

PROPOSED ACTION	ACRES OF DISTURBANCE				PERCENT OF TOTAL IRA (SCRA = 12,710 ACRES) (MPRA = 44,585 ACRES)
	ON LEASE	LEASE MODIFICATION AREA	OFF LEASE	TOTAL	
SCRA: Panel F Ore Conveyor System (New Disturbance)	Same as Proposed Action				
SCRA: Panel G East ODA Expansion and Stormwater Control Features (New Disturbance)	Same as Proposed Action				
SCRA: Panel G GCLL	22.4	47.7	0	70.1	0.5
SCRA: Panel G Geologic Store and Release Cover	249.8	0	0	249.8	2
MPRA: Panel G South ODA Expansion and Stormwater Control Features	Same as Proposed Action				
MPRA: Panel G GCLL	Same as Proposed Action				

Sage Creek Roadless Area

Compliance with the Idaho Roadless Rule within the SCRA under Alternative 1 would be the same as described for the Proposed Action. Impacts to wilderness attributes and roadless characteristics within the SCRA would be similar to those described for the Proposed Action; however, under Alternative 1, a geologic store and release cover would be substituted for the GCLL on approximately 250 acres. Areas with the geologic store and release cover would be reseeded and planted with islands of diversity and thus be more likely than areas of the GCLL to eventually resemble the surrounding natural vegetation scheme. As such, there would be a lower level of impacts to wilderness attributes and roadless characteristics from Alternative 1 compared to the Proposed Action.

Meade Peak Roadless Area

Compliance with the Idaho Roadless Rule, impacts to wilderness attributes, and impacts to roadless characteristics within the MPRA under Alternative 1 would be the same as the Proposed Action. This is because the disturbance location and acreage of the South ODA in the MPRA would be the same under all Action Alternatives.

4.12.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under Alternative 2, disturbance acreage within the SCRA would be less than under the Proposed Action, and the mixed cover would reduce the amount of GCLL within the SCRA (**Table 4.12-3**).

Sage Creek Roadless Area

Compliance with the Idaho Roadless Rule within the SCRA under Alternative 2 would be the same as described for the Proposed Action. Impacts to wilderness character and roadless attributes within the SCRA would be similar to those described for the Proposed Action; however, under Alternative 2 there would be approximately 28 acres of new disturbance associated with the East ODA within the SCRA, of which approximately 26 acres would receive a GCLL. This would be approximately 47 fewer acres of new disturbance (including stormwater control features) than under the Proposed Action within the SCRA, and approximately 257 acres would receive a store and release cover rather than the GCLL under the Proposed Action. The reduction in the amount of disturbance within the SCRA would reduce the adverse impacts to wilderness attributes and roadless characteristics. Areas with the geologic store and release cover would be reseeded and planted with islands of diversity and thus be more likely than areas of the GCLL to eventually resemble the surrounding natural vegetation scheme. As such, there would be a lower level of impacts to wilderness attributes and roadless characteristics from Alternative 2 compared to the Proposed Action.

Table 4.12-3 Alternative 2 Acres of Disturbance within the SCRA and MPRA

PROPOSED ACTION	ACRES OF DISTURBANCE				PERCENT OF TOTAL IRA (SCRA = 12,710 ACRES) (MPRA = 44,585 ACRES)
	ON LEASE	LEASE MODIFICATION AREA	OFF LEASE	TOTAL	
SCRA: Panel F Ore Conveyor System (New Disturbance)	Same as Proposed Action				
SCRA: Panel G East ODA Expansion and Stormwater Control Features (New Disturbance)	22.5	5.3	<0.1	27.8	0.2
SCRA: Panel G GCLL	22.1	4.2	<0.1	26.3	0.2

PROPOSED ACTION	ACRES OF DISTURBANCE				PERCENT OF TOTAL IRA (SCRA = 12,710 ACRES) (MPRA = 44,585 ACRES)
	ON LEASE	LEASE MODIFICATION AREA	OFF LEASE	TOTAL	
SCRA: Panel G Geologic Store and Release Cover	257.3	0	0	257.3	2
MPRA: Panel G South ODA Expansion and Stormwater Control Features	Same as Proposed Action				
MPRA: Panel G GCLL	Same as Proposed Action				

Meade Peak Roadless Area

Compliance with the Idaho Roadless Rule, impacts to wilderness attributes, and impacts to roadless characteristics within the MPRA under Alternative 2 would be the same as the Proposed Action. This is because the disturbance location and acreage of the South ODA in the MPRA would be the same under all Action Alternatives.

4.12.2.4 No Action Alternative

Impacts to IRAs under the No Action Alternative would be the same as those described in the 2007 FEIS for mining activities approved by the 2008 RODs. Mining in Panels F and G would continue under the previously approved M&RP. There would be a 50 percent reduction in the amount of ore mined under the No Action Alternative from the amount approved by the 2008 RODs; however, this would not change the impacts to IRAs.

4.12.3 Mitigation Measures

No mitigation measures specific to this Project have been identified. All applicable mitigation measures required by the 2008 RODs for the approved mining operations at Panels F and G would apply to the Proposed Action and Action Alternatives. These measures are designed to reduce environmental impacts to many of the resources that would also impact the roadless characteristics and wilderness attributes for each impacted IRA.

4.12.4 Unavoidable (Residual) Adverse Impacts

Up to 4 acres of stormwater features within the IRAs would remain and would not be reclaimed, and thus would be a residual adverse impact to IRAs. Additionally, the portion of the Project Area covered by the GCLL would never be allowed to reforest and return to a natural condition, and therefore would constitute a residual adverse impact to the naturalness of the SCRA.

4.12.5 Relationship of Short-term Uses and Long-term Productivity

The use of the IRAs for recovery of phosphate resources provides economic support for the local economy of southeastern Idaho. In the long term, once reclamation is established, the reclaimed areas not covered by a GCLL would be expected to provide the similar types of IRA attributes and characteristics as currently exists. The portion of the Project Area covered by the GCLL would never be allowed to reforest and return to a natural condition, and therefore would adversely affect the long-term productivity of the SCRA.

4.12.6 Irreversible and Irretrievable Commitment of Resources

Irreversible commitment of resources would occur to specific resources (i.e., soils, water, diversity of plant and animal communities, and scenic integrity) addressed in the EIS that are also identified as roadless attributes. Additionally, the portion of the Project Area covered by the GCLL would never be allowed to reforest and return to a natural condition, and therefore that portion of the SCRA would be irreversibly impacted and the naturalness would be irretrievable.

4.13 VISUAL AND AESTHETIC RESOURCES

4.13.1 Issues and Indicators

The following issue was identified through scoping, and an indicator developed to address it.

Issue: Changes in visibility of the mine from surrounding locations that would result from changes in mining operations.

Indicator: Visibility of mining operations from observation points.

In addition, the following indicator used for analysis in the 2007 FEIS was used to evaluate other impacts to visual and aesthetic resources:

- Estimated compliance with the VQOs in the USFS Visual Management System.

4.13.2 Direct and Indirect Impacts

The landscape in the Project Area would be permanently altered by disturbance associated with the Project. The Project-related disturbance would cause direct and indirect impacts and changes to the local landscape; however, this landscape is generally not within view of the casual observer or of property owners along Crow Creek Road. Impacts to visual resources may result in indirect impacts to other resources. For example, visual resources are an important contributor to the quality of the recreation environment. The effect of visual resources on recreation can affect socioeconomics through changes in tourism. In addition, the visual resources can affect property values and other qualitative community values.

4.13.2.1 Proposed Action

Panel F Ore Conveyor System

The visibility of the Panel F ore conveyor system, and its impact on visual resources would depend on the proximity of the observer to the conveyor. The conveyor system would be viewed in the context of other surrounding mining activities and disturbance as viewed from any vantage point. The proposed conveyor route would be within an area designated Modification VQO,

which has existing mining-related disturbances and low scenic integrity. During daylight hours the conveyor system would blend with the surrounding activity and disturbance, and may not be distinguishable as an addition to the existing mining disturbance. The possible exception would be that the conveyor following the existing Panel F haul road, so that the lines of the conveyor would repeat the lines of the haul road; this may have the effect of emphasizing those lines in the visual environment.

Similar to the Panel F haul road, the conveyor disturbance would be visible to hikers in South Fork Sage Creek, but there is no motorized public access into the CTNF on Forest Road (FR) 179 in South Fork Sage Creek during mining in Panels F and G, limiting public use of this area (BLM 2007).

Figure 4.13-1 is a viewshed analysis of the visibility of the Panel F ore conveyor system from one of the observation points used in the 2007 FEIS where the conveyor would be visible (Trail 103). The portions of the conveyor that would be visible from the observation point would be 3 to 7 miles away. Due to distance, topography, and the broken nature of visibility, the conveyor would probably only be faintly visible if the observer were looking for it, or would not be visible during the daylight hours from this point.

Lighting would be installed every 500 feet along the conveyor. At night, these lights would be visible from the observation point. The conveyor system lights would be viewed in the context of other surrounding mining activities that may be lit at night. Where the conveyor route would be perpendicular to line of sight from the observation point, the lights would appear as an even series of lights and would attract the attention of the casual viewer. Where the route would be parallel to the line of sight from the observation point, the lights may blend to appear as one bright light. This would be noticeable, although less so than the series of evenly spaced lights.

Taken together, the lights may create a glow in the distance. Headlights from haul trucks operating at night would also be visible, and the moving lights would attract attention. For an observer familiar with the area, the new lights may be noticeable. For the observer unfamiliar with the area, the series of evenly spaced lights may attract more attention than the other fixed surrounding light sources.

Overall impacts to visual resources from the Panel F portion of the Proposed Action would be negligible to minor as the conveyor system would be viewed in the context of existing mining disturbance that already has had a major impact on visual resources, does not meet the VQOs, and in an area of low scenic integrity.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

The visibility of the Panel G portion of the Proposed Action and its impact on visual resources would depend on the proximity of the observer to the Panel G disturbance. Similar to the Panel G mining activity described in the 2007 FEIS, the proposed Panel G disturbance would be visible from points along the existing Wells Canyon Road (FR 146) at the east mouth of South Fork Deer Creek Canyon and from points on foot in higher elevation areas to the west. The Panel G portion of the Proposed Action would be viewed in the context of other surrounding mining activities and disturbance as viewed from any vantage point. The components of the Proposed Action would be within an area designated Partial Retention VQO and low scenic integrity due to existing mining activities.

Mill Area

T8S
T9S

Proposed Ore Conveyor System

Panel F
Lease IDI-27512

Panel G
Lease IDI-01441

East ODA

South ODA

Proposed Lease Modification

T9S
T10S

R45E R46E

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed
Geology Source: Montgomery and Cheney 1967; Cressman 1964; Derkey et al. 1984a, 1984b 1985; Simplot 2003.

Explanation

- Proposed Conveyor System Disturbance
- Proposed Lease Modification
- Proposed ODA Expansions and Stormwater Features Disturbance
- Approved Panels F and G Disturbance
- Panels F & G
- Smoky Canyon Mine
- Observation Point
- Area Seen from Observation Point

Visual Quality Objectives

- Modification
- Partial Retention

4,000 0 4,000 Feet

N

Figure 4.13-1
Viewshed from Observation Point along Trail
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS

Southern Portion of Smoky Canyon Mine Panels A-E, conveyor continues along existing haul road north to the mill

Proposed Ore Conveyor System

Panel F
Lease IDI-27512

Panel G
Lease IDI-01441

East ODA

South ODA

Proposed Lease Modification

T9S

T10S

R45E R46E

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Geology Source: Montgomery and Cheney 1967; Cressman 1964; Derkey et al, 1984a, 1984b 1985; Simplot 2003.

Explanation

- Proposed Conveyor System Disturbance
- Proposed Lease Modification
- Proposed ODA Expansions and Stormwater Features Disturbance
- Approved Panels F and G Disturbance
- Panels F & G
- Smoky Canyon Mine
- Observation Point
- Area Seen from Observation Point

Visual Quality Objectives

- Modification
- Partial Retention

3,000 0 3,000 Feet

N

Figure 4.13-2
Viewshed from Observation Point along a horse trail on the Stewart Ranch Property
Proposed Action/Alternative 1
Panel F & G Lease/Mine Plan Modifications EIS

In general, the Panel G Project components are going to blend with the surrounding activity and disturbance, and may not be distinguishable as an addition to the approved mining disturbance.

Figure 4.13-2 is a viewshed analysis of the visibility of the Panel G portion of the Proposed Action that would be visible from the southern observation point. The observation point is located on private property about three miles south of Panel G. The ODA expansion areas are located in both Modification and Partial Retention VQOs.

As indicated in **Figure 4.13-2**, only the East ODA expansion area portion of the Proposed Action; the South ODA expansion would not be visible. A small portion of the stormwater control features south of Panel G may be visible, but given the distance of the observation point from the disturbance, and the surrounding mining disturbance, the stormwater control features would not likely be noticeable.

In the short term, the East ODA expansion would slightly expand the small area of disturbance that would have been visible as a result of the mining activities approved by the 2008 RODs. This would make the disturbance slightly more noticeable than under the No Action Alternative. The East ODA disturbance would grow over during the mining of Panel G. Given the distance between the observation point and the Project Area, most activity or movements associated with the Proposed Action would not be noticeable. Exceptions would be dust columns resulting from Project-related activities that may be visible during daylight hours, and the glow of lights or intermittent headlights that may be visible at night.

Upon completion of reclamation, the disturbed area would slowly revegetate. Color contrasts between disturbed areas and surrounding undisturbed areas would fade and become less noticeable as vegetation matures and natural patterns match the surrounding vegetation communities. However, the portion of the Panel G disturbance covered by the GCLL and visible from the observation point would never be allowed to reforest, and would never resemble its pre-disturbance vegetation scheme. Differences in topography (as the natural contours could never be fully restored) may always be noticeable to a certain degree.

Overall impacts to visual resources from the Panel G portion of the Proposed Action would be minor as viewed in the context of other existing mining activities, which were found by the 2007 FEIS to have a major impact on area visual resources, to not meet VQOs for the area, and to result in low scenic integrity.

4.13.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, the impacts would be the same.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

The acreage and the height of the disturbance under Alternative 1 would be the same as described for the Proposed Action. Visibility of the Project, portrayed in **Figure 4.13-1** and **4.13-2**, and all other aspects of impacts to visual resources would be the same for Alternative 1 as the Proposed Action, except for those related to the mixed cover. Under Alternative 1, a GCLL would cover 143 acres in the lease modification area and a geologic store and release cover would cover 250 acres on the existing lease. Because the geologic store and release cover

would be revegetated with islands of diversity containing deeper rooted shrubs and trees, this area would appear more natural and consistent with the surroundings than the GCLL, which would never be allowed to reforest. Therefore overall impacts to visual resources under Alternative 1 would be somewhat less than those described for the Proposed Action.

4.13.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

The height of the disturbance under Alternative 2 would be the same as described for the Proposed Action. Visibility, as portrayed in **Figures 4.13-3** and **4.13-4**, and the description of impacts to visual resources under Alternative 2 would be similar to the Proposed Action; however, under Alternative 2, there would be less overall disturbance and the area covered by the GCLL would be different.

Compared to the Proposed Action, there would be 46 acres less disturbance associated with the East ODA and visible from the viewpoint along Trail 103. The area covered by a GCLL would be 138 acres (approximately 254 acres less than under the Proposed Action); however, the GCLL would cover the entire area of the East ODA, which is the area most visible from the eastern viewpoint along Trail 103 (**Figure 4.13-1**). Portions of the Panel G pit and East ODA within the existing lease would receive a geologic store and release cover, with impacts to visual resources similar to those described for Alternative 1.

The overall impacts to visual resources would be less under Alternative 2 compared to the other Action Alternatives because fewer acres would be disturbed, fewer acres would be covered with a GCLL, and the area of eliminated impacts is one visible from the eastern viewpoint along Trail 103.

4.13.2.4 No Action Alternative

Impacts to visual resources and aesthetics under the No Action Alternative would be the same as those described in the 2007 FEIS for mining activities approved by the 2008 RODs. Mining in Panels F and G would continue under the previously approved M&RP. There would be a 50 percent reduction in the amount of ore mined under the No Action Alternative from the amount approved by the 2008 RODs; however, this would not change the impacts to visual resources and aesthetics.

4.13.3 Mitigation Measures

The boundary of the GCLL would be managed to avoid the appearance of “crisp” lines delineating the edge of the GCLL and soften visible differences where the GCLL would not be allowed to reforest. Trees and other vegetation would be cut or allowed to grow around the periphery of the GCLL in an uneven fashion to create a more ragged and naturalized appearance.

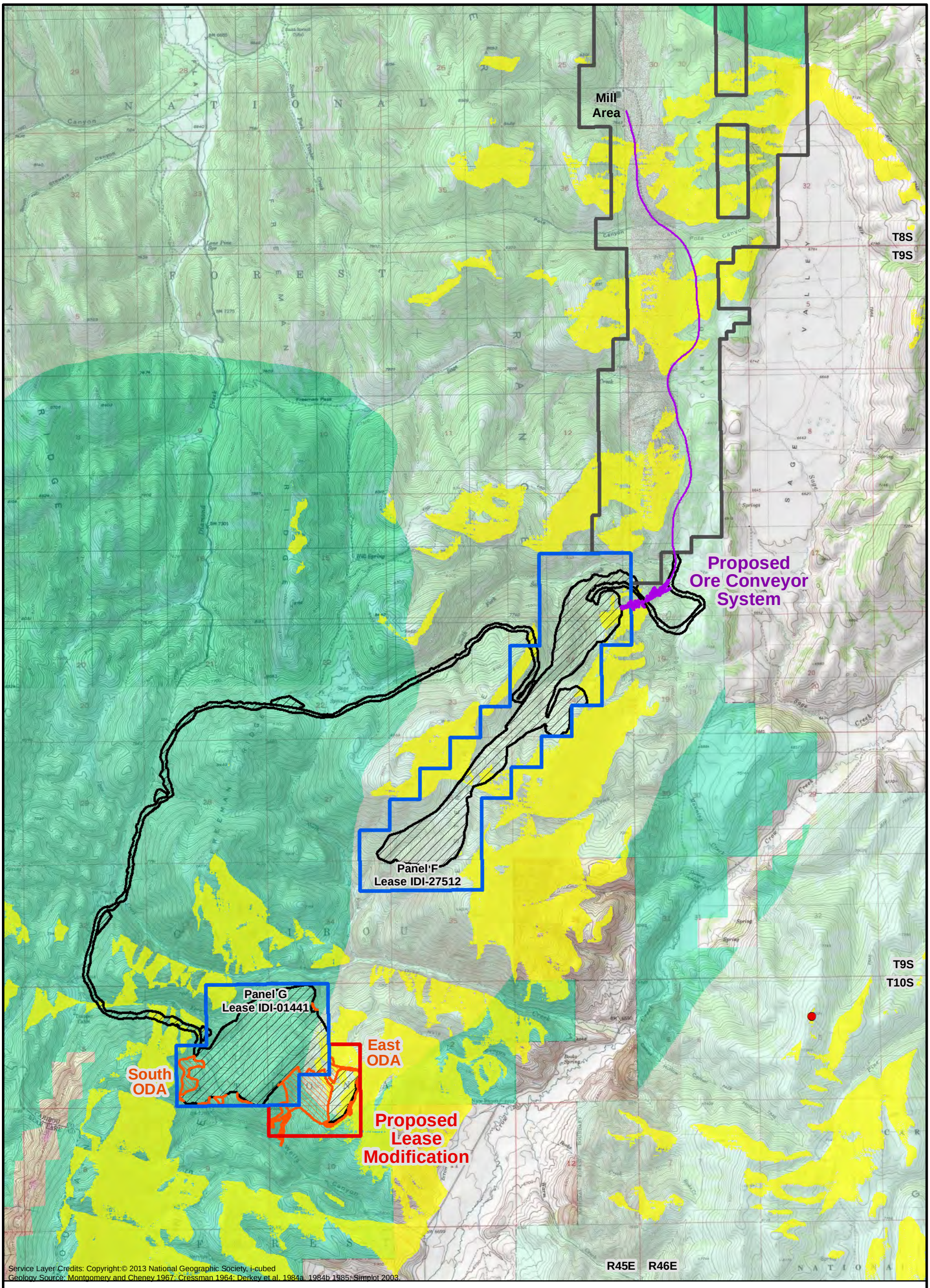

Figure 4.13-3
Viewshed from Observation Point along Trail
Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS

Southern Portion of Smoky Canyon Mine Panels A-E, conveyor continues along existing haul road north to the mill

Proposed Ore Conveyor System

Panel F
Lease IDI-27512

Panel G
Lease IDI-01441

East ODA

South ODA

Proposed Lease Modification

T9S

T10S

R45E R46E

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Geology Source: Montgomery and Cheney 1967; Cressman 1964; Derkey et al, 1984a, 1984b 1985; Simplot 2003.

Explanation

- Proposed Conveyor System Disturbance
- Proposed Lease Modification
- Proposed ODA Expansions and Stormwater Features Disturbance
- Approved Panels F and G Disturbance
- Panels F & G
- Smoky Canyon Mine
- Observation Point
- Area Seen from Observation Point

Visual Quality Objectives

- Modification
- Partial Retention

3,000 0 3,000 Feet

N

Figure 4.13-4
Viewshed from Observation Point along a horse trail on the Stewart Ranch Property
Alternative 2
Panel F & G Lease/Mine Plan Modifications EIS

4.13.4 Unavoidable (Residual) Adverse Impacts

Differences in topography (as the natural contours could never be fully restored) may always impact visual and aesthetic resources, as they would always be noticeable to a certain degree.

4.13.5 Relationship of Short-term Uses and Long-term Productivity

The Project Area would be actively mined of its phosphate resource, producing a number of socioeconomic benefits in the short term. As previously mentioned, the disturbed area would never be fully returned to its natural topography and the visual and aesthetic resources of the area would be permanently altered. These visual changes may indirectly affect long-term recreational and socioeconomic values for the area.

4.13.6 Irreversible and Irretrievable Commitment of Resources

Visible changes in topography (as the natural contours could never be fully restored) would be irreversible, and may always impact visual and aesthetic resources, as they would always be noticeable to a certain degree. The natural (pre-disturbance) appearance of the landscape would be irretrievable.

4.14 CULTURAL RESOURCES

4.14.1 Issues and Indicators

The following issue was identified through scoping, and an indicator developed to address it.

Issue: The proposed Project could impact cultural resource sites eligible for the NRHP.

Indicator: Number of cultural resource sites eligible for the NRHP impacted by the Project.

In addition, the following indicator used for analysis in the 2007 FEIS was used to evaluate other impacts to cultural resources:

- Acres to be removed from historic land uses with local heritage value, and duration of the mining activities.

4.14.2 Direct and Indirect Impacts

4.14.2.1 Proposed Action

Panel F Ore Conveyor System

No cultural resource sites are located along the Panel F ore conveyor system route. There would be no impacts to eligible cultural resources from the Panel F ore conveyor system.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

As presented in **Section 3.14**, two historic sites are present in this portion of the Project Area; however, neither are eligible for the NRHP (SHPO 2013). These sites do not require further management. No prehistoric sites were found. There would be no impacts to NRHP-eligible cultural resources from the Panel G Lease Modification, ODAs, GCLL, and stormwater control features.

The Proposed Action would disturb approximately 170 acres within grazing allotments (see **Section 4.10**) and restrict or impede livestock trailing corridors between the Deer and Manning Creek Allotments during mining and reclamation of the Project. The Proposed Action disturbance would also impact the ability for the Shoshone-Bannock Tribes to exercise Treaty Rights (see **Section 4.15**) on the 170 acres. Impacts to heritage resources and values would be negligible to minor as adjacent lands with these resources/values would be available for use. Impacts would be site specific with negligible regional losses.

4.14.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

The design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, so impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under Alternative 1, impacts to cultural resources would be the same as described under the Proposed Action because the location and amount of disturbance would be the same for both alternatives.

4.14.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

The design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, so impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Despite the fact that there would be 46 acres less disturbance associated with the East ODA under Alternative 2, impacts to cultural resources would not be reduced or avoided. Therefore, impacts to cultural resources would be the same for Alternative 2 as described for the Proposed Action.

4.14.2.4 No Action Alternative

Impacts to cultural resources under the No Action Alternative would be the same as those described in the 2007 FEIS for mining activities approved by the 2008 RODs. Mining in Panels F and G would continue under the previously approved M&RP. There would be a 50 percent reduction in the amount of ore mined under the No Action Alternative from the amount approved by the 2008 RODs; however, this would not change the impacts to cultural resources.

4.14.3 Mitigation Measures

No mitigation measures specific to the Project have been identified; however, all applicable mitigation measures required by the 2008 RODs for the approved mining operations at Panels F and G would apply to the Project.

4.14.4 Unavoidable (Residual) Adverse Impacts

There would be no unavoidable adverse impacts to NRHP-eligible cultural resources or heritage resources/values.

4.14.5 Relationship of Short-term Uses and Long-term Productivity

As there would be no impacts to NRHP-eligible cultural resources, there would be no loss of long-term productivity. The short-term use of the area during Project activities would result in negligible to minor impacts to heritage resources/values; however, long-term productivity would not be impacted because adjacent lands would be available for livestock trailing/grazing and Treaty Rights.

4.14.6 Irreversible and Irretrievable Commitment of Resources

There would be no irreversible or irretrievable commitment of NRHP-eligible cultural resource sites. There would be no irreversible commitment of heritage values/resources, but there would be an irretrievable commitment of livestock grazing/trailing and exercising Treaty Rights within the Project Area until reclamation is complete.

4.15 NATIVE AMERICAN CONCERNS AND TREATY RIGHTS RESOURCES

4.15.1 Issues and Indicators

The following issue was identified through scoping.

Issue: The analysis should consider whether or not the Project would affect tribal natural and/or cultural resources and address any concerns of the Tribes in accordance with federal tribal trust responsibilities.

The following indicators used for analysis in the 2007 FEIS were used to evaluate impacts to Native American concerns and Treaty Rights resources:

- Change in land status and Treaty Rights access.
- Acres of access and recreation areas that would be available or unavailable for the duration of mining activities;
- Known prehistoric cultural resource and traditional use sites impacted by the Project and visibility of disturbances to these areas;
- Changes in water quality and quantity of both surface water and groundwater;
- Acres of wetlands disturbed;
- Acres and types of vegetation disturbed versus acres and types of vegetation replanted;
- Increased COPC uptake by wildlife and vegetation in mining-disturbed areas and reclaimed areas;

- Changes in types of aquatic resources and comparison with undisturbed habitats in the Project Area; and
- Changes in air quality.

4.15.2 Direct and Indirect Impacts

The trust responsibility of the federal government includes an obligation to protect and preserve Treaty Rights resources. Consultation with the Tribes has yielded important issues regarding treaty resources that would potentially be affected by the Project. As stated in Article 4 of the Fort Bridger Treaty of 1868, the Shoshone-Bannock Tribes "…shall have the right to hunt on the unoccupied land of the United States…" The Project would disturb federal land available in southeastern Idaho. The following analysis describes Project effects to Native American concerns and Treaty Rights.

Actions that change the land status, restrict, or alter the ability of the Shoshone-Bannock Tribes to exercise their Treaty Rights, or that affect the physical integrity of a sacred site, traditional cultural property, and/or location of traditional importance, are considered impacts.

4.15.2.1 Proposed Action

Land Status and Access

There would be no change in land ownership status. The affected land would remain under federal ownership with the rights to mine phosphate granted to Simplot. The use of lands for mining operations and associated facilities would be temporary; lands would be reclaimed and structures removed after mining was completed.

Phosphate mining, directed under the Mineral Leasing Act of 1920, would be considered a temporary surface use and would not change the occupancy of the federal land under lease. This is different from other types of mining conducted under the 1872 Mining Law (such as gold mining). There would be a short-term, temporary loss of access to land for exercising Treaty Rights under the Proposed Action. The Project would disturb approximately 170 acres or 0.1 percent of the CTNF, a negligible temporary impact. There are no known resources located exclusively within the Project Area that are not available on the remaining portions of the CTNF.

Treaty Rights Access

Access, or the continued availability of the traditional natural resources, would be affected by the Proposed Action. There would be a temporary loss of approximately 170 acres of land to disturbance associated with the Proposed Action, which represents less than 0.1 percent of the CTNF. After reclamation, hunting and gathering areas would be restored as vegetation would be replanted on the disturbed area (except 10.6 acres of stormwater control features associated with the GCLL), wildlife would return, and water would be usable. Tribal members would retain access to the remaining unoccupied lands within southeast Idaho. There are no known Treaty Rights resources in the Project Area that are not available on the remaining forest lands. This EIS assigns a quantification (context, duration, and intensity), as required by CEQ, to the impacts to resources such as wildlife or water quality; however, it is difficult to quantify or otherwise determine the impact of a temporary loss of a right. In consultations for the 2007 FEIS and this EIS, the Shoshone-Bannock Tribes noted that any loss of Treaty Rights is significant to them and could potentially affect all tribal members.

The overall impact to Treaty Rights access from the Proposed Action would be local, temporary, and negligible (less than 0.1 percent of the CTNF).

Recreation

There would be impacts to solitude, and the temporary loss of dispersed recreation opportunities in the area disturbed by the Project. The opportunity for recreation uses would be re-established on these areas following reclamation. Recreation impacts to the Tribes would be local, short-term, and negligible.

Cultural Resources and Traditional Use Sites (including Tribal Historical/Archaeological Sites, Rock Art, and Sacred Sites)

There would be no impacts to tribal historic/archaeological sites as no Tribal historical or prehistoric archaeological sites have been identified within the Project Area. See **Sections 3.14** and **4.14** (Cultural Resources). No occurrences of rock art, sacred sites (EO 13007), or Traditional Cultural Properties (NHPA) have been identified in the Project Area.

The Tribes have stated that there are traditional use sites in the Project Area. The Proposed Action would affect those sites where they occur within the Project Area. In addition to the permanent alterations of the Project Area, the Proposed Action would cause changes to the local landscape. Changes to the landscape would have negligible to minor impacts on nearby ceremonial or traditional use sites, depending on whether they could be seen from those sites.

Water Resources

Impacts to water resources are discussed in detail in **Section 4.4**. Runoff associated with the Proposed Action would be contained, which would minimize contribution of sediment to local streams. Implementation of the GCLL under the Proposed Action is anticipated to reduce selenium concentrations in water sources over that predicted under the No Action Alternative.

Wetlands

Impacts to wetlands are discussed in detail in **Section 4.7**. No WOUS, including wetlands, were identified within the Project Area for the Panel F ore conveyor system, thus there would be no impacts. One 0.002-acre wetland in the Wells Canyon drainage would be negligibly impacted in the Panel G portion of the Project Area.

Vegetation

Impacts to vegetation are discussed in detail in **Section 4.6**. Vegetation would be cleared from approximately 170 acres of the Project Area under the Proposed Action. Clearing could include plants of traditional importance to the Tribes as discussed in Section 3.14 of the 2007 FEIS.

Reclamation would include revegetation with short-lived grass species intended to help stabilize the reclaimed surfaces from erosion as well as long-lived native bunch grasses and forbs. The goal of the selected revegetation mix is to establish healthy native bunch grass communities that are structurally diverse and allow succession of native species over time. Other native forbs, shrubs, and trees would be seeded or planted in clusters where they are most likely to establish, with exception of the area covered by the GCLL, which would never be allowed to reforest. Some species of traditionally important plants indicated in Section 3.14 of the 2007 FEIS would be included. This would constitute a short-term and minor impact to Tribal access to vegetation in the Project Area.

Wildlife

Big Game. Impacts to big game would involve displacement and alterations of normal movement routes. The implementation of the GCLL under the Proposed Action would reduce the levels of selenium in water sources, and would be expected to reduce the possibility of selenium accumulation by big game (selenium accumulation by big game is described in the 2007 FEIS).

Wolves. Wolves may alter their normal movement patterns to avoid the Project Area, but no direct impacts (i.e., mortality) are expected.

Bald Eagles. There are no bald eagle nests within 2.5 miles of the Project Area. The Proposed Action would result in the removal of potential roost trees located away from Crow Creek; however, large roost trees are not a limiting factor in the area, and bald eagles would still have many roost trees available to them. Approximately 158 acres of forest containing potential roost trees for bald eagles would be lost under the Proposed Action, leaving numerous acres of adjacent forest habitat undisturbed. Project-related noise and activities have the potential to displace wintering bald eagles into adjacent suitable habitat. Impacts to bald eagles are expected to be site-specific, short-term, and negligible.

Small Mammals and Birds. Any greater sage-grouse individuals in the Project Area would be displaced, and noise or increased human presence may cause moderate effects to birds in the vicinity for the duration of active mining and reclamation activities. No direct mortality is expected. Regarding rabbits, rockchucks, and squirrels, individuals in the disturbance areas under the Proposed Action would be displaced or killed. Displaced individuals may cause increased competition in adjacent populations that may lead to increased mortality or decreased reproductive rates. Similar to big game, concentrations of selenium would be expected to decrease in small mammals and birds under the Proposed Action due to implementation of the GCLL. Impacts to these wildlife for exercising Treaty Rights in the Project Area under the Proposed Action would be minor in the short- and long-term.

Fisheries

Impacts to fisheries are discussed in detail in **Section 4.9**. No impacts to intermittent or perennial stream channels or potentially suitable habitat for fisheries, amphibians, or aquatic resources would occur from the Panel F ore conveyor system. With regard to the Panel G portion of the Project, use of the GCLL may further reduce potential long-term impacts from COPCs to water resources compared to the currently approved mine plan for Panel G. Thus, no impacts to YCT are expected from the Proposed Action. There would be site-specific, long-term, and negligible to minor impacts to AIZs at Panel G from the Proposed Action.

Air Quality

The Proposed Action would meet NAAQS and IDEQ air quality standards. There would be no air quality impacts to Treaty Rights.

Panel F Ore Conveyor System

The Panel F portion of the Project Area would not be available to support treaty resources or for exercising Treaty Rights that depend on the existing surface resources within the footprint of the proposed disturbance area.

Panel G Lease Modification, ODAs, GCLL, and Stormwater Control Features

The Panel G portion of the Project Area would not be available to support treaty resources or for exercising Treaty Rights that depend on the existing surface resources within the footprint of the proposed disturbance area.

4.15.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under Alternative 1, substitution of a geologic store and release cover for approximately 250 acres that would receive a GCLL under the Proposed Action would not affect the ability to meet water quality standards, and no additional impacts to fisheries would be anticipated. Therefore, impacts to Treaty Rights would be the same as described under the Proposed Action.

4.15.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under Alternative 2, impacts to Treaty Rights would similar to those described under the Proposed Action. The lease modification area would be reduced by 40 acres compared to the Proposed Action. The East ODA expansion would also be reduced, so that 46 less acres would be disturbed where the exercise of Treaty Rights may be affected. A geologic store and release cover would be substituted for a GCLL on approximately 257 acres, but this would not affect the ability to meet water quality standards and no additional impacts to fisheries would be anticipated. Overall impacts to Native American concerns and Treaty Rights resources would be slightly less than under the Proposed Action.

4.15.2.4 No Action Alternative

Impacts to Treaty Rights resources under the No Action Alternative would be the same as those described in the 2007 FEIS for mining activities approved by the 2008 RODs. Mining in Panels F and G would continue under the previously approved M&RP. There would be a 50 percent reduction in the amount of ore mined under the No Action Alternative from the amount approved by the 2008 RODs; however, this would not change the impacts to Treaty Rights resources.

4.15.3 Mitigation Measures

No mitigation measures for Native American concerns or Treaty Rights resources specific to this Project have been identified, all applicable mitigation measures required by the 2008 RODs for the approved mining operations at Panels F and G would apply to the Proposed Action or Action

Alternatives. Resource-specific mitigation measures are addressed in the applicable sections of this EIS.

4.15.4 Unavoidable (Residual) Adverse Impacts

The temporary use of federal lands for the Project would affect the exercise of Treaty Rights during the life of the Project and subsequent reclamation. The potential for the indirect impact of selenium uptake due to bioaccumulation in plants and animals utilized by the Tribes would be minimized by EPMs required by the 2008 RODs and/or specific to this Project. The change in topography as a result of the Project represents an unavoidable adverse impact to lands of cultural importance to the Tribes.

4.15.5 Relationship of Short-term Uses and Long-term Productivity

The general area of southeastern Idaho is of cultural importance to the Tribes. Although no specific areas of traditional cultural significance have been identified within the Project Area, the short-term use of natural resources and the temporary unavailability during the Project activities would adversely impact the long-term productivity of these lands in terms of providing Treaty Rights resources.

4.15.6 Irreversible and Irretrievable Commitment of Resources

The Project represents an irretrievable commitment of Treaty Rights resources for the duration of Project activities and reclamation of the area. The change in topography as a result of the Project represents an irretrievable commitment of lands of cultural importance to the Tribes.

4.16 TRANSPORTATION

4.16.1 Issues and Indicators

The following issue was identified through scoping, and an indicator developed to address it.

Issue: The analysis should determine if there would be an increase in mine traffic going to Panel G on the Crow Creek Road and if Wells Canyon Road would be open to traffic going to Georgetown.

Indicator: Changes in traffic on public transportation routes resulting from the Proposed Action.

4.16.2 Direct and Indirect Impacts

4.16.2.1 Proposed Action

Panel F Ore Conveyor System

The Panel F ore conveyor system would extend from Lease IDI-27512 to Lease IDI-012890, primarily following an existing haul road located either on lease or within an existing SUA. The conveyor system would not impact any public access routes, and thus would have no impact on public transportation.

The conveyor system would not impact employment at the mine, and thus would not result in indirect impacts to transportation on public access routes in the area surrounding the mine.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under the Proposed Action there would be no impact to any existing public access routes from expansion of the ODAs or from stormwater control features associated with the GCLL. Ore mined from Panel G would be transported to the north end of Panel F via haul trucks as analyzed in the 2007 FEIS and authorized by the 2008 RODs; thus there would be no new impacts to transportation from the Panel G portion of the Project beyond those previously analyzed. There would be no traffic associated with the Proposed Action to the Panel G area via Crow Creek Road or the Wells Canyon Road. All mine access to Panel G would occur along the Panel G West Haul Road analyzed by the 2007 FEIS and approved by the 2008 RODs.

4.16.2.2 Alternative 1: Proposed Action with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 1 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Under this alternative, impacts to transportation resources would be the same as described under the Proposed Action. This is because the amount and location of disturbance would be the same as for the Proposed Action, and use of the mixed cover for Alternative 1 would not affect transportation.

4.16.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Panel F Ore Conveyor System

Because the design of and disturbance from the Panel F ore conveyor system under Alternative 2 would be the same as the Proposed Action, impacts under this alternative would be the same as described under the Proposed Action.

Panel G Lease Modification, ODAs, Cover, and Stormwater Control Features

Approximately 86 acres of new disturbance and 10.6 acres of stormwater features associated with the East ODA would occur under Alternative 2, which would be approximately 46 acres less than that under the Proposed Action. No public roads or transportation routes occur in the area of disturbance and use of the mixed cover would not affect transportation. Therefore, under Alternative 2, impacts to transportation resources would be the same as described under the Proposed Action.

4.16.2.4 No Action Alternative

Impacts to transportation under the No Action Alternative would be the same as those described in the 2007 FEIS for mining activities approved by the 2008 RODs. Mining in Panels F and G would continue under the previously approved M&RP. There would be a 50 percent reduction in the amount of ore mined under the No Action Alternative from the amount approved by the 2008 RODs; however, this would not change the impacts to transportation.

4.16.3 Mitigation Measures

Because there would be no impacts to public transportation routes under the Proposed Action, there would be no mitigation measures required.

4.16.4 Unavoidable (Residual) Adverse Impacts

There would be no impacts, adverse or otherwise, to public transportation routes from the Project.

4.16.5 Relationship of Short-term Uses and Long-term Productivity

Because there would be no impacts to public transportation routes under the Project, the short-term uses and long-term productivity of transportation resources would not be affected.

4.16.6 Irreversible and Irretrievable Commitment of Resources

Because there would be no impacts to public transportation routes under the Project, there would be no irreversible or irretrievable commitment of resources by the Project.

4.17 SOCIAL AND ECONOMIC RESOURCES

4.17.1 Issues and Indicators

The following issue was identified through scoping, and indicators were developed to address it.

Issue: The mine is a major employer in the area and the surrounding communities have a vested interest in assuring the mine maintains a profitable position at this location.

Indicators:

- Changes in employment that would result from operational changes at the mine; and
- Changes in mine operations affecting overall profitability, which would have indirect effects on local social and economic conditions.

In addition, the following indicators used for analysis in the 2007 FEIS were also used to evaluate other impacts to social and economic resources resulting from the Project:

- Acres to be removed from historic land uses with local heritage value;
- Estimated noise levels from mining operations that could affect social resources;
- Amount of royalties received by governments;
- Percentage of U.S. phosphate fertilizer market derived from Smoky Canyon Mine;
- Predicted levels of any offsite contamination of water, soil, and vegetation of farms and ranches within the Project Area with emphasis on compliance with applicable standards. See also **Section 4.4** (Water), **Section 4.5** (Soils), and **Section 4.6** (Vegetation); and
- Relative potential change of property values due to mining operations in the area.

4.17.2 Direct and Indirect Impacts

Social and economic impacts were evaluated at three different levels: 1) the effect on the Star Valley area of Wyoming, which includes the towns of Afton and Thayne; 2) the four-county area of Bannock, Caribou, and Power counties, Idaho, and Lincoln County, Wyoming; and 3) an expanded twenty-seven-county area that was used to determine the indirect and induced employment and wages resulting from operation of the Smoky Canyon Mine and the Don Plant. Star Valley is the place of residence for most of the mine's employees. The four-county area is influenced by both Smoky Canyon Mine and the Don Plant in Pocatello.

Direct social and economic impacts are those that are caused by the action and occur at the same time and in the local area of the action, including such things as Smoky Canyon Mine and Don Plant employment, royalties, and income tax.

Indirect social and economic impacts are those that are caused by the action, but may occur later in time or are farther removed from the location of the action including such things as indirect or induced employment and the purchase of goods and services.

This EIS does not attempt to quantify either the real estate value of any individual property in areas adjacent to the Project Area or the amount that any individual property may change in value. However, it does try to identify the characteristics/amenities that subjectively influence property values and describe those which may be affected. It is possible that either the any of the alternative could affect the characteristics/amenities that influence property values in the Crow Creek Valley. Proximity to the mine expansion and related facilities would likely determine the degree to which characteristics/amenities are affected. Because the Agencies cannot approve any alternative that would violate laws, impacts to resources such as water quality and TEPC species would likely have little effect on property values. Mining impacts on visual resources, noise, and recreational resources can play a role in indirect effects on property values, although the role of each is subjective. There are also factors outside the influence of the Proposed Action and No Action Alternative that can affect property values, such as the recovery from the bursting of the real estate bubble and ensuing financial crisis 2007 through 2012.

4.17.2.1 Impacts Common to All Alternatives

Employment at the mine would not change regardless of the alternative selected. Under the Proposed Action, existing mine staffing levels would be required to execute mining operations at Panel G. Implementation of the proposed conveyor system would reduce the number of haul trucks required to move ore from Panel F to the mill; however, the mine would reassign affected personnel to other mining operations at the Smoky Canyon Mine. Therefore, there would be no direct or indirect impacts to employment in the Star Valley or four-county areas, and there would be no impact to induced employment in the twenty-seven-county area from direct employment at the mine.

The majority of the operating inputs for both the Smoky Canyon Mine and the Don Plant are purchased in southeastern Idaho. Most of the heavy equipment parts and operating supplies required by the mine are purchased from dealerships in Pocatello, Idaho. Some engineering supplies are purchased from suppliers in Salt Lake City, Utah. The fertilizer plant purchases natural gas from producers in the Rocky Mountains. The area examined to determine indirect and induced employment was expanded from the four counties to the twenty-seven-county area

shown in Figure 3.16-2 of the 2007 FEIS to capture the effect of the Don Plant on the natural gas producing areas in the Rocky Mountains.

4.17.2.2 Proposed Action

Property values along Crow Creek Road may be affected by the Proposed Action due to perceived changes in the environment of the Project Area. It is beyond the scope of this EIS to predict in detail how such land values would be impacted. However, the Proposed Action could affect some of the areas' characteristics/amenities that subjectively affect property values (i.e., noise, visual, recreation); these impacts may be positive or negative and may change over time as desired property characteristics change. Most of the expected disturbance related to the Proposed Action would be approximately two miles or more from the Crow Creek Valley area.

The effects on air quality from the Proposed Action are described in **Section 4.2** and are estimated to be in compliance with applicable air quality standards and regulations in the vicinity of Crow Creek Valley. Air quality impacts from the Proposed Action are not expected to have an impact on property values in Crow Creek Valley.

Noise effects from the Proposed Action are discussed in **Section 4.2**. The addition of the Panel F ore conveyor system would not contribute to the noise environment, and noise impacts from the Panel G portion of the Project would be the same as those described in the 2007 FEIS.

The effects of the Proposed Action on water resources are described in **Section 4.4**. Implementation of the GCLL is anticipated to reduce the potential for environmental contamination from Panel G disturbances; however, decreases in surface or groundwater quality in some areas may still occur. Any reduction in water quality could be perceived by Crow Creek residents as a negative change of the characteristics of the affected properties.

The effects of the Proposed Action on local recreation and land use are described in **Section 4.11**. Considering the overall recreation resource of the area, the impact to recreation from the Proposed Action during the active mining phase would be minor. After reclamation, the area would be expected to provide the same types of recreation use as is currently available with quality of experience slightly degraded in comparison to the experience prior to mining activities, due to reduced naturalness of the area. The overall long-term impact to recreation from the Proposed Action would be minor.

The visual impacts of the Proposed Action are described in **Section 4.13** and would be negligible to minor for viewers from the observation points where the Project components would be visible (or from similar points in the surrounding area).

The Proposed Action would not result in changes to traffic in the Crow Creek valley (**Section 4.16**) as employment levels would not change, and changes in mine operations under the Proposed Action would not affect public roadways.

Impacts from the Proposed Action to social issues associated with heritage resources are addressed under Cultural Resources in **Section 4.14**. Impacts to social issues related to Treaty Rights are addressed under Environmental Justice in **Section 4.18**.

Four-County Area

The Proposed Action would result in continued economic benefits to the economy of Bannock, Caribou, and Power counties, Idaho, and Lincoln County, Wyoming, as described in the 2007

FEIS. The primary benefits to local and state governments are royalties paid for mining on federally owned land, and other income and property taxes. The Smoky Canyon Mine pays a federal lease royalty of five percent of the gross value mined. One-half of the royalty is returned to the Idaho state government, which in turn disburses 10 percent of those funds to Caribou County, the county in which the mine is located. The mine also pays property taxes directly to Caribou County; these payments would continue under the Proposed Action. As mentioned in Chapter 3 of the 2007 FEIS, the Smoky Canyon Mine provides royalty payments that range from 1.6 to 2.0 million dollars annually. Mine employees also pay income, sales, and other taxes.

Twenty-Seven-County Area

The Proposed Action would not result in impacts to land ownership, population, demographics, personal income, local infrastructure, local government finances, agricultural economics, the phosphate industry, property taxes, or mine profits taxes beyond those described in the 2007 FEIS because mine and plant production would not change from that evaluated in the 2007 FEIS. The continuing ore supply to the Pocatello fertilizer plant would be as described in the 2007 FEIS.

4.17.2.3 Alternative 1: Proposed Action with Mixed Cover

Under Alternative 1, substitution of a geologic store and release cover for approximately 250 acres that would receive a GCLL under the Proposed Action would not change impacts to social and economic resources; therefore, the impacts would be the same as described under the Proposed Action.

4.17.2.4 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Compared to the Proposed Action, Alternative 2 would result in 40 acres less for the lease modification area, approximately 46 acres less disturbance for the East ODA, and substitution of a geologic store and release cover for a GCLL on 257 acres. However, these differences would not change the analysis outcome, and impacts to social and economic resources would be the same as described under the Proposed Action.

4.17.2.5 No Action Alternative

Under the No Action Alternative, impacts to property values along Crow Creek Road, and the resources that can affect property values, would generally be the same as those described in the 2007 FEIS. Mining 50 percent less ore from the Panel G pit would not affect area resources that affect property values.

Impacts from the No Action Alternative to social issues associated with heritage resources are addressed under Cultural Resources in **Section 4.14**. Impacts to social issues related to Treaty Rights are addressed under Environmental Justice in **Section 4.18.**

Four-County Area

The Proposed Action and Action Alternatives would result in continued economic benefits to the economy of Bannock, Caribou, and Power counties, Idaho, and Lincoln County, Wyoming. The primary benefits to local and state governments are royalties paid for mining on federally owned land, and other income and property taxes. The Smoky Canyon Mine pays a federal lease royalty of five percent of the gross value mined. One-half of the royalty is returned to the Idaho state

government, which in turn disburses 10 percent of those funds to Caribou County, the county in which the mine is located. As mentioned in Chapter 3 of the 2007 FEIS, the Smoky Canyon Mine provides royalty payments that range from 1.6 to 2.0 million dollars annually. The mine also pays property taxes directly to Caribou County and other government entities, such as school districts. These payments would continue under the No Action Alternative; however, royalties paid for mining of Panel G would be reduced because approximately half of the ore would not be mined.

Twenty-Seven-County Area

Under the No Action Alternative, Simplot would blend ore from Panel G ore and other parts of the mine to produce a continuing ore supply to the Don Plant as described in the 2007 FEIS. This would result in little or no change in output or operation of the Don Plant. Therefore, the No Action Alternative would not result in direct impacts to land ownership, population, demographics, personal income, local infrastructure, agricultural economics, the phosphate industry, or property taxes, beyond those described in the 2007 FEIS.

However, when the economically viable phosphate resource is ultimately exhausted, the total lifespan of mine operations at the Smoky Canyon Mine and production of phosphate at the Don Plant would be reduced due to the amount of ore not mined from Panel G, potentially resulting in adverse long-term indirect impacts.

4.17.3 Mitigation Measures

No mitigation of social or economic resources is necessary for the Project.

4.17.4 Unavoidable (Residual) Adverse Impacts

There would be no residual adverse impacts to social or economic resources as a result of the Proposed Action or Action Alternatives.

4.17.5 Relationship of Short-term Uses and Long-term Productivity

The relationship of short-term uses and long-term productivity under the Proposed Action or Action Alternatives would be the same as that described in the 2007 FEIS for mining activities approved by the 2008 ROD.

4.17.6 Irreversible and Irretrievable Commitment of Resources

The irreversible and irretrievable commitment of resources under the Proposed Action or Action Alternatives would be the same as that described in the 2007 FEIS for mining activities approved by the 2008 RODs.

4.18 ENVIRONMENTAL JUSTICE

4.18.1 Issues and Indicators

Scoping did not identify any issues related to environmental justice; however, impacts are still evaluated in this section.

The primary indicators of impacts to environmental justice would be:

- Inability to exercise Treaty Rights or access treaty resources;
- Impacts to treaty resources; and
- Exceedances of standards protective of human health for selenium in water, fish, and wildlife.

4.18.2 Direct and Indirect Impacts

4.18.2.1 Proposed Action

Based on the analysis in the following sections, it has been determined that the Proposed Action would not cause disproportionately high and adverse effects on any minority or low-income populations as per EO 12898 regarding environmental justice.

The communities of Afton and Fairview, Wyoming, and ranchers along Crow Creek Road would continue to be affected by the presence of the Smoky Canyon Mine, but none of these communities are minority or low income as a whole, and none would be exposed to high and adverse environmental impacts (BLM and USFS 2007).

Risks associated with the consumption of water, fish, wildlife, and other natural resources possibly impacted by the Project were discussed to determine the potential for human health or environmental affects in Section 3.1 of the 2007 FEIS. As discussed in **Sections 4.4**, **4.6**, and **4.8** (Water, Vegetation, and Wildlife), EPMs and mitigation measures, in addition to the implementation of the GCLL, would preclude uptake of selenium in plants and animals and prevent water contamination above applicable State standards. Therefore, there would be no disproportionately high or adverse human health or environmental effects to the Shoshone-Bannock Tribes as a result of the Proposed Action.

Impacts to Treaty Resources

Noise and activity associated with Proposed Action would affect the distribution of wildlife in and adjacent to the Project Area. Timber, understory vegetation, and soil would be removed in the Project Area but remain undisturbed beyond the perimeter (**Sections 4.5** and **4.6**). Wildlife would also be displaced from the Project Area into adjacent suitable habitat (**Section 4.8**). Wildlife in areas adjacent to the Project Area would be disturbed by the nearby activity. Some wildlife would eventually adjust to the disturbance and would populate these areas. The degree to which small mammals and big game would be displaced outside the Project Area is uncertain.

The Proposed Action includes EPMs and mitigation measures, such as use of the GCLL and associated stormwater features, to minimize chemical and sediment impacts on aquatic and terrestrial wildlife species.

Reclamation would be concurrent with mining progress, resulting in regraded overburden fills that are in different stages of reclamation, ultimately leading to a condition where grass and forb coverage is restored. Depending on the final seed and plant mix approved by the USFS, reclamation vegetation may contain species with traditional values. Small mammals and big game would gradually re-occupy the reclaimed disturbance areas. The new patterns of vegetation (forest and grassland) along the reclaimed ODAs would present new wildlife habitat patterns as well, which could result in increased use of the reclaimed areas by big game, small mammals,

and raptors. While the GCLL would be prevented from reforesting, it would still be expected to host a variety of wildlife after reclamation.

Although these resources are being described as Treaty Rights resources, these resources are also available to other forest users, and therefore the impacts affect all users.

Selenium in Water, Fish, And Wildlife

Implementation of the GCLL under the Proposed Action is expected to reduce selenium concentrations in water sources, and therefore reduce uptake by vegetation and wildlife to a greater extent compared to the No Action Alternative.

Inability to Exercise Treaty Rights or Access Treaty Resources

The Caribou National Forest and Grasslands include over 1,000,000 acres of largely undeveloped land, and most of these acres are available to practice Treaty Rights. The Project Area would include approximately 170 acres of new disturbance, or less than 0.01 percent of the land potentially available for Tribal use. Tribal members would retain access to the remaining acres of unoccupied public lands within southeast Idaho (BLM, USFS, etc.). There are no unique resources in the Project Area that are not available on the rest of the CTNF.

The physical effects of the Proposed Action disturbance itself, hence the physical surface resources affected by the disturbance, would be limited to the Project Area, a very small part of lands available for tribal Treaty Rights. The physical occupation of the Project Area for the Proposed Action would be for a limited time and then the majority of the disturbance area (except for 10.6 acres of stormwater control features) would be reclaimed; therefore the impacts to Treaty Rights would be temporary (see **Section 4.15**).

4.18.2.2 Alternative 1: Proposed Action with Mixed Cover

Under Alternative 1, impacts to environmental justice would be the same as those described under the Proposed Action and there would be no disproportionately high and adverse effects on any minority or low-income populations. Implementation of a geologic store and release cover in place of the GCLL over approximately 250 acres would assure that water quality standards continue to be met, similar to the GCLL.

4.18.2.3 Alternative 2: Reduced East ODA Expansion with Mixed Cover

Under Alternative 2, impacts to environmental justice would be similar to those described under the Proposed Action and there would be no disproportionately high and adverse effects on any minority or low-income populations. There would be approximately 46 acres less new disturbance under this alternative compared to the Proposed Action. As a result, the inability to exercise Treaty Rights or access Treaty Rights resources would be slightly less under Alternative 2 than under the Proposed Action.

4.18.2.4 No Action Alternative

Impacts to environmental justice under the No Action Alternative would be the same as those described in the 2007 FEIS for mining activities approved by the 2008 RODs. Mining in Panels F and G would continue under the previously approved M&RP. There would be a 50 percent reduction in the amount of ore mined under the No Action Alternative from the amount approved by the 2008 RODs; however, this would not change the impacts to environmental justice.

4.18.3 Mitigation Measures

Mitigation measures for environmental justice are not deemed necessary because there would be no disproportionately high or adverse human health or environmental effects to the Shoshone-Bannock Tribes as a result of the Project.

4.18.4 Unavoidable (Residual) Adverse Impacts

Because there would be no disproportionately high or adverse human health or environmental effects to the Shoshone-Bannock Tribes as a result of the Project, there would be no unavoidable adverse impacts to environmental justice.

4.18.5 Relationship of Short-term Uses and Long-term Productivity

There would be no disproportionately high or adverse human health or environmental effects to the Shoshone-Bannock Tribes as a result of the Project, thus environmental justice would not be affected by this Project in either the short or long term.

4.18.6 Irreversible and Irretrievable Commitment of Resources

As described in other sections in this chapter, the expansion of the ODAs could modify the land in such a way that its future use for exercise of Treaty Rights would be irreversibly and/or irretrievably changed (i.e., vegetation communities may be permanently altered, particularly in areas that would be covered by the GCLL).

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